

Village Fund Realization, Leadership Capacity, and Geographical Barriers: Evidence from 1,841 Villages in Central Sulawesi, Indonesia

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ABSTRACT

This study aims to analyze the influence of the realization of village funds, the capacity of the village head, and the geographical barriers on the performance of the village government. Based on 1,841 villages in Central Sulawesi using Fixed Effect Regression, it was found that the realization of village funds and the education level of the village head had a significant positive influence on the performance of the village government, while the geographical barriers had a significant negative influence on the performance of the village government. Therefore, it can be concluded that optimizing the use of village funds, increasing human resource capacity, and reducing geographical barriers are important factors in encouraging the effectiveness of village governance. From the findings, it is hoped that it will be an encouragement for the government to improve village development through increasing the realization of targeted village funds, paying attention to certain aspects in the recruitment of village heads, and the use of special strategies to overcome performance gaps in villages far from the city/district center.

Keywords: Village Development Index, Fiscal Decentralization, Local Governance.

INTRODUCTION

The slogan "Building Indonesia from the Periphery" illustrates that village development is one of the important efforts in improving the welfare of the (Nurpuspita et al., 2019). One of the government's efforts to measure and monitor the progress of development in villages in 2015 through the village SDGs, the government officially issued the Village Development Index or IPD (Ansari, 2023). IPD aims to provide a comprehensive picture of the level of progress of villages in various social, economic, and environmental aspects (Defrina Sarapung et al., 2024).

IPD has a vital role in providing assessments and directions related to village development in Indonesia. In line with this, the government encourages the improvement of the performance of the apparatus in providing public services, including at the village level as part of the government structure region (Kusnendar, 2018). The existence of Law Number 6 of 2014 concerning Villages provides a more comprehensive legal foundation to support the implementation of IPD, by emphasizing the importance of participatory, transparent, and accountable village government management. The law is also the legal basis for the implementation of village development performance measurement and evaluation activities to be in line with the principles of democracy and good governance at the village level (Hartoyo et al., 2024).

Village government is the most basic government at the level of the national government system (Nabilah & Fikriana, 2023). This shows that village governments are at the forefront of public services because they are the closest to the community. Therefore, the village government is required to always give its best performance in the implementation of public services. The



performance of the village government is an important indicator in assessing the effectiveness of government administration at the village level (Handraini et al., 2024). Performance can be understood as the achievement of an activity, program, or policy that has been designed through a strategic plan, to achieve goals, objectives, as well as vision and mission in the organization (Moehariono, 2012).

In the context of village government, this achievement is a reflection of the success of the implementation of government and services to the community in an optimal and sustainable manner. This includes aspects of planning, implementing, and evaluating development programs and public services to the local community (Rudiadi et al., 2021). Performance can be a benchmark for the achievement of the implementation of activities, programs, or policies that have been planned (Feber & Iskandar, 2025). These achievements are a manifestation of organizational goals that are expected to be achieved optimally and sustainably (Lubis et al., 2020).

It is appropriate for the village government and the community to provide full support for the success of village development. As public servants, the village government must have the best ability to carry out government and development tasks. Improving the quality of employees can be seen from these abilities. This is especially seen in the development of a positive mental attitude and work spirit (Natsir et al., 2021). However, of course, there are still villages that face difficulties in improving the performance of their government. Lack of human resources, inadequate infrastructure, and difficult accessibility are the problems faced (Risal, 2023). This is shown by the average performance value of national village governments in 2024 which is only 33.79 percent (Ministry of Finance of the Republic of Indonesia, 2024). Several important elements, such as financial management, program implementation, and reporting accountability are shown in the score.

The preparation and reporting of village finances is also still a problem. Many villages are still late in submitting their accountability reports, and some of them still do not meet the central government's accountability requirements (Ministry of Home Affairs of the Republic of Indonesia, 2024). This condition shows that evaluation of factors that affect the performance of the village government is very necessary, so that the implementation of the government and public services at the village level can run more optimally.

There are several factors that are suspected of affecting the performance of the village government. These factors include village funds, capacity of village head, and the distance to the center of government (Uamang, 2024). Village funds are a source of funding provided to villages to support the implementation of community development and empowerment programs. In its use, 30 percent of the funds are usually used for operational costs and the remaining 70 percent to carry out the physical development of the village and community empowerment (Rizal et al., 2024). The level of education of course also affects the ability and management of village programs. The leadership style of the village head certainly affects the achievement of the planned program, so that the ability to lead a village head will determine how much the performance of the government being led (Supriadi, 2021). Meanwhile, the distance to the center of government can also affect village access to resources and information needed to support the performance of the village government. Travel time can affect community productivity and hinder village economic growth (Permatasari, 2024).

Research on similar topics has been done before. Previous studies have shown that the allocation of village funds and their management In the research of Rizal et al. (2024) found that the allocation of village funds and their management makes a significant contribution to the performance of village heads in Samalanga District, Bireuen Regency. In line with this, research by Felisitas et al. (2023) shows that effective management of village funds through the Village Financial System (SISKEUDES) has a positive influence on the performance of the village government in Dogang District. Furthermore, research by Situmorang et al. (2021) found that the level of education of village heads has a very positive effect on improving the development of a village. However, research by Yulistina & Tahwin (2024) shows that education level does not always have a significant effect on community empowerment, which is one of the indicators of village government performance. In general, a higher level of education for village heads can improve the performance of village governments. In addition, there is also a study by Furqan et al. (2023) which

found that village assistance does not seem to have made a significant contribution to village development, and also found that village development in Indonesia is not even in terms of topography.

The phenomenon and some previous studies have created gaps or gaps that must be filled with this research. Although several studies have found that village fund allocation, village head education level, and geographical barriers have an effect on village development in general, there have not been many special studies that examine how these three variables affect village government performance. Therefore, this study aims to analyze the influence of village fund realization, village head education level, and distance on village government performance. In this study, the level of performance of the village government was obtained from the Building Village Index (IDM) which is a measuring tool to assess the development and independence of a village.

LITERATURE REVIEW

Theory of the Upper Echelons

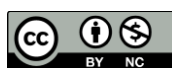
The Upper Echelons theory is a theory developed by Hambrick and Mason in 1984 (Carpenter et al., 2004). In this theory, it is stated that the characteristics of leadership in an organization including experience, personal values, educational background, and demographics, will greatly influence how the organization is run and strategic decisions will be made. In the context of village government, the village head as the supreme leader plays a key role in managing policies, budgets, and public services (Retnani et al., 2024). The education level of the village head is one of the important indicators because the higher the level of education, the greater the ability to understand regulations, manage village funds, and interact professionally with the community and institutions above it (Nursin et al., 2023). Thus, this theory supports that there is a difference in performance between villages can be explained through differences in the characteristics of the village head. Education as a representation of the quality of village leaders' human resources has the potential to have a significant influence on the effectiveness of program implementation and the overall performance of village government. In this study, the theory of upper echelons can provide a preliminary overview of the influence of the education level of the village head on the performance of the village government.

Agency Theory

Agency theory is a theory that explains the relationship between two parties, namely the principal or mandate giver and the agent or mandate recipient. This theory was developed by Jensen and Meckling in 1976 (Shafitri et al., 2025). In the case of village government, the central government or the community plays the role of principal, while the village head takes the role of an agent who is entrusted in carrying out development programs and public services. This theory focuses on potential conflicts of interest between the principal and the agent, especially if the agent acts more in the interests of the private than the public interest (Duinkerken et al., 2023). The problems that arise will be exacerbated by the asymmetry of information and weak supervision as is common in remote villages with a long distance from the city center or district. Weak access to communication and control from external parties will create opportunities for moral hazard. Moral hazard opportunities are conditions when a person or party who is given responsibility (agent) has an incentive to act not in accordance with the public interest (Raharjo, 2007). In terms of village government management, moral hazard occurs when the village head abuses his authority such as in the management of village funds because he feels that it will not be detected or there are no strong enough sanctions. Therefore, in this study, agency theory is relevant in explaining how village funds and mileage can affect the performance of village governments depending on the integrity of the agency and the effectiveness of supervision.

Resource Theory

Resource Theory or known as Resource-Based Theory was first introduced by Jay Barney in 1991 (Gama et al., 2024). This theory discusses the advantages and performance of an organization determined by how far the organization is able to manage and utilize its internal resources. These resources can be in the form of physical assets (such as village funds), human resources (such as



village heads), and other non-physical resources (such as community reputation and trust) (Prayogi, 2019). In the context of village government, village funds are a form of financial resources used to develop infrastructure, services, and community welfare. Meanwhile, the education of village heads can reflect the quality of human resources which play an important role in the decision-making process and village government management. Villages that have superior resources have the potential to achieve better performance (Firdausi et al., 2023). Thus, in this study, resource theory is relevant to explain how the difference in resource capacity between villages will affect the performance of the relevant village government.

The Influence of Village Funds on the Performance of the Village Government

Village funds are funds sourced from the state budget and transferred through the district/city budget which is specifically allocated to villages (Bukhori, 2021). The purpose of village funds is to support village development by alleviating poverty, advancing the economy, overcoming development gaps between villages, and strengthening village communities as development subjects.

Some previous research has shown that appropriately allocated village funds can improve the performance of village governments. Village funds have an important role in improving the performance of village governments, especially in aspects of development and public services. Research by Felisitas et al. (2023) shows that effective management of village funds through the Village Financial System (SISKEUDES) has a positive influence on the performance of the village government in Doreng District. In addition, research by Anton et al. (2023) confirms that qualified and competent village officials have the potential to manage village funds well, so that it will have an impact on improving the performance of village governments. So it can be said that in general village funds will have a positive effect on the performance of the village government. The first hypothesis (H1) in this study is as follows.

H1: Village funds have a significant positive effect on the performance of the village government.

The Influence of the Village Head's Education Level on the Performance of the Village Government

Capacity of village head has a significant effect on the performance of the village government. Situmorang et al. (2021) in their qualitative research stated that the level of education, training, and experience has a positive influence on improving the performance of village head services. In addition, Haryati & Makarim (2023) found that the level of education has a significant effect on the performance of village workers in Pagerageug District, Tasikmalaya Regency. However, research by Yulistina & Tahwin (2024) shows that education level does not always have a significant effect on community empowerment, which is one of the indicators of village government performance. In general, a higher level of education for village heads can improve the performance of village governments. In general, a higher level of education for village heads can improve the performance of village governments.

H2: Capacity of village head has a significant positive effect on the performance of the village government.

The Effect of Mileage on Village Government Performance

The distance between the village and the city center or district will have a negative influence on the performance of the village government. In the study, Hendrarso et al. (2021) found that there is a relationship between the distance to the city center and the status of the building village index. Bura (2021) states that developed villages are villages that have access to a close central government. Thus, it can be said that long distances can hinder the performance of the village government because it is difficult to get information and resources from outside.

H3: Geographical barriers has a significant negative effect on the performance of the village government.

Table 1 Literature Mapping Table

Author	Year	Variable	Findings	Gap
Bukhori	2021	Variable X: Village Funds Variable Y: Village Government Performance	Village funds from state budget are aimed at reducing poverty, advancing economy, and strengthening communities.	Did not emphasize the implementation mechanism and the direct effect on village government performance.
Felisitas, L., Mitan, W., & De Romario, F.	2024	Variable X: Village Funds (SISKEUDES) Variable Y: Village Government Performance	Effective management of village funds through SISKEUDES has a positive impact on government performance.	Focused on Doreng District; generalization to other regions is still limited.
Anton, A., Taufik, T., Fitrius, R., & Basri, Y. M.	2023	Variable X: Competence of Variable Z: Village Officials, Village Funds Management Variable Y: Village Government Performance	Competent officials manage funds better, leading to improved performance.	Did not address other external factors (e.g., geographical access).
Situmorang, C. P., Nasution, I., & Lubis, Y. A.	2021	Variable X: Education, Training, Experience of Village Head Variable Y: Village Government Performance	Higher education, training, and experience positively influence performance.	Qualitative research, making broad generalization difficult.
Haryati, S., & Makarim, S. A.	2023	Variable X: Education Level of Village Workers Variable Y: Village Government Performance	Education level significantly affects performance of village workers in Pagerageug District.	Limited to one region (Tasikmalaya), not representative of other villages.
Yulistina, E. S., & TAHWIN, M.	2024	Variable X: Education Level Variable Y: Community Empowerment (indicator of performance)	Education level does not always significantly affect community empowerment.	Shows different results from other studies, requiring further investigation of performance indicators.
Hendrarso, P., Handoko, P., Ramdhani, M. F. A.,	2021	Variable X: Distance to City Center	Distance to city center affects development status of villages.	Did not directly examine government performance, only development index indicators.

Andayani, N., & Tania, R.		Variable Y: Building Village Index (indicator of performance)		
Bura, F. X. M	2021	Variable X: Access to Central Government Variable Y: Village Development	Villages closer to central government are more developed.	Focused on access and village status, not explicitly measuring government performance.

METHOD

Data

This study uses a quantitative method with cross-sectional data collection techniques and uses statistics as a calculation test tool. The object of this study is a village located in Central Sulawesi Province. With a research population in the form of all villages in Central Sulawesi with a total of 1,841 villages. This amount is also used as a sample in this study. The observation year used is 2023. The data sources used in this study are secondary data obtained from several agencies, namely Village Fund (DD) data from the Ministry of Villages, Village Potential data (PODES) from the Central Statistics Agency (BPS) of Central Sulawesi, and Development Village Index (IDM) data from the Village Information System (SID) of the Ministry of Villages.

Empirical Models and Variable Operationalization

To answer the problem and test the research hypothesis, the empirical model in this study is as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + e$$

Where:

Y_i = Performance of village government

X_{1i} = Realization of Village Fund

X_{2i} = Head of Village Capacity

X_{3i} = Geographical Barriers

e_i = error term

Table 2 Variable Operationalization and Data Source

Name	Variable Operationalization	Source
Performance of the Village Government (Y)	Village performance is approached using the Village Development Index value (IDM). IDM is	BPS
Realization of the Village Fund (X1)	Presentation of Village Budget Realization	Kemendes
Head of Village Capacity (X2)	The last education taken by the village head, the categorization is as follows: Never went to school – 1 Not finished Elementary/Equivalent – 2 Graduation of Elementary School/Equivalent – 3 Junior High School/Equivalent – 4 SMU/Equivalent – 5 Academy/DIII – 6 Diploma IV/S1 – 7 S2 – 8 S3 – 9	BPS

Geographical Barriers (X3)	Distance between the village and the city center in Km	BPS
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The village grouping is carried out with the following criteria:

Table 3 Value of the Building Village Index

IDM Score	Villages Status
0,000 – 0,491	Disadvantaged Villages
0,492 – 0,599	Developing Villages
0,600 – 0,707	Developed Village
0,708 – 1,000	Independent Village

Then the predictive variables used are the realization of village funds, capacity of village head, and the geographical barriers from the village to the center of the city or district. The calculation of the percentage of realization of village funds is carried out by dividing the amount of village funds that are not realized by the amount of village funds that are budgeted, then multiplied by 100 percent. The variables of the education level of the village head are measured using an ordinal scale based on the last level of education taken, namely Never went to school = 1, Didn't finish elementary school/equivalent = 2, graduated from elementary school/equivalent = 3, junior high school/equivalent = 4, high school/equivalent = 5, academy/diii = 6, diploma IV/s1 = 7, s2 = 8, and s3 = 9. Meanwhile, the geographical barriers is calculated in kilometers as the distance between the village office to the district/city government center or to the main public service facility, such as the main road or the district center. These three variables were then used to analyze their influence on the performance of the village government in various research models

Regression Assumption Test

Before interpreting the regression results, classical assumption tests are conducted to ensure validity of the model:

1. Normality Test, to check whether the residuals are normally distributed.
2. Multicollinearity Test, variance Inflation Factor (VIF) is used to test correlation between independent variables.
3. Heteroskedasticity Test, Breusch Pagan test is applied to detect unequal variance in the residuals.
4. Autocorrelation Test, although the data are cross-sectional, Durbin Watson test is conducted as robustness checking.

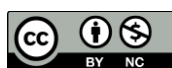
Only if these assumptions are met, the regression results can be interpreted reliably.

Estimation Approach

Since the study employs cross-sectional data, the appropriate estimation technique is Ordinary Least Squares (OLS). The use of Fixed Effect Model (FEM) is not suitable because FEM is designed for panel data (observations across time and entities). If the dataset is extended into panel data (e.g., multiple years of observation for each village), then FEM or Random Effect Model (REM) could be applied to control for unobserved heterogeneity between villages. However, because this research uses a one year cross section, the estimation relies on OLS regression with robust standard errors to handle potential heteroskedasticity. Thus, the chosen model is cross sectional regression (OLS), while acknowledging that future research could benefit from panel data and Fixed Effect estimation for stronger inference.

RESULTS

Visualization



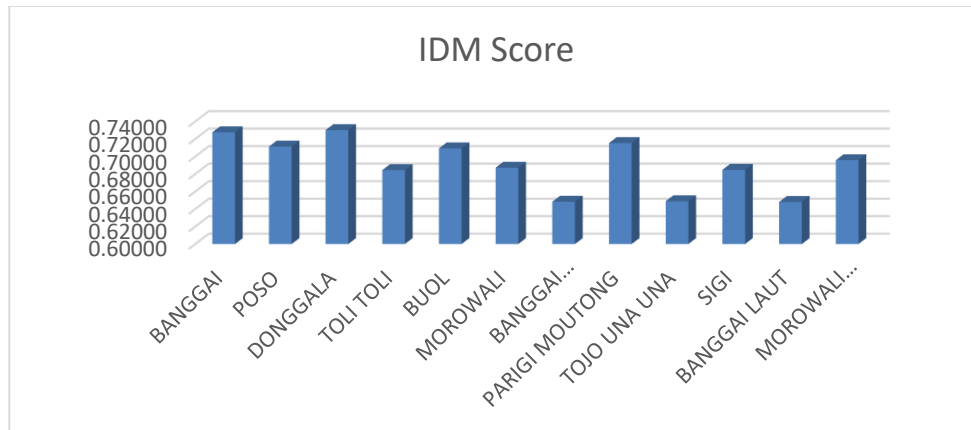


Figure 1 Visualizes of IDM Score

In each district, IDM values show significant variation. The district with the highest IDM value is Donggala (0.73008), followed by Banggai (0.72758) and Parigi Moutong (0.71537). This indicates that these three districts have achieved relatively better village development compared to others. Meanwhile, Banggai Laut (0.64808), Banggai Kepulauan (0.64836), and Tojo Una-Una (0.64891) have relatively lower IDM values, indicating challenges in village development in those areas.

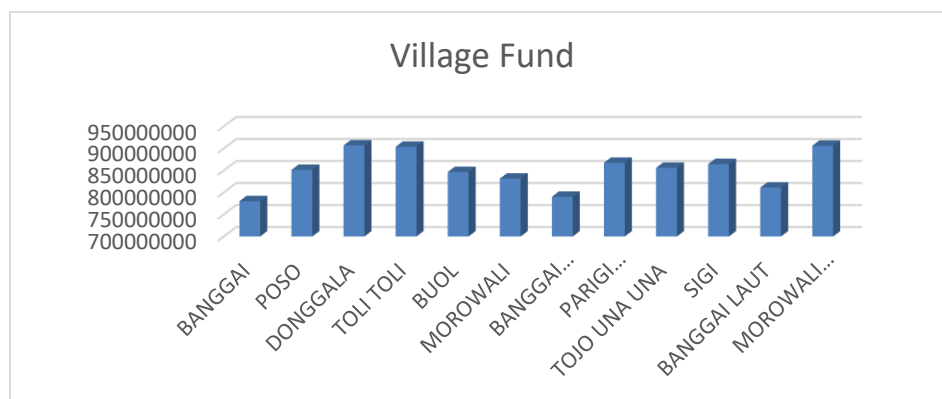


Figure 2 Visualizes of Village Fund

The average village fund allocation per district ranges from Rp780 million to Rp906 million. The districts with the highest average allocations are Donggala (Rp906.78 million) and North Morowali (Rp906.18 million), while Banggai Islands received the lowest allocation (Rp790.18 million). These differences may be influenced by the number of villages and the distribution mechanism for village funds, but overall, the amount of funds allocated does not vary significantly between districts.

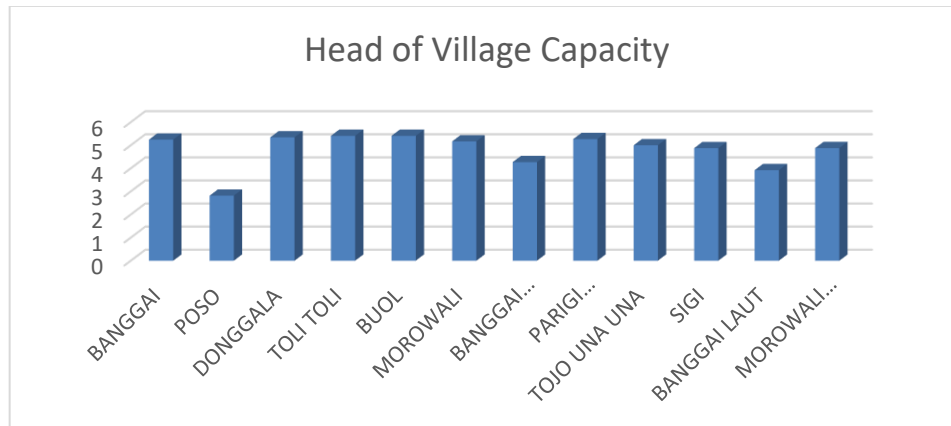


Figure 3 Visualize of Last Education Of The Village Head

The majority of village heads in the districts studied had a final level of education equivalent to high school (code 5), such as in Banggai, Donggala, Toli Toli, Buol, Morowali, Parigi Moutong, Tojo Una-Una, Sigi, and North Morowali. However, there are some areas with lower average educational levels among village heads, namely Banggai Islands and Banggai Sea (junior high school), and Poso with an even lower average educational level (elementary school). This indicates variations in the educational levels of village heads, which may have implications for managerial capacity and the quality of village governance.

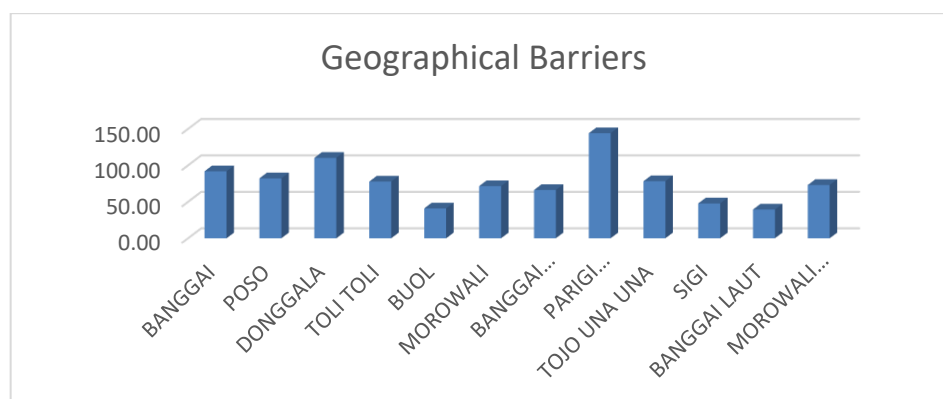


Figure 4 Visualize of Distance From The Village Head's House To The Office

The average distance to the village head's office varies greatly between districts. Parigi Moutong has the longest average distance (144.08 km), followed by Donggala (110.30 km), while Banggai Laut has the shortest average distance (39.43 km). Other districts range from 40 to 90 km. These distance differences reflect the geographical conditions and infrastructure of the region, which may potentially affect community access to village government services.

Robustness Regression

Table 4 Robustness Regression

Number of obs = 1,841
F(3, 1837) = 15.94
Prob > F = 0.0000
R-squared = 0.0259
Root MSE = .07652

nilai_idm_2023	Coefficient	Robust Std. Err.	t	P> t	[95% conf. interval]	95% CI Upper
danadesaln	.0468866	.010419	4.5	0.000	.0264522	.0673209
Pendidikan tertinggi yang ditamatkan	.0029965	.0009138	3.28	0.001	.0012042	.0047887
Jarak tempuh dari kantor kepala desa	-.0001143	-.0000305	-3.75	0.000	-.0001742	-.0000545
Constant	-.2702252	.2133276	-1.27	0.205	-.6886152	.1481648

Source: Secondary data, STATA-17 output (Processed, 2025).

The results of the robustness check regression indicate that several independent variables significantly influence the Village Development Index (IDM). First, village funds (danadesaln) show a positive and statistically significant effect, with a coefficient of 0.0469 ($p < 0.001$). This suggests that an increase in village fund allocation contributes to an improvement in the IDM score, emphasizing the importance of financial resources in supporting rural development. Similarly, the level of education completed (pendidikan tertinggi yang ditamatkan) also has a positive and significant effect on IDM, with a coefficient of 0.0030 ($p = 0.001$). This finding implies that higher education attainment among villagers contributes to better development outcomes, as education enhances human capital and community capacity. In contrast, the distance to the village head's office (jarak tempuh dari kantor kepala desa) has a negative and significant relationship with IDM, with a coefficient of -0.00011 ($p < 0.001$). This indicates that villages located farther from administrative centers tend to have lower development performance, highlighting accessibility as a barrier to progress. Meanwhile, the constant term is not statistically significant, which suggests that the model's explanatory power relies mainly on the independent variables rather than the intercept. Overall, the robustness check confirms that financial resources and education positively drive rural development, while physical accessibility remains a critical challenge.

Descriptive statistics

Descriptive statistical overview of the variables in this study can be seen in the following table:

Table 5 Descriptive Statistics of Variables

Variable	Mean	Standard Deviation	Min	Max
nilai_i~2023	0.69780988	0.07742852	0.4929	0.94
danadesaln	847,74	162,03	309,64	1.975,95
pendidikan~a	5.52117264	1.15321254	0.00	8.00
jaraktempu~l	85.4929425	69.8032694	1.00	999.00
Number of Observations= 1481				
Explanation of variable operationalization in Table 1.				

Source: Secondary data, STATA-17 output (Processed, 2025).

Table 5 shows the descriptive statistical results of the main variables used in this study. The village government performance variable measured using the Building Village Index (IDM) has an average value of 0.698 on a scale of 0–1. This means that in general, villages in Central Sulawesi

have reached almost 70% of the ideal conditions for village development. However, with a standard deviation of 0.077, there is a difference in achievement between villages, which indicates that there is an inequality in the performance of village development in the region.

The Village Fund variable (X1) shows an average value of 847.74 million rupiah, with a standard deviation of 162.03 million rupiah, reflecting a significant variation in the allocation of funds between villages. Villages with minimum fund allocation only received around 309.64 million rupiah, while villages with the highest allocation reached nearly 1.976 billion rupiah. This inequality shows that fiscal allocation factors can be a driver or obstacle in the achievement of village development.

For the variable of the Village Head Education Level (X2), the average score was 5.52 on a scale of 0–8, which reflects that most village heads have an educational background equivalent to high school to diploma. However, a minimum score of 0 and a maximum of 8 indicate a very wide disparity in education levels among village heads, which can affect their ability to plan and manage village programmes.

Meanwhile, the variable Distance Traveled to the Center of Government (X3) has an average distance of 85.49 km, with a standard high deviation of 69.80 km. This indicates that some villages are very close to the government center, but some are very remote with a distance of almost 1000 km. This inequality of access has the potential to affect the effectiveness of communication, coordination, and distribution of aid and services from the central government. Furthermore, the results of the correlation analysis between each variable can be seen in the following table:

Table 6 Variable Correlation Analysis

Variabel	Y	X1	X2	X3
nilai_i~2023	1			
danadesaln	0,1036*** 0.0000	1		
pendidikan~a	0.0710*** 0	0.0118 -0.6136	1	
jaraktempu~l	-0.0945 ***	0.0614***	0.0057	1
	0	-0.0084	-0.808	
Number of Observations = 1841 Explanation of variable operationalization in Table 1. *** = P-value signifikan 1%.				

Source: Secondary data, STATA-17 output (2025).

The results of the correlation analysis can be seen between the Building Village Index (IDM), village funds, the level of education of the village head, and the distance traveled. The variables of village funds, the level of education of the village head, and the distance traveled as predictor variables have a significant correlation, namely 0.1036 each; 0,0710; and -0.0945. In these results, it is also known that village funds and the level of education of village heads have a positive relationship with IDM. This means that the higher the village fund and the education level of the village head, the higher the IDM. Meanwhile, mileage has a negative relationship with IDM which means that the higher the mileage, the lower the IDM.

Hypothesis Testing Results

Hypothesis testing in this study uses the fixed Effect method with the STATA-14 software program

Tabel 7 Hypothesis Results



Variable	Expected Sign	Indeks Desa Membangun
CONS	-	-0.2702 (0.205)
danadesaln	H1: (+)	0.0468*** (0.000)
pendidikan~a	H2: (+)	0,0029*** (0.001)
jaraktempu~l	H3: (-)	-0.0001*** (0.000)
PROB > F		0.0000
R-square		0.0259
Obs		1,841
Mean VIF		1.00
An explanation of the operationalization of variables can be seen in Table 1. = P-value significant 1%		

Source: Secondary data, STATA-17 output (2025).

It can be seen that from multiple linear regression testing using the Fixed Effect Model and robust standard error in general, it shows that the R-Squared value is 0.0259. This indicates that the model can explain the variation of the IDM of 2.59%. This relatively low R-squared value indicates that village performance, as measured by IDM, is influenced by many other factors beyond the variables included in this study. Elements such as infrastructure development, health services, education quality, social participation, governance effectiveness, and external economic conditions are likely to play a significant role in determining village performance.

It was also obtained that the significance value of the model shown by Prob > F was 0.000 which means that simultaneously, the model consisted of predictor variables of village funds, the level of education of the village head, and mileage exert significant influence simultaneously or together. In addition, an average VIF value of 1.00 was also obtained, which means that there was no multicollinearity between the predictor variables in the model.

The table above also displays the regression results of the variables of village funds, the level of education of the village head, and the distance traveled to the building village index. The village fund has a coefficient of 0.0468 with a significance level of 0.000. This shows that the percentage of village fund realization has a significant positive influence on the performance of the village government. The results can be interpreted that every one percent increase in the realization of village funds will increase the performance of the village government by 0.0468. These results support the first hypothesis (H1), which states that the more village funds are allocated and managed properly, the more village government performance tends to improve.

The regression results also show that the level of education of the village head has a significant effect on the performance of the village government. This can be seen in the results of the regression coefficient of 0.0029 and the significance of 0.001. So it can be said that every increase in the education level of the village head will increase the government's performance by 0.0029. These results support the second hypothesis (H2) that village heads with higher educational backgrounds tend to have better government performance, especially in the aspects of planning and managing village development programs.

Based on the results seen in the table, it was found that the distance traveled has a negative and significant effect on government performance. This can be seen from the results of the regression coefficient of -0.0001 and the significance of 0.000. Therefore, it can be interpreted that any increase in the distance between the village and the city center or district in kilometers will decrease the performance of the village government by 0.0001. These results support the third hypothesis (H3), that the farther away the village is from the center of government, the performance of the village government tends to decline due to limited access to information, resources, and government services.

DISCUSSION

The first findings show that village funds have a significant positive effect on the performance of the village government. This indicates that the larger and more appropriate the realization of village funds, the higher the performance of the village government in terms of planning, implementation, and public services to the community. This finding is in line with the research of Rizal et al. (2024) where the allocation of village funds has an effect on community welfare which can describe the performance achievements of village government. However, the effectiveness of village funds is greatly influenced by the managerial capacity of the village government. Without good planning and supervision, village funds have the potential to be not on target. Therefore, it is important to encourage transparency and community participation in the planning and evaluation process of using village funds.

The second finding shows that the level of education of the village head also has a significant positive effect on the performance of the village government. This research is in line with Haryati & Makarim (2023) who found that education level has a significant positive influence on performance village apparatus. Higher education allows village heads to have a broader knowledge of regulations, development planning, and village financial management. In addition, educated village heads will be more open to innovation and able to communicate more effectively. This will have an impact on increasing the efficiency and effectiveness of the implementation of village programs so as to encourage improvement in the performance of village governments. Therefore, it is important to review the educational background of the prospective village head before choosing him to be the village head.

In contrast to the previous findings, the third finding from the analysis of the distance to the center of government showed a significant negative influence on the performance of the village government. The farther the location of the village from the district or city government center, the greater the obstacles in access to information, supervision, and administrative services. The same results were found by Hendrarso et al. (2021) where the distance traveled and the building village index have a negative correlation. Villages located in remote areas tend to have difficulty accessing adequate education, health, and basic infrastructure services. This results in the effectiveness of the implementation of village programs that are being implemented. Thus, geographical challenges are a significant factor in reducing the performance of the village government. Therefore, a special strategy is needed to carry out village development in remote areas.

Despite these significant results, it should be noted that the R-squared value of 0.0259 is relatively low, meaning that the three independent variables explain only 2.59% of the variation in village performance. This indicates that village performance is influenced by many other factors not captured in the model. Variables such as infrastructure quality, healthcare services, social participation, poverty levels, governance transparency, and external economic conditions are likely to play a substantial role in shaping village performance but are not included in this study. Hence, while the results are statistically significant, the explanatory power of the model remains limited.

Another limitation lies in the dataset used. The study only covers one province (Central Sulawesi) and one year (2023), which restricts the generalizability of the findings. Regional differences across provinces and temporal variations in village development dynamics are not captured. Moreover, the reliance on secondary data may introduce measurement bias, especially if there are inconsistencies in reporting village fund realization or education data.

1. CONCLUSION

The results of the study showed that village funds and the level of education of village heads had a significant positive effect on the performance of the village government, while distance traveled had a significant negative influence. These findings show that optimizing the use of village funds and increasing the capacity of village heads are the main keys in increasing the effectiveness of government administration at the village level. On the other hand, geographical obstacles such as the distance from the center of government are still real challenges that need to be overcome. Therefore, this research is expected to be the basis for policy making, especially in planning village development that is more inclusive and based on local potentials and needs.

The implications of this research are seen from the theoretical and practical sides. Theoretically,

the findings can strengthen the understanding that village fund management, individual capacity of village heads, and geographical factors play a significant role in the performance of village government. This study provides empirical evidence on the determinants of village governance performance in Indonesia using the Building Village Index (IDM) as a proxy. In addition, these results also add to the literature related to the factors that determine the performance of village governments, especially in Indonesia.

Practically, the results of this study are able to provide input for policymakers such as local governments to continue to encourage the improvement of village development through increasing the realization of village funds in a targeted manner, paying attention to the recruitment aspect of village heads. In addition, special strategies are also needed to overcome performance gaps in villages that have a relatively long distance from the city center or district, such as strengthening infrastructure, digitizing services, and logistical support. Thus, the equitable distribution of village development can be carried out more optimally and sustainably.

This study has several limitations that need to be considered in interpreting the results. First, this study only uses three predictor variables, namely the percentage of village fund realization, the level of education of the village head, and the distance traveled, so it does not include all factors that can affect the performance of the village government. Second, the measurement of village government performance variables only uses one indicator, namely the Building Village Index (IDM), which although comprehensive, has limitations in describing all aspects of government performance qualitatively. Third, this study is quantitative and uses secondary data, so it does not describe socio-political dynamics and local contexts that may affect the implementation of village programs. Therefore, the results of this study need to be interpreted carefully and can be further developed through a mixed approach or case studies in the future.

Based on the results of the research, there are three targets that will be given suggestions by researchers. For the government, it is better to increase supervision and assistance for the realization of village funds so that it is more on target and has a direct impact on improving village performance. In addition, it is necessary to develop a program to increase the capacity of village heads through managerial and leadership training, especially for villages with low-educated village heads. For village governments, it is necessary to be more active in managing and planning the use of village funds, as well as to establish good communication with the district/city government despite facing geographical constraints. The use of information technology can also be used as a solution to shorten the barriers due to distance. For future researchers, follow-up research is recommended to include variables that have not been included in this study, such as community participation, institutional capacity, and the quality of village planning to obtain more comprehensive results. In addition, qualitative or mixed approaches can also be used to delve deeper into the local context and social dynamics that affect the performance of village government.

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