Village Development: Effect of Vilage Fund and Village Head Education

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Article Information	Abstract
	Village Autonomy allows villages to realize more advanced and prosperous rural development. According to some literature, village development needs sufficient funds. In Indonesia, Village Fund has become one of the necessary funds for villages since 2015. Besides the effect of the Village Fund amount, this study evaluates the role of village leaders in optimizing Village Fund management. This study aims to analyze the impact of village head education support in managing the Village Fund on the development of village status in Indonesia empirically. The analytical method uses cross-sectional multiple linear regression in the data between 2018 and 2020. This study uses changes in the village building index (IDM) score to reflect the development of village status each year as the dependent variable, then Village Fund and interaction between Village Fund and Village Head education as the independent variables. The results denote that the management of the Village Fund will be more effective in influencing the growth of village development if the village has a village head with an education above high school. Therefore, the Central Government should provide intervention on the policy criteria for allocating Village Funds, especially performance allocation, by including village head education as an additional indicator in the Village Fund management process.

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INTRODUCTION

Decentralization provides hopes and aspirations for the local community to get better public services because local governments are more aware of the conditions and preferences of their people (Besley & Coate, 2003). The implementation of decentralization has touched the village administration level since Law (UU) Number 6 of 2014 concerning villages came into effect. The village becomes an autonomous region that can manage all financial matters independently in providing public services for village communities. Even though it has become an autonomous region, the village is not part of the official government system because Indonesia only recognizes the central, provincial, and district/city government systems. This differs from the Philippines, which has recognized barangay (equivalent to the village) as part of the government system, consisting of central, provincial, city, and barangay.

Village development is still a hot issue since 43.3% of Indonesia's population still lives in rural areas (BPS, 2020). The importance of village development aims to improve people's living standards, reduce poverty, and improve the welfare of rural communities. With village autonomy, the village's opportunity to be more advanced and prosperous depends on the villagers themselves because village development is focused independently by village community. Village problems, such as high poverty, low health, low public consumption, low quality of human resources, more difficult facilities and infrastructure than cities, and low education levels, can be reduced by development in the village.

There are several evidence of successful village development movements around the worlds, for example, in South Korea (Jwa, 2018), which initiated Saemaul Undong as government policy with the principles of cooperation, discipline, and hard work so that the living standards of rural communities improve, villages experience modernization, and the spirit of community cooperation increase. Meanwhile, European Union countries manage resources in the Common Agricultural Policy (Alons, 2017), which supports farmers in its member countries by ensuring that people's lives remain viable in developing rural environments.

In Indonesia, the measurement of village development is still limited compared to district and city areas. There are at least two indices used as village indicators, namely the Village Development Index (IPD) by the Central Statistics Agency (BPS) and the Village Building Index (IDM) by the Ministry of Villages, Development of Disadvantaged Regions and Transmigration (PDTT). Of the two indices, the government often uses the IDM because IDM includes 22 variables and 52 indicators designed in a synergy between economic, social, and ecological aspects that will capture the potential and ability of the village to meet village needs so that welfare can be achieved. Thus, IDM describes the village's status more because of its completeness and up-to-date (Supriadi, 2021; Yulitasari & Tyas, 2020).

Since the implementation of decentralization in villages from 2014 to 2020, an average of around 48.4% of villages have developed status. From 2014 to 2020, there was a decrease in underdeveloped villages by almost 60% and an increase in developed and independent villages by more than 100% (Figure 1). However, the portion of underdeveloped and very underdeveloped villages is still quite a lot in Indonesia. Improving the condition of the village has become a critical discourse for the government since 2015, especially in fulfilling the 2020-2024 RPJMN target, namely eradicating 10,000 Disadvantaged Villages and increasing 5,000 Independent Villages.
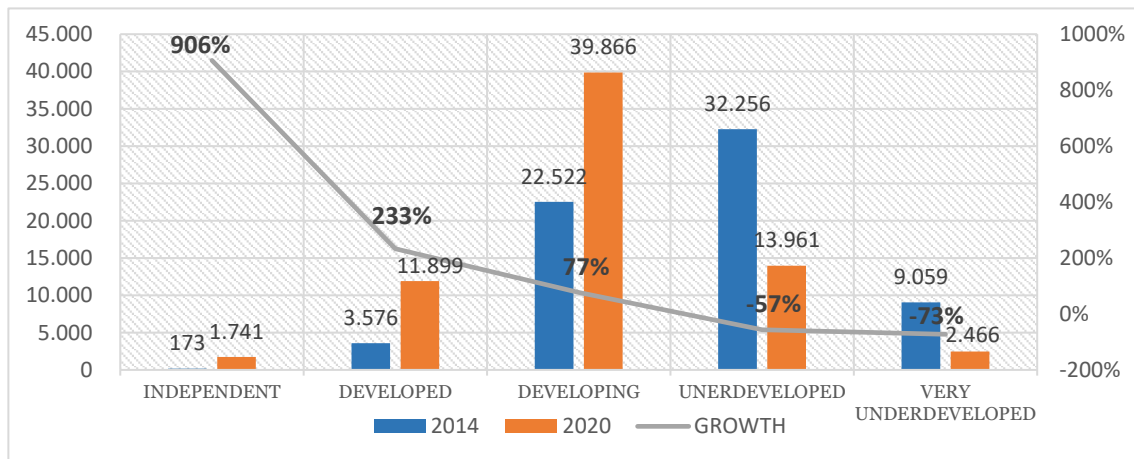
Figure 1. Development of Village Status in Indonesia, 2014-2020
Source: Ministry of Village PDTT, 2021

Various government priority programs are implemented to improve development in rural areas, one of which is the Village Fund program. Fiscal transfers in the form of Village Funds are the commitment of the Central Government to supporting village autonomy. As a vital fund for villages, the government is designing a Village Fund formula to be fair and equitable, consisting of four allocations, including: basic, affirmation, performance, and formula.

The Village Fund aims to promote the village economy, improve public services, reduce poverty, and overcome development gaps between villages. Throughout 2015-2020, the government distributed the Village Fund amounting to IDR 328.93 trillion for almost 75,000 villages through the Ministry of Finance.

On average, the Village Fund contributes 58% of the total village income (BPS, 2020). Every year, villages receive Village Funds with an average nominal of around IDR 800 million or even more. With such huge funds, managing the Village Fund like planning, implementation, reporting, and accountability of the Village Fund to the regional head, is not easy for every village. Moreover, it needs to conform to various regulations and policies from each ministry or institution. Therefore, managing the Village Fund as the implementation of the money follows function in the village autonomy framework requires adequate quality of human resources.

Human resources (HR) in managing Village Fund cannot be separated from the critical role of the village apparatus, especially the village head. The quality of the village head is a reference for development productivity in the village. The village head's role is very strategic in managing fiscal transfers in the village because they have the authority to hold power to manage Village Finance and Assets, such as the Village Fund. Moreover, the village head in managing the Village Fund is tasked with the following processes: (1) planning (process of planning village development activities with village officials, village advisory agency (BPD), and the community through village meetings), (2) implementation (process of implementing village development according the agreed development plan), (3) administration (administering finances together with the Head of Finance), (4) reporting (providing a usage report to the Regent), and (5) accountability (submitting an accountability report on the realization of Village Budget (APBDesa) implementation to the Regent through the *Camat*).

As the top leader in the village government system, the village head needs to have adequate capacity to carry out such enormous powers and obligations, including sufficient education to manage Village Funds. The education level is one factor that affects the ability of the village apparatus (Rodiyah et al., 2021). The educational support of the village head also has a significant

influence in managing the Village Fund for the village development success. According to Law Number 6 of 2014 concerning Villages (UU Desa), village heads have at least completed junior high school education or the equivalent (SMP/SLTP).

The role of the Village Fund aims to improve village development for the better. Previous studies found different findings on how the Village Fund can encourage village development. On the one hand, the distribution of Village Funds can have a positive impact on village development (Gani et al., 2020; Arina et al., 2021; Ramly et al., 2019; Tambunan et al., 2020; Yulitasari & Tyas, 2020), but the research has a level of significance different. One of the results that were not significant was the research by Yulitasari & Tyas (2020) in all districts/cities in Central Java Province in 2018-2019, which found that changes in the amount of Village Funds did not significantly affect changes in village status. This insignificant result of the Village Fund is due to using a practical design on the variable distribution of Village Fund changes in Central Java Province so that it does not experience significant changes between 2018-2019.

On the other hand, Kharisma et al. (2021) found that the Village Fund budget negatively affected the increase in IDM in 2019 in Riau Province. This is because the amount of Village Funds in Riau is not too large compared to other village incomes. The annual sample is while the Village Fund concept has a long-term impact. In addition, the discussion on managing the Village Fund in the previous study on supporting village development did not address the vital role of human resources in the village apparatus. As previously noted, managing funds for considerable village autonomy for each village requires human resources, which cannot be separated from the vital role of the village apparatus, especially the village head. Managing Village Fund requires village heads with adequate capacity (Latifah & Aziz, 2016; Yulitasari & Tyas, 2020). Village Fund problems are often found because there are still many villages where the village head and his staff are not yet qualified (Soleh et al., 2017). Some research on the Village Fund provides the view that the management of the Village Fund will be successful because the capacity of the Village Fund manager is adequate and involves the community in every stage of implementation (Arifa, 2019; Daraba, 2017; Latifah & Aziz, 2016; Yulitasari & Tyas, 2020).

Empirical studies also state that the competence of village officials is mainly related to preventing fraud that occurs in the management of Village Funds (Widyani & Wati, 2020), quality of service to communities in villages (Iskandar et al., 2020), and accountability of Village Funds (Atiningsih et al., 2019). Rural local capacity is an effective policy option urgently needed to address governance issues in rural development and migration (Nurlinah et al., 2020). Most of the previous studies did not include moderating variables for managing the Village Fund for village development, which could lead to better effectiveness of the Village Fund.
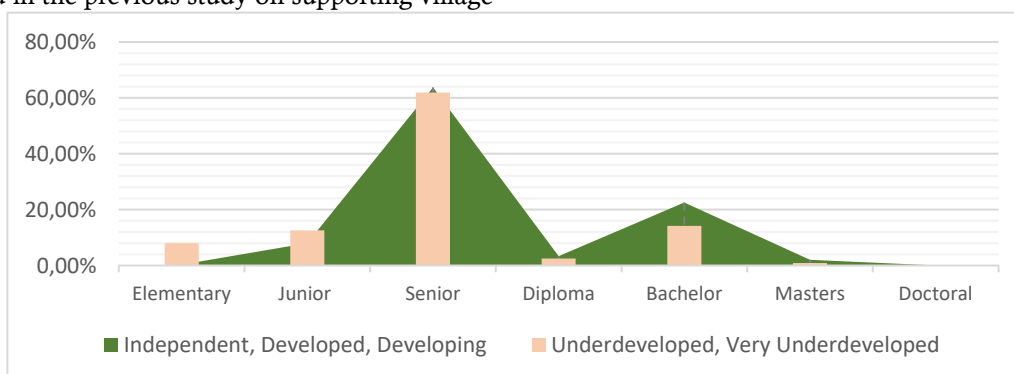

Figure 2. Distribution of Village Head Education by Village Status, 2018
Source: Podes BPS, 2018 (Processed)

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Based on village potential data (Podes) in 2018 (Figure 2), it can be seen that there is a correlation between village head education and village status, namely villages with independent, developed, and developing levels, most of which are managed by village heads with higher education backgrounds, 92% are at least high school graduates, dominated by SMA (64%) and S1 (23%). Meanwhile, village head education in underdeveloped and very underdeveloped villages, as much as 83% only includes graduates from high school and below.

The gap in research results related to the significance of the Village Fund on village status lies in the support for the capacity of the village head through education. This becomes interesting study more profoundly, considering that the village head has diverse education, and previous research did not make the village head's education the research object. This study aims to address the limitations of previous research by introducing a new variable, namely the level of education of the village head, as a moderating factor. The purpose is to provide additional support for the effectiveness of Village Fund management in promoting village development. This study uses quantitative data in the variable of the village head education and covers all villages in Indonesia to describe the overall condition better, and there is still limited research that takes samples of all villages in Indonesia.

Considering the phenomenon and several previous studies, this study aims to empirically analyze the influence of village head education support in managing Village Funds on the development of village status. This study uses secondary data from Potential Villages, BPS, and the Ministry of Finance. This study uses a cross-sectional multiple regression model to describe the development of village status and an interaction model to determine the effect of the Village Fund and village head education. The finding in this study lies in the slope value of the effectiveness of the Village Fund management, which decreases if the village head's education starts from elementary to high school. However, if a village head manages it with a Diploma (D3) to S2 education, the management of the Village Fund will be more effective towards the development of village status.

By basing on the problem formulation, research objectives, and previous empirical studies, the research hypothesis is H_0: The support of the village head's education in managing the village fund significantly influences the development of the village's status.

RESEARCH METHODS

This study uses a quantitative approach that includes descriptive and inferential statistical analysis. In looking at the impact of village development, this study uses the multiple regression method (OLS) with a cross-section model. Cross-section data is obtained from one or more research objects in the same period (Damodar, 2012). A collection of village units joins in the same period to see the impact of medium-term development between 2020 and 2018.

Meanwhile, the influence of village head education support in this study uses an interactive approach to variable accumulation of Village Funds in each village with the educational background of the village head. This can be used to see the effect of the collection of Village Funds with the support of village head education on the development of the IDM score. The interaction model follows the approach taken by Acheampong et al. (2021) in analyzing empirically whether economic growth can improve human development through its relationship with the energy accessibility conditions of a country.

This study uses empirical model specifications to estimate the development of IDM scores in the 2018 to 2020 period, as follows.

$$IDM_i = \beta_0 + \beta_1 DD_i + [DD_i * PKD_i]\theta' X_i\gamma' + \varepsilon_i \quad (1)$$

Where IDM_i is the change in the IDM score of a Village i; Independent variables, including (1) DD_i is the accumulation of Village Funds for three years in the village i; (2) DD_i*PKD_i is a collection of interaction variables between Village Fund Accumulation and Village

Head Education in Village i; (3) variable X is a collection of control variables in village i, which consists of changes in the village head education, number of households, road infrastructure quality, and Geographic Difficulty Index (IKG); β, θ, and γ are the coefficients of each variable, and εi is the error term.

The interaction variable in this study comes from the Village Fund, which will interact with each level of education using a dummy character. For example, in elementary education, every village with a village head with an elementary education has a value of 1. Otherwise, it will be worth 0, after which it will interact with the Village Fund. This treatment is the same for other levels of education. In the end, there are five forms of interaction per education level to determine the respective slopes of the interaction between the Village Fund and the status of the village head's education.

This study uses changes in the village building index (IDM) score to reflect the development of village status each year as the dependent variable. Several indicators in the IDM have long-term characteristics, such as access to schools, access to health, and environmental quality, so if you look at the annual IDM level, it will not be balanced with the Village Fund variable, which changes every year in value. To address this issue, this study uses changes in the IDM score as the dependent variable to better understand the fluctuations in IDM scores over time. The use of changes in the IDM score does not look at the status of the village from the beginning of the period, so it only sees changes in its value from time to time.

This study consists of two independent variables, namely the Village Fund and the interaction between the Village Fund and the Village Head education. The Village Fund, as the first independent variable, is the accumulated Village Fund budget distributed to the village in three years to influence the development of the IDM score. The hypothesis on the Village Fund Accumulation variable is positive for changes in the IDM score.

The second independent variable is the interaction between the accumulation of Village Funds and village head education. Village head education uses data from 2018 as the education baseline at the beginning of the research period. The interaction approach can empirically analyze whether the influence of the Village Fund on the development of village status can be more robust if combined with the village head's education. If the result of the interaction variable shows a positive number, it means that the Village Fund will be more effective in increasing the development of IDM scores in village governments whose village heads have a higher education background.

Elements of progress or decline of a village can be seen in human factors and the geographical layout of a village (LIPI, 2015), so this study chose control variables in the form of households, IKG, and road quality, as representatives of the human element and geographical layout. The IKG variable is an index that describes a village's geographical difficulty level. This index number is from 0 to 100, which indicates that the higher the index value, the more complex the geography of a village. This variable is essential in seeing how village development can be achieved with the influence of the geographical characteristics of a village.

The road quality variable describes the development of the broadest road surface conditions in the village during the observation period. The criteria for good road conditions are assumed to be asphalt, concrete, or paved roads. This variable is in the form of a dummy, with a value of 1 which means there is a development of road conditions from 2018 to 2020 from the road surface from the soil, paths, wood to good road conditions, and road conditions that remain good from the start, while the value is 0 if road conditions have decreased or stayed the same in 2018 with less favorable conditions.

The element of human characteristics in this study uses the number of households in the village. A household is a person or group who inhabit part or all of a physical/census building and usually eat together from one kitchen. If a

village has many households, tremendous effort is needed to meet village needs. The household variable uses the average size to describe that a village has specific potential for human resources between 2018 and 2020 to encourage village development.

The control variable is the status of the change in the village head education in the form of a dummy. The value will be 1 if, from 2018 to 2020, there is an increase in the level of village head education or the education has not changed. At the same time, the value is 0 if there is a decrease in the level of village head education. The result of the coefficient is positive, which means that the value of the change in the IDM score will be better if the village head's education has increased or remains the same from the beginning of the research period, compared to a decrease in the village head education.

The sample in this study includes data from all villages receiving Village Funds in Indonesia in the 2018-2020 period. This study uses data in the form of unbalanced (the number of samples per year is not the same) to affect the heteroscedasticity of the error variance. However, this was resolved by using robust standard errors in the research model so that the estimation process remains efficient, consistent, and unbiased. The village sample already has a village code from the Ministry of Home Affairs. The period from 2018 to 2020 is the election year to monitor the progress of village development. This was due to introducing of a new allocation formula for the Village Fund in 2018, which included affirmative funding for underdeveloped villages. The decision to choose these years was also based on the availability of comprehensive data during this period.

This study uses secondary data from various sources, while other data comes from various relevant documents such as publications of research results, journals, laws, and regulations. The primary data and sources that will be used in this research include Village Fund: Directorate General of Fiscal Balance (DJPK), Ministry of Finance; Number of Households, Road Quality, and IKG: Village Potential (Podes), Central Statistics Agency (BPS); Number of Households and Educational Background of the Village Head: Ministry of Home Affairs and BPS; and Village Building Index (IDM): Ministry of Villages, Development of Disadvantaged Regions and Transmigration.

Some notes regarding research data, namely: merging all research variables using village code data in 2020, which amounted to 74,954 villages, but because the data comes from several ministries/agencies that have differences in village codes, the potential for a reduced number of villages will occur; then if there is an addition /merger/deletion of villages in a year and the data is unavailable or does not match in a village, the village will be excluded from the research sample

RESULTS AND DISCUSSION

Since the Law on Villages was issued in 2014, the government has routinely started 2015 providing Village Funds to all villages in Indonesia. Initially, the allocation of the Village Fund only had two formulas, namely the basic allocation (90%) and the formula allocation (10%). However, to accommodate equity and justice, especially for poor villages with a high poverty population, the Village Fund's allocation in 2018 was reformulated with an increase in one allocation, namely the affirmation allocation. With the ongoing distribution of Village Funds, which has lasted for five years and has resulted in better village performances, the formulation of the Village Fund will increase with the performance allocation in 2020. The allocation of performance to villages is based on criteria determined by the Central Government and given to 7,495 villages that perform well (10% of total Villages).

The Village Fund budget in 2018 of IDR 60 trillion was given to 74,958 villages so that, on average, each village received IDR800 million. As shown in Table 1, in 2018, as many as 67% of villages received Village Funds of around Rp600 to 800 million. In 2019, the Village Fund budget increased to IDR 70 trillion and was distributed to 74,953 villages, while in 2020, the Village

Fund budget also increased to IDR 71.2 trillion for 74,954 villages. From the distribution of the Village Fund in 2019 and 2020, most villages received Village Fund from IDR 600 to IDR 1000 million. Managing the large Village Fund for each village requires good governance to produce the expected outputs and outcomes.

Table 1. Distribution of Village Fund

Category	2018		2019		2020	
	Number of Villages	%	Number of Villages	%	Number of Villages	%
600 - 800 million	50.243	67,0%	26.027	34,7%	22.247	29,7%
800 - 1.000 million	15.651	20,9%	29.347	39,2%	29.873	39,9%
1.000 - 1.200 million	6.567	8,8%	10.127	13,5%	12.196	16,3%
above 1.200 million	2.497	3,3%	9.452	12,6%	10.638	14,2%
Total	74.958		74.953		74.954	

Source: Ministry of Finance, 2018-2020 (Processed)

The critical role of human resources in managing the Village Fund cannot be separated from the role of the village head as the highest position in the village government. The village head is the head of the village government, who leads the implementation of the village government and is an extension of the state's arm, which is close to the community as the community leader. This study explicitly examines the village head's last educational background between 2018-2020 as a supporting variable for the Village Fund in influencing the development of village status.

Based on 2018-2020 data, the education status of village heads, namely SD and SMP, has decreased yearly, while SMA, DIII/S1, S2, and S3 status has increased from year to year. Although SD and SMP education has decreased, the village head education in some areas is still low enough to manage the substantial village incomes. Meanwhile, the increase in high school education and above shows that there is awareness of the village community in choosing competent village head candidates.

Based on data from the Podes, BPS (2018) and the Ministry of Home Affairs (2019-2020), high school education is the dominant education for village heads (about 60-70%) in almost all islands, except for Papua, where the majority of village heads have elementary and junior high school education backgrounds. The islands of Java-Bali and Sulawesi have the most village heads who are D3/S1 and S2/S3 graduates. Equally, each district/city has various educational statuses of village heads from SD, SMP, SMA, D3/S1, S2, and S3.

The development in the village was in line with the third point of the Nawacita concept, namely, building Indonesia from the periphery by strengthening regions and villages within the framework of a unitary state. The government's big mission is to create a just economic situation in Indonesia and spread all over Indonesia, not only concentrated on java island. Through transfers to regions and Village Funds, the government tries to distribute state expenditures for regions, so they are felt in Indonesia's frontier, outermost, and underdeveloped villages.
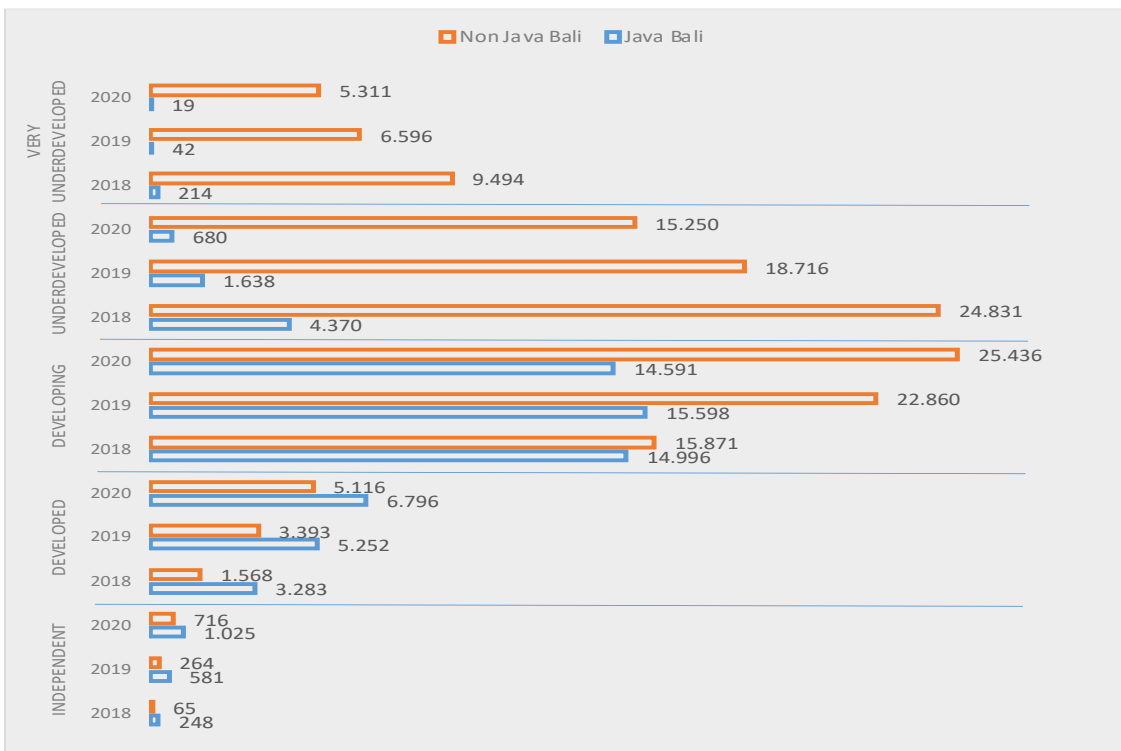
Figure 3. Village Status Gaps Between Java-Bali and Non-Java-Bali
Source: Ministry of Village PDTT, 2018-2020 (Processed)

However, the development gap between Java-Bali (blue stick) and outside (orange stick) is still quite visible. Based on IDM data for 2018-2020 (Figure 3), most village development in the Java-Bali area's status is independent, advanced, and developing, in contrast to villages in areas outside Java-Bali, which tend to lead to developing, underdeveloped, and very underdeveloped villages.

In 2018, the dominance of areas outside Java-Bali had 24,831 underdeveloped villages and 15,871 developing villages, while the domination of the Java-Bali region had 14,996 developing villages and 4,370 underdeveloped villages. However, as time went on in 2020, the Java-Bali area had more than 14,591 developing villages and 6,796 developed villages, while areas outside Java-Bali had 25,436 developing villages and 15,250 underdeveloped villages. It can be seen that from 2018 to 2020, the dominant Java-Bali area experienced an increase in village status

compared to outside Java-Bali, so a gap is still visible between the two regions.

Nevertheless, the trend of increasing development in the two regions is almost the same: a decline in the status of underdeveloped and very underdeveloped villages and shifts to developing, developed, or independent village status. The government always makes various improvements of Village Fund's management, especially the reformulation of the Village Fund's allocation every year to get a fair and equitable distribution of the Village Fund to reduce the development gap and poverty in the village.

The model analysis in this study uses simple regression between 2018 and 2020 with the cross-section method. Before looking at the estimation results of the research model, the following is a descriptive statistical description of each variable in the form of the mean, standard deviation, minimum value, and maximum value.

Table 2. Variable Descriptive Statistics

Variables	Obs.	Mean	Std Dev.	Min.	Max.
IDM change	74,905	0.0496	0.0665	-0.2906	0.6053
Village Fund Accumulation (billion rupiahs)	74,947	2.68	0.66	1.58	13.3
Interaction between Village Fund dan Education:					
Elementary	71,304	0.1327	0.6021	0	8.6631
Junior	71,304	0.3012	0.8821	0	10.5964
Senior	71,304	1.5602	1.4119	0	13.2621
Diploma/Bachelor	71,304	0.5039	1.0947	0	11.7276
Masters/Doctoral	71,304	0.0325	0.3312	0	7.4691
Change in Village Head Education	71,018	0.9611	0.1934	0	1
IKG Change	74,957	-2.9590	7.8743	-67.4537	58.3106
Number of Households (mean)	69,577	807.3544	1027.546	4	36,814.33
Road Quality	69,578	0.8879	0.3154	0	1

Source: Data Processed, 2023

Using these data (Table 2) shows an initial assessment of the relationship between a study's independent and dependent variables. From 2018 to 2020, the average village experienced an increase in IDM scores of 0.0496, with a maximum increase value of 0.6053, while the lowest experienced a decrease of -0.2906. The Village Fund accumulated around IDR2.68 billion for three years, with a maximum of IDR13.3 billion and a minimum of IDR1.58 billion. Next, the interaction between village fund and village head education is, on average, found in senior and diploma/bachelor education.

For the control variable, there has been an increase in village head education from 2018 to 2020, seen at an average of 0.9611. Changes in IKG have a negative value of -2.9590, meaning that changes in geographic difficulty are more minor. The highest number of households was 36,814, and at least only four households, with an average of 807 households, while the average improvement in the quality of roads in the village for three years has increased by observing an average positive value of 0.8879.

The number of observations varies from various variables, and most observations are on the value of the Village Fund and incomplete on the number of households and quality of roads. This is due to data limitations in various ministries/agencies in presenting data.

Figure 4. Scatter Plot of IDM Change, Accumulation of VF, and Village Head Education
Source: Data Processed, 2023

Based on the scatter plot (Figure 4) on the variables of IDM change, Village Fund Accumulation, and Length of Village Head Education, the initial assumption of the relationship between the three variables has a different direction, namely that the Village Fund and the education of the SD and SMP village heads tend to experience a decrease in IDM scores. The distribution of Village Fund and high school education is evenly distributed throughout the value of the IDM change because most village heads have high school education with different abilities, and village heads with D3/S1 and S2/S3 education on average have a positive IDM change.

After seeing the initial assumptions above, this study will examine the effect of village head education support for each level of education in managing the accumulation of Village Funds on the development of village status by regressing the five interaction variables. The results of the regression with the cross-section model are as follows:

Table 3. Cross Section Regression Results, 2018-2020

Variables	IDM Change
Village Fund	0.010878***
	(0.000591)
Interaction between Village Fund and Education:	
Elementary	-0.002762***
	(0.000604)
Junior	-0.001586***
	(0.000493)
Senior	-0.000701***
	(0.000427)
Diploma/Bachelor	0.001970***
	(0.000462)
Masters/Doctoral	0.006469***
	(0.000851)
Change of Village Head Education	0.002019*
	(0.001243)
IKG	-0.0000691**
	(0.000029)
Households	-0.000795***
	(0.000255)
Road Quality	0.002553***
	(0.000884)

Variables	IDM Change
Constanta	0.035870***
	(0.001924)
Observation	69,112
R-squared	**0.0966**

Notes: Standard errors in brackets *10% significant rate, ** 5% significant rate, *** 1% significant rate.

Source: Data Processed, 2023

Based on the regression results in Table 3, the effect of the village head's educational support on the management of the Village Fund for three years shows a different direction toward changes in the IDM score. The management of the Village Fund with village heads with education from elementary to high school produces a negative impact, while the Village Fund, when managed by village heads with D3 to S3 education, shows a positive effect.

The results of the variable control regression showed a positive direction on Road Quality and Changes in village head education, while the household variables and IKG gave a negative relationship to changes in the IDM score. All control variables were statistically significant at $\alpha = 1\%$ except for the change in the IKG variable at the 5% significance level and the education change variable at the 10% significance level.

The first hypothesis testing uses the coefficient of determination (R^2), which can describe how much influence the independent variables contribute simultaneously to the dependent variable. As seen in Table 3, the regression model has an R^2 value of 0.0966. This value means that the independent variables in this study can simultaneously explain the variable change in the IDM score of 9.66%, while other variables outside this study explain the rest. The R-squared value in this study is small because the village authority on the IDM indicator is only around 30%, so the Village Fund has limited influence on changes in the IDM score. In contrast, variables such as the socio-economic conditions of the community, provincial/district expenditures, and other village incomes are thought to be able to exert more influence.

The next is testing the second hypothesis using the F-statistical test. The F-statistical test shows how much influence the interest variable simultaneously has on village status. The value of the F-statistical test can be seen in the Prob > F value, which must be smaller than the alpha/error value (set at 10%). The results of the F-statistical test in this research model, namely Prob > F of 0.0000, which means accept H1 so that all independent and control variables simultaneously affect village status.

The final hypothesis testing is the t-statistical test. This t-statistical test can statistically see the effect of each independent and control variable on village status. That way, each coefficient and constant value in the model can be seen as appropriate or not in describing the development of the dependent variable. The regression results show that the independent variables partially affect the significance level of $\alpha = 1\%$ statistically on changes in the IDM score, namely the Village Fund variable, all interactions, and constant parameters. Meanwhile, road and household quality variables have a significant effect statistically at the level of $\alpha = 1\%$ on changes in the IDM score in determining village status. In comparison, the IKG change variable only affects the significance level $\alpha = 5\%$, and the village head education change variable at the significance level $\alpha = 10\%$ of IDM score changes.

The coefficient value of the Village Fund variable before getting the village head's educational support has a slope of 0.010878 which states that for every increase in the accumulation of Village Funds of IDR 1 billion, the change in IDM score on average will increase by 0.010878 units, ceteris paribus. The magnitude of the regression coefficient of the Village Fund has a moderate impact on the economy because its value ranges between 36% and 65% (Cohen, 1988). With an average accumulated value of Village Funds per village for three years worth IDR 2.68 billion, there is the potential for an increase in IDM score changes of 58.7% from the average change in IDM scores for

all villages from 2018 to 2020. Meanwhile, if every year there is an additional Village Fund for each village of IDR 900 million (an average of the Village Fund per village per year), the potential for an increase in the IDM score change is 19.7%.

After receiving the educational support of the village head, the effectiveness of the Village Fund management on changes in the average IDM score will only increase if the village head is educated from D3/S1 and above. The slope value of the Village Fund regression coefficient after receiving the education support of the village head is a combination of the interaction coefficient per education level and the Village Fund coefficient value before receiving PKD support. Thus, every IDR 1 billion increase in the Village Fund allocation will increase the average IDM score change from 0.010878 units to 0.012848 units after receiving the support of a D3/S1 educated village head. Meanwhile, every IDR 1 billion increase in the Village Fund allocation will increase the change in IDM scores on average from 0.010878 units to 0.017347 units after getting the support of the village head with an S2/S3 education, ceteris paribus.

However, the effectiveness of Village Fund management will decrease with changes in the average IDM score if the village head is educated from high school and below, namely: The high school (SMA) education coefficient is -0.000701, so every IDR 1 billion increase in the allocation of the Village Fund will continue to increase the change in the average IDM score, but the slope of the effectiveness of the Village Fund will decrease from 0.010878 units to 0.010177 units, ceteris paribus; The coefficient of junior high school (SMP) education is -0.001586, so an increase of IDR 1 billion in the allocation of the Village Fund will still increase the change in the average IDM score, but the slope of the effectiveness of the Village Fund will decrease from 0.010878 units to 0.009292 units, ceteris paribus; and Elementary school (SD) education coefficient is -0.002762, so an increase of IDR 1 billion in Village Fund allocation will still increase the average change in IDM scores, but the slope of the effectiveness of the Village Fund

will decrease from 0.010878 units to 0.008116 units, ceteris paribus.

The results of this study illustrate that village head education above SMA (D3/S1 and S2/S3) can encourage more effective Village Fund management so that it influences changes in the IDM score, which indicates an increase in the development of a village. With an average accumulated value of Village Funds per village of IDR 2.68 billion, there is a potential for growth in IDM score changes of 69.4% for D3/S1 education; and 93.7% for S2/S3 education. The magnitude of the coefficient value of the support of the village head education in managing the Village Fund on changes in the IDM score has a high value on the economy. By getting a better-educated village head, the Village Fund relationship can more effectively increase the change in the IDM score with a value close to the average change in the IDM score per village, which is 0.0496.

Overall, the results of this study are different from previous studies (Gani et al., 2020; Arina et al., 2021; Kharisma et al., 2021; Yulitasari & Tyas, 2020), which have not included a moderating variable in the form of village head education as the object of research. With the improvement in the practical design of the research model, the results of this study contribute by statistically proving that the effect of the effectiveness of the Village Fund will increase significantly more positively on changes in village status through changes in the IDM score if it has the support of village heads with education above SMA (D3/ S1 and S2/S3). Following the production theory, from 2018 to 2020, villages that have input in the form of Village Fund capital and highly educated village heads will contribute positively to producing higher output changes in the IDM value so that it affects changes in village status.

The results of this study are on the theory of production. The use of production theory is straightforward to use in economic discussions, especially in the relationship between an independent variable and the dependent variable and between independent variables. This theory of production can assume how the production of

a village government is. In the simplest form in this study, the output comes from a function of several government inputs, q = f (k, l), where the output (q) is in the form of development per village in a certain period, and input in the form of capital (k = Village Fund) and labor (l = educated village head) per village during the period.

In line with the village's achievement, development requires input regarding funding/capital and human resources. The results of this study provide an overview of human capabilities in the form of village head education that can encourage village funds, in this case, as capital. With an education background above SMA, village fund utility substantially impacts village development with positive IDM change.

Furthermore, a positive relationship is found between Road Quality and Changes in the Village Head Education. The road quality coefficient means that the average change in the IDM score will be higher in villages with an increase in road quality of 0.002553 compared to poor road quality and a decrease in road quality at a significance level of 1%, ceteris paribus. The variable of the change in the village head education is positive. Namely, the change in the IDM score will be better if there is an increase in the village head education, or it does not change by 0.002019 compared to a decrease in the village head education at a significance level of 10%, ceteris paribus. If there is an increase in the village head education or it remains the same from the beginning to the end of the observation period, the change in the IDM score tends to be higher.

Meanwhile, a significant adverse effect is a change in the IKG variable at the level α =5% and the average number of households at the level α =1%. The coefficient of change in the IKG variable shows that villages with difficult geographical conditions have lower IDM scores on average, ceteris paribus, and villages with many households tend to change their IDM scores less, ceteris paribus. The results of the number of households are similar to Mulyadi (2012) that more communities in an area can

hinder development because the quality of human resources in the area is not yet high. It is suspected that not all people in the village have good quality human resources, so the potential of village household human resources is negatively correlated with changes in the IDM score. Villages with quality communities can positively impact village development in the future. The results of this study are also similar to those of Kharisma et al. (2021), who estimate that a decrease in IKG will increase the level of IDM. Thus, it can be seen that the more complex the geographical conditions of a village and a large number of households tend to have fewer changes in village development.

Finally, the constant coefficient in this study explains that if there is no Village Fund, Village Head Capacity support, and control variables, the average change in IDM value is significantly 0.035870 units. The constant-coefficient value is higher than the Village Fund coefficient value because the village's authority in determining the IDM indicator is limited. Other factors outside the village authority determine the rest . Overall, the results of the regression model of this study can answer the research problem and justify the research hypothesis, but only for certain levels of education.

CONCLUSION

This study seeks to provide evidence that the influence of village head education support in managing Village Fund can significantly improve the development of village status. In order to observe the progress of a village's development, this study employs variations in the magnitude of the Building Village Index (IDM). Meanwhile, the research method uses cross-section data regression with sample data from villages throughout Indonesia between 2018-2020.

The results of this study generally state that the educational support of the village head in the management of the Village Fund is statistically proven to have a significant effect on the development of village status. The effectiveness of Village Fund management will increase concerning changes in the IDM score on average if village heads manage it with education above

high school (D3/S1 and S2/S3). Otherwise, the effectiveness will decrease when the village head is educated from high school and below (SD, SMP, and SMA).

Road quality variables and village head education changes are positively related to changes in the IDM score. On the other hand, changes in the IKG variable and the number of households negatively correlate with changes in the IDM score, which indicates that villages with a large number of households and difficult geographical conditions tend to have fewer changes in the IDM score on average.

The implications of this study are helpful for the Central Government in providing intervention on the policy criteria for the Village Funds allocation, especially on performance allocation, by including village head education as an additional indicator in the Village Fund management process. Following the results of this study, the village head's education can be a factor in the better performance of the Village Fund for village development. Meanwhile, the Village Government should give priority to the use of Village Funds in the field of village community empowerment to increase the capacity of village heads and can be one of the considerations in providing literacy to village communities to determine which village head candidates they will choose so that the quality of the Village apparatus improves.

This study has limitations in determining the research object, time span, and variables' scope. However, the results of this study are undoubtedly relevant in representing the reality of village head education support in increasing the effectiveness of the Village Fund on village status development in Indonesia. With these limitations, further research can add an extended period; village apparatus variables other than the village head, such as the village secretary and the head of financial affairs which also have the potential to support the village head in managing the Village Fund; other human resource capacity variables; and various relevant and contributing variables in research on village status.

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