

THE EFFECT OF VILLAGE FUND ALLOCATION AND GROSS DOMESTIC PRODUCT ON THE INCREASE IN THE VILLAGE DEVELOPMENT INDEX AT THE PROVINCIAL LEVEL IN INDONESIA

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ABSTRACT

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This study aims to analyze the effect of Village Fund allocation and Gross Regional Domestic Product (GRDP) on the improvement of the Village Development Index (IDM) at the provincial level in Indonesia. The data used is secondary data from the Village Information System (SID) of the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, and the Central Bureau of Statistics (BPS), which includes data on the allocation of Village Funds and GRDP in 2023, as well as data on the increase in IDM scores in 2024. This study was conducted in 36 provinces in Indonesia. Data analysis used multiple linear regression methods to test the influence of two independent variables on the increase in IDM scores. The results show a very weak relationship between the Village Fund, GRDP, and IDM score improvement, with a low coefficient of determination ($R^2 = 0.034$). Several factors, such as the already high initial condition of IDM, the quality of local leadership, and the implementation of President Jokowi's Nawacita policy for the development of disadvantaged regions, influenced the results. This study suggests improvements in Village Fund governance, strengthening the capacity of local leaders, and optimizing GRDP to support more effective village development.

Introduction

Since the launch of the Village Fund policy in 2015, the Indonesian government has been committed to accelerating village development as a strategy to reduce regional inequality and improve the welfare of rural communities. The Village Fund is used to support various development programs, such as infrastructure, economic empowerment, and social services. One indicator of the success of this program is the Village Development Index (IDM), which measures the level of village development based on social, economic, and ecological dimensions. However, the implementation of the Village Fund does not always show equitable results. Differences in fund management capacity, the quality of local leadership, community participation, and the initial condition of villages are challenges in optimizing the Village Fund. In addition, President Joko Widodo's Nawacita policy, which emphasizes development from the periphery, requires consistent implementation time to support the acceleration of village development. Therefore, it is important to analyze the relationship between Village Fund allocations, Gross Regional Domestic Product (GRDP), and IDM improvements to provide input for more effective village development policies.

While the Village Fund has had a significant impact in supporting village development, there are disparities in the results achieved across provinces. This is shown by variations in IDM scores, which indicate differences in the effectiveness of fund allocations among provinces with different geographic, social, and economic conditions. Some provinces with already high IDMs experienced smaller increases in scores, while provinces with low IDMs tended to have greater room for

improvement. Therefore, a comprehensive study is needed to understand the effect of Village Fund and GRDP together on IDM at the provincial level.

This study aims to analyze the relationship between the 2023 Village Fund allocation, GRDP, and the 2024 IDM score improvement at the provincial level. It also seeks to identify the factors that influence the effectiveness of Village Fund allocations and GRDP in improving IDM, as well as provide policy recommendations for the optimization of Village Fund utilization in Indonesia. Using the latest data from the Village Information System (SID) and Statistics Indonesia (BPS), this study examines the quantitative relationship between the Village Fund, GRDP, and IDM at the provincial level to provide a new and more comprehensive perspective in supporting village development.

Based on Government Regulation No. 60/2014, Village Funds are funds allocated from the State Budget (APBN) to fund the administration, development, community development, and empowerment of village communities. The Village Fund aims to accelerate village development and improve community welfare through transparent, participatory, and accountable utilization. The Village Development Index (IDM), as explained in Permendesa No. 2/2016, is a measurement tool used to assess the status of village progress based on social, economic, and ecological dimensions. The IDM is classified into five categories: very underdeveloped, underdeveloped, developing, developed, and independent. IDM serves as a guide for the government in setting village development priorities.

Literature Review

Research on the effect of the Village Fund allocation on village development has been conducted by various parties with various approaches. One significant study is the work of Eri Bukhari (2020), which highlights the role of the Village Fund in alleviating poverty in rural areas. This research shows that the Village Fund contributes to the improvement of basic infrastructure, such as roads and irrigation, which directly impacts poverty reduction. However, Bukhari also noted challenges related to the unequal distribution of the Village Fund between regions, so its effectiveness is not felt across the board. Bukhari asserted that "The uneven distribution of the Village Fund between regions is a challenge in the implementation of this program" (Bukhari, 2020).

Another relevant study was conducted by Agus Nyoman Astika and Nyoman Sri Subawa (2021), who evaluated village development in Bali using the Village Development Index (IDM) as the main indicator. The results showed that the social dimension of the IDM progressed more rapidly than the economic and ecological dimensions. The study also highlighted the importance of local economic development to support the sustainability of village development. Astika and Subawa stated that "An increase in IDM not only reflects the success of village development but also indicates areas that require further attention, such as the local economy" (Astika & Subawa, 2021).

Andi Eka Iftitah and Puji Wibowo (2022) also conducted relevant research, using a linear regression approach to measure the impact of the Village Fund on IDM scores in Gowa Regency. The study found that the Village Fund had a significant impact on the social and economic dimensions of the IDM, although it had less effect on the ecological dimension. They concluded that the success of the Village Fund in improving the quality of life of rural communities was mainly seen in the social aspect. In their study, they stated that "The significant impact of the Village Fund on the social dimension indicates the success of the program in improving the quality of life of village communities" (Iftitah & Wibowo, 2022).

However, most existing studies tend to focus on local cases or specific aspects, such as poverty alleviation or partial evaluations of IDM dimensions. This study attempts to fill this gap by examining the quantitative relationship between Village Fund allocations, Gross Regional Domestic Product (GRDP), and improvements in IDM at the provincial level, using the latest data from the Ministry of Villages' Village Information System (SID) and the Central Statistics Agency (BPS). This research is expected to provide a more comprehensive perspective on the effectiveness of the Village Fund in supporting sustainable village development.

Method

This study uses a quantitative approach to analyze the effect of Village Fund allocations and Gross Regional Domestic Product (GRDP) on the increase in the Village Development Index (IDM) score at the provincial level in Indonesia. The data used is secondary data in the form of a cross-section sourced from the Village Information System (SID) of the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, and the Central Bureau of Statistics (BPS).

Research Variables

1. Independent Variable:
 - Provincial-level Village Fund Allocation in 2023 (in rupiah, logarithmized).
 - Province-level GRDP in 2023 (in rupiah, logarithmized).
2. Dependent Variable:
 - Percentage increase in province-level IDM score by 2024.
3. Control Variables:
 - Number of villages, education level, and infrastructure access, which are intended to increase the validity of the relationship between the independent and dependent variables.

Data Used

- Total provincial distribution of Village Fund in 2023.
- Provincial-level GRDP data for 2023.
- IDM scores at the provincial level in 2023 and 2024.

The data collection process was conducted through documentation from the official SID report of the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, as well as official BPS publications. The collected data was then classified according to the province to facilitate analysis. The data was analyzed using multiple linear regression methods to see the quantitative relationship between Village Fund allocations, GRDP, and the increase in IDM scores. The multiple linear regression model used is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e \dots\dots\dots(1)$$

Description:

- Y: Increase in IDM score (%).
- X_1 : Provincial-level Village Fund Allocation in 2023 (in rupiah, logarithmized).
- X_2 : Province-level GRDP in 2023 (in rupiah, logarithmized).
- α : Constant.
- β_1, β_2 : Regression coefficient of each independent variable.
- e: Error term or other unmeasured parameters.

The data were analyzed using Microsoft Excel software with the support of the *Data Analysis Toolpak* feature for regression. In addition, logarithmic transformation of the Village Fund and GRDP variables was performed to adjust the scale of the data to make it more normally distributed and produce more valid analysis results.

The results of the analysis will be displayed in the form of regression tables, scatter plots, and bar charts to visualize the relationship between variables. Interpretation of the results is done based on the regression coefficient value, statistical significance, and the coefficient of determination (R^2) value.

Results and Discussion

In this section, the research results will be presented in tabular form to facilitate the analysis of the relationship between Village Fund allocations, Gross Regional Domestic Product (GRDP), and the increase in the Village Development Index (IDM) score. The data used includes the allocation of the Village Fund in 2023, GRDP, and the increase in the IDM score in 2024. The Village Fund allocation received by each province in 2023 varies, with the largest amount received by East Java Province at IDR 8.165 trillion, while Riau Islands Province received the smallest amount, at IDR 225.7 billion. On the other hand, the increase in IDM score in 2024 also shows significant variation. South Papua Province recorded the highest increase in IDM score of 6.92%, while Central Papua Province recorded a decrease in IDM score of -0.61%.

As a first step in the analysis, Table 1 below presents data on the name of the province, the number of villages, the distribution of the Village Fund, the value of the Village Fund that has been adjusted in the form of natural logarithms (LN), and the value of GRDP that has also been adjusted using natural logarithms. The logarithm adjustment is done to overcome the large scale of the data and to ensure that the data has a more normal distribution, thus allowing for more in-depth interpretation in the multiple linear regression analysis.

Table 1. Village Fund Distribution Data 2023

Province	Number of Villages	Distribution to RKD (in trillion rupiah)	Adjustments Logarithms Natural (LN)
Aceh	6.495	4,86	29,213
North Sumatra	5.417	4,35	29,102
West Sumatra	2.209	1,46	28,009
Riau	1.591	1,45	28,005
South Sumatra	2.853	2,55	28,566
Jambi	1.399	1,15	27,774
Bengkulu	1.341	0,1	27,633
Lampung	2.455	2,01	28,329
Bangka Belitung Islands	209	0,23	26,142
Riau Islands	379	0,23	26,143
West Java	7.809	7,79	29,684

Province	Number of Villages	Distribution to RKD (in trillion rupiah)	Adjustments Logarithms Natural (LN)
Central Java	7.809	7,85	29,692
Special Region of Yogyakarta	392	0,54	27,006
East Java	7.722	8,17	29,731
Banten	1.237	1,18	27,793
Bali	636	0,63	27,169
West Nusa Tenggara	1.005	0,11	27,727
East Nusa Tenggara	3.026	2,66	28,608
West Kalimantan	2.031	1,87	28,256
Central Kalimantan	1.432	1,19	27,804
South Kalimantan	1.863	1,69	28,154
East Kalimantan	841	0,79	27,396
North Kalimantan	447	0,04	26,717
North Sulawesi	1.507	1,15	27,772
Central Sulawesi	1.908	1,51	28,040
South Sulawesi	2.255	2,07	28,356
Southeast Sulawesi	1.908	1,15	27,773
Gorontalo	533	0,52	26,982
West Sulawesi	575	0,05	26,944
Maluku	1.103	0,78	27,382
North Maluku	468	0,08	27,408
Papua	1.741	1,28	27,881
West Papua	741	0,07	27,268
Central Papua	1.172	0,11	27,730
Papua Mountains	2.617	0,1	27,632
South Papua	674	0,07	27,268

Following on from Table 1, Table 2 below presents the GRDP data for each province in 2023, adjusted using the natural logarithm (LN). This data is an important part of the analysis to see how provincial economic contributions through GRDP can influence the increase in the Village Development Index (IDM) score. The logarithm adjustment of GRDP is done to ensure that large-scale data is easier to analyze while reducing potential heteroscedasticity problems in multiple linear regression models. This table provides an overview of the variation in GRDP between provinces, with the largest value coming from West Java Province, which recorded GRDP of IDR778.9 trillion, while the smallest value was recorded in Bangka Belitung Islands Province at IDR 22.5 trillion. Logarithmic adjustment of the GRDP data results in a more compressed scale, making the regression analysis more representative.

Table 2. Gross Regional Domestic Product Data in 2023

Province	GRDP (in trillion rupiah)	Natural Logarithm Adjustment
Aceh	0,02	14,636
North Sumatra	1,05	18,470
West Sumatra	0,31	17,258
Riau	1,03	18,447
South Sumatra	0,29	17,196
Jambi	0,63	17,957
Bengkulu	0,10	16,083
Lampung	0,45	17,620
Bangka Belitung Islands	0,10	16,144
Riau Islands	0,03	15,015
West Java	2,63	19,386
Central Java	1,70	18,949
Special Region of Yogyakarta	0,18	16,710
East Java	2,95	19,504
Banten	0,81	18,215
Bali	0,27	17,127
West Nusa Tenggara	0,17	16,627
East Nusa Tenggara	0,13	16,369
West Kalimantan	0,27	17,128
Central Kalimantan	0,21	16,855
South Kalimantan	0,27	17,109
East Kalimantan	0,84	18,251
North Kalimantan	0,15	16,505
North Sulawesi	0,17	16,660
Central Sulawesi	0,35	17,363
South Sulawesi	0,65	17,994
Southeast Sulawesi	0,02	14,382
Gorontalo	0,01	13,149
West Sulawesi	0,06	15,583
Maluku	0,06	15,582
North Maluku	0,09	15,957
Papua	0,08	15,916
West Papua	0,06	15,633
Central Papua	0,15	16,526
Papua Mountains	0,02	14,709

Province	GRDP (in trillion rupiah)	Natural Logarithm Adjustment
South Papua	0,03	14,958

As a key support for the analysis, Table 3 below presents data on each province's Village Development Index (IDM) score for 2023 and 2024. This data includes the initial and final IDM scores, the IDM category status in both years and the percentage increase in IDM scores. This information provides an overview of the development of village status in different provinces over the study period. In 2023, there is variation in IDM status between provinces, ranging from "Very Disadvantaged" to "Independent." For example, the province of Daerah Istimewa Yogyakarta had the highest IDM score in 2023, at 8.55, with the status of "Independent," while the province of Papua Pegunungan recorded the lowest IDM score of 4.29, with the status of "Very Disadvantaged." In 2024, there were changes in scores and categories, with South Papua Province recording the highest IDM score increase of 6.92%, while Central Papua Province experienced a decrease in IDM score of -0.61%.

Table 3. IDM Score Increase Data 2023 to 2024

Province	Status 2023	IDM Score 2023	Status 2024	IDM Score 2024	IDM Score Increase (%)
Bali	MANDIRI	0,855	MANDIRI	0,8692	1,66
Special Region of Yogyakarta	MANDIRI	0,8322	MANDIRI	0,8567	2,94
Riau	FORWARD	0,7708	FORWARD	0,8103	5,12
Bangka Belitung Islands	FORWARD	0,7878	FORWARD	0,8093	2,73
East Java	FORWARD	0,7807	FORWARD	0,8014	2,65
West Java	FORWARD	0,7798	FORWARD	0,8013	2,76
West Kalimantan	FORWARD	0,7709	FORWARD	0,7912	2,63
South Kalimantan	FORWARD	0,7479	FORWARD	0,7904	5,68
North Sulawesi	FORWARD	0,7503	FORWARD	0,7813	4,13
West Nusa Tenggara	FORWARD	0,7593	FORWARD	0,7806	2,81
West Sumatra	FORWARD	0,7514	FORWARD	0,7776	3,49
East Kalimantan	FORWARD	0,7526	FORWARD	0,7689	2,17
Gorontalo	FORWARD	0,7317	FORWARD	0,7541	3,06
South Sulawesi	FORWARD	0,7286	FORWARD	0,7518	3,18
Central Java	FORWARD	0,7301	FORWARD	0,7486	2,53
Jambi	FORWARD	0,7293	FORWARD	0,7452	2,18
Lampung	FORWARD	0,7184	FORWARD	0,7385	2,8

Province	Status 2023	IDM Score 2023	Status 2024	IDM Score 2024	IDM Score Increase (%)
Riau Islands	FORWARD	0,7101	FORWARD	0,0737	3,79
Central Sulawesi	GROW	0,6978	FORWARD	0,7285	4,4
Central Kalimantan	GROW	0,7043	FORWARD	0,7187	2,04
Bengkulu	GROW	0,6935	FORWARD	0,7133	2,86
South Sumatra	GROW	0,6894	FORWARD	0,7033	2,02
Banten	GROW	0,6803	GROW	0,6932	1,9
Southeast Sulawesi	GROW	0,6673	GROW	0,6884	3,16
North Kalimantan	GROW	0,6704	GROW	0,6875	2,55
Aceh	GROW	0,6708	GROW	0,6849	2,1
Maluku	GROW	0,6674	GROW	0,6799	1,87
West Sulawesi	GROW	0,6535	GROW	0,6671	2,08
North Sumatra	GROW	0,6265	GROW	0,6437	2,75
East Nusa Tenggara	GROW	0,621	GROW	0,6337	2,05
North Maluku	GROW	0,6053	GROW	0,6163	1,82
Papua	LOST	0,5747	LOST	0,5804	0,99
West Papua	LOST	0,5216	LOST	0,5564	6,67
South Papua	VERY LAGGING BEHIND	0,4801	LOST	0,5133	6,92
Central Papua	VERY LAGGING BEHIND	0,4736	VERY LAGGING BEHIND	0,4707	-0,61
Papua Mountains	VERY LAGGING BEHIND	0,4297	VERY LAGGING BEHIND	0,4404	2,49

After presenting supporting data in the form of Village Fund allocations, GRDP, and IDM scores, a multiple linear regression analysis was conducted to examine the relationship between Village Fund allocations (in natural logarithm form), GRDP (in natural logarithm form), and the percentage increase in IDM scores. The results of this analysis are summarized in Table 4 below, which includes various statistical parameters such as regression coefficients, *t*-statistic, *p*-value, and coefficient of determination (R^2).

Table 4. Multiple Linear Regression Analysis Results

<i>Regression Statistics</i>	
Multiple R	0,186792889

R Square	0,034891583
Adjusted R Square	-0,025427693
Standard Error	1,488225129
Observations	35

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,562310867	1,281155434	0,57844831	0,566523136
Residuals	32	70,87404913	2,214814035		
Total	34	73,43636			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	9,411142656	9,075938847	1,036933238	0,30753952
29,21280885	-0,168333896	0,409593358	-0,410978091	0,6838279
14,63577573	-0,107576401	0,24517538	-0,43877326	0,66377418

The results of the multiple linear regression analysis in Table 4 illustrate the relationship between Village Fund allocations, GRDP, and the increase in IDM scores at the provincial level. The value of $R^2 = 0.0349$ indicates that only about 3.49% of the variation in the increase in IDM scores can be explained by the combination of Village Fund allocations and GRDP. This suggests that the relationship between the independent and dependent variables is very weak.

The multiple linear regression equation obtained from the analysis is as follows:

$$Y = 9.411 - 0.168X_1 - 0.108X_2 \dots\dots\dots(2)$$

- Y: IDM score increase (%)
- X_1 : Natural logarithm (LN) of Village Funds
- X_2 : Natural logarithm (LN) of GRDP

This result indicates that an increase in the allocation of the Village Fund and GRDP in logarithmic form does not have a significant impact on the increase in the IDM score. The negative regression coefficients on both independent variables indicate that any increase in Village Fund allocations or GRDP does not necessarily increase IDM scores, and in fact, tends to show an opposite relationship. However, *p-values* for both variables greater than 0.05 corroborate the conclusion that these relationships are not statistically significant.

The non-significance of this result could be due to several factors. One possibility is that provinces with a high initial IDM have less room for improvement in IDM scores, compared to provinces that are initially in the severely disadvantaged or lagging categories. In addition, the quality of Village Fund management and the effectiveness of its use, as well as local factors such as

local policies, infrastructure, and community participation, play a larger role than the amount of funds allocated. This also points to the importance of local leadership capacity, both at the village head and governor levels, in utilizing the Village Fund for sustainable development. In addition, the peripheral development policies promoted in President Joko Widodo's Nawacita may have influenced the pattern of increases in IDM scores in certain regions. A focus on border areas or lagging regions may create variation in development outcomes that cannot be fully explained by quantitative variables such as Village Fund and GRDP.

Conclusion

Based on the results of the research and multiple linear regression analysis, the relationship between Village Fund allocations, GRDP, and the increase in the Village Development Index (IDM) score shows a very weak correlation, with a coefficient of determination ($R^2 = 0.0349$). This means that only 3.49% of the variation in the increase in IDM scores can be explained by the combination of Village Fund allocations and GRDP, while the rest is influenced by other factors. This insignificance can be caused by several reasons, such as differences in fund management capacity at the local level, uneven leadership quality, and different development priorities between regions. Provinces with high initial IDM scores have less room for improvement, while regions with low scores tend to show more significant increases. In addition, geography, policy effectiveness, and infrastructure play an important role in determining the success of village development. President Joko Widodo's Nawacita program, which emphasizes development from the periphery to strengthen underdeveloped regions, provides a supportive framework for village development. However, the results of this study show that the implementation of the policy needs to be continuously improved to be more effective in achieving sustainable development goals.

Therefore, the government needs to optimize the use of Village Funds and GRDP by strengthening the capacity of village officials through technical training and intensive mentoring. In addition, the focus of fund management should be directed at strategic programs that have a direct impact on the quality of life of village communities, such as local economic empowerment, basic infrastructure development, and improved access to education and health. In the context of Nawacita, the policy of development from the periphery must be accompanied by strict supervision and continuous evaluation to ensure that the allocated funds are used by the needs of the community. With a more integrated approach, including considering social, geographical, and local economic factors, the Village Fund and GRDP are expected to make a more significant contribution in supporting equitable and sustainable village development.

References

- Aminarta, A. A., & Kurniawan, M. L. A. (2021). Analysis of Macroeconomic Indicators Against the Composite Stock Price Index (CSPI) in Indonesia: Vector Error Correction Model (VECM) Approach. *Journal of Economics Research and Social Sciences*, 5(2), Layouting. <https://doi.org/10.18196/jerss.v5i2.12267>
- Ruiz-Peñalver, S. M., Rodríguez, M., & Camacho, J. A. (2019). A waste generation input-output analysis: The case of Spain. *Journal of Cleaner Production*, 210, 1475–1482.
- Stimson, R. J., Stough, R. R., & Roberts, B. H. (2006). *Regional Economic Development*. Springer Berlin Heidelberg.

Badan Pusat Statistik. (2021). *Tabel inter regional input-output Indonesia transaksi domestik atas dasar harga produsen menurut 34 provinsi dan 52 industri (juta rupiah)*. Input-Output.

<https://www.bps.go.id/publication/2021/12/29/3ea49c0d856eceaba836792d/tabel-inter%0Aregional-input-output-indonesia-tahun-2016-tahun-anggaran-2021.html%0A>

Kementrian Koordinator Bidang Perekonomian. (2021). *Sosialisasi PP 41/2021: Reformasi rencana induk dan penyelenggaraan KPBPB Batam, Bintan, Karimun sebagai kawasan perdagangan bebas berkelas dunia*.

Bukhari, E. (2019). Pengaruh Dana Desa dalam Mengentaskan Kemiskinan Penduduk Desa. *Jurnal Ekonomi Pembangunan Desa*.

Nyoman Astika, A., & Nyoman Sri Subawa. (2020). Evaluasi Pembangunan Desa Berdasarkan Indeks Desa Membangun. *Jurnal Pengembangan Desa Berkelanjutan*.

Andi Eka Iftitah & Puji Wibowo. (2019). Pengaruh Dana Desa, Alokasi Dana Desa, dan Pendapatan Asli Desa terhadap Indeks Desa Membangun di Kabupaten Gowa. *Jurnal Fiskal dan Keuangan Desa*.