

Factors Affecting the Developing Village Index (IDM) in the North Lampung Regency Area

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ABSTRACT

The Developing Village Index (IDM) is a crucial indicator to measure the progress of village development in North Lampung Regency. This study aims to analyze the status and performance of IDM in North Lampung Regency during the 2018-2023 period, identify factors influencing the IDM values, and formulate strategies to improve the IDM based on the analysis. The research employs a narrative descriptive method to describe IDM status and performance, panel data regression to examine the influence of independent variables—village funds, village fund allocation, population density, and poor population—on the IDM, and SWOT analysis to develop effective strategies for IDM improvement. Results show that IDM performance in several sub-districts experienced stagnation or decline, with no village achieving independent status by 2023. Regression analysis indicates that simultaneously village funds, village fund allocation, population density, and poor population significantly affect IDM, with fund allocation, population density, and poor population having partial significant effects. Recommended strategies include enhancing human resources through training, optimizing village management based on digital technology, developing economic and tourism potential, improving tourism sector supervision, and advancing village product development. This study recommends local government evaluate and monitor village fund utilization effectively to boost IDM performance and encourages village governments to identify and develop village potentials in synergy with regional authorities.

Keywords: Developing Village Index, Village Funds, Population Density, Poor Population, Village Development Strategy

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INTRODUCTION

Law Number 6 of 2014 defines that a village is a legal community unit that has territorial boundaries that are authorized to regulate and manage government affairs, the interests of the local community based on community initiatives, rights of origin, and/or traditional rights that are recognized and respected in the system of government of the Unitary State of the Republic of Indonesia. Government financial management encompasses all activities or activities related to revenue problems, spending problems, problems with handling excess income over expenditure (*surplus*) or the problem of excess spending over income (*deficit*) known as financing problems (Syachbrani & Yahya, 2018).

Financial management is all company activities related to efforts to obtain company funds at a low cost as well as efforts to use and allocate these funds efficiently (Emarwati & Pujianto, 2022). The village revenue and expenditure budget is an integral part of the development and village household policy apparatus (Dieber et al., 2017). To support the implementation of development in the village, it is necessary to ensure costs from various sources, both government, private and local communities (Wahjudin Sumpeno, 2011). Village income in Law Number 6 of 2014 is obtained from the village's original income (consisting of business results, asset revenues, self-help and participation and others), allocation of State

Revenue and Expenditure Budget, regional tax revenues and levies, allocation of village funds, financial assistance from the Provincial Regional Expenditure Budget and Regency/City Regional Revenue and Expenditure Budget, grants and donations and other legitimate village revenues.

Village Fund and Village Fund Allocation (ADD) is a term in the financial management of a village after the enactment of the Village Law. The definition of Village Fund began to be used in Government Regulation Number 43 of 2014 concerning the Implementation Regulation of Law Number 6 of 2014. Based on Government Regulation Number 43 of 2014 concerning Implementation Regulations of Law Number 6 of 2014 concerning Villages, it is stated that Village Funds are funds sourced from the State Revenue and Expenditure Budget intended for villages which are transferred through the Regency/City regional revenue and expenditure budget and are used to finance the implementation, government, implementation of development, community development and community empowerment (Chandra, 2013; McKinney, 2015; Setyowati, 2019; Sri & Suyana, 2019). The allocation of village funds, as stated in the Regulation of the Minister of Home Affairs Number 37 of 2011, is obtained from the Regency/City Budget which is sourced from the Library and Regional Financial Balance Fund which is at least 10% of the balance fund received by the Regency/City.

The Building Village Index as described in the book entitled "Building Village Index" by the Ministry of Villages, Development of Disadvantaged Regions and Transmigration, was developed to strengthen efforts to achieve the development goals of Villages and Rural Areas as stated in the National Medium-Term Development Plan Book 2015-2019 (Finkler et al., 2025a, 2025b; Gallagher, 2022; Madura et al., 2018).

The Developing Village Index (IDM) was developed to reduce the number of disadvantaged villages to 5000 villages and increase the number of Independent Villages to at least 2000 villages by 2019. Population is one of the important components in the development of a region. Population is also one of the indicators in regional development for improvements that can be made by local governments in the region. A qualified population in an area will have an impact on several sectors for development in the region, such as being able to increase the welfare in the region (Hendrick, 2011; Shapiro & Hanouna, 2019; Sugiharti et al., 2021; Temenggung, 2016).

The area to be developed, must distribute funds to the area and consider the population density in the area. Population density is the ratio of the number of inhabitants per square kilometer (km²). An increase in population density can affect the development of a region because the population density in an area has an influence on the increase in the economy. Another factor that can affect development in an area is the poor population. The poor population has an impact on the development of an area because the population of the miksin is included in the calculation indicators for the allocation of village funds in each village (Muzakki & Arif, 2021; Stallings, 2018).

North Lampung Regency is one of the oldest districts or cities in Lampung Province which was established after the independence of the Republic of Indonesia as stated in the Decree of the Resident of Lampung of the Republic of Indonesia dated June 15, 1946 No. 304 as well as Central Lampung Regency and South Lampung Regency. Based on the Law of the Republic of Indonesia Number 28 of 1959 concerning the Stipulation of Emergency Law No.4 of 1956, North Lampung Regency as well as Central Lampung Regency and South Lampung Regency are districts that have the right to take care of their own households under the government of South Sumatra Province. North Lampung Regency became part of Lampung Province based on Law No. 14 of 1964. North Lampung Regency consists of 23 sub-districts and 247 villages and sub-districts with details of 232 villages and 15 sub-districts. North Lampung Regency has an area of 2,725.63 km². Based on data by the Central Statistics Agency (BPS), in 2023 Lampung Province consists of a total of 13 districts and 2 cities with details of

229 sub-districts, 2,654 villages and sub-districts, has an area of 33,575.41 km² and a population of 9,269,110 people spread across 13 districts and 2 cities. The population from 2018-2023 in Lampung Province will be explained in Table 1.

Table 1. Number of population per district in Lampung Province

Regency	Number of Regency Population in Lampung Province					
	2018	2019	2020	2021	2022	2023
LB	300.703	302.828	304.874	303.931	303.397	303.931
TGMS	592.603	598.299	603.706	645.807	652.898	659.818
LS	1.002.285	1.011.286	1.019.789	1.071.727	1.081.115	1.090.174
LTIM	1.036.193	1.044.320	1.051.994	1.118.115	1.127.946	1.137.434
LTENG	1.271.566	1.281.310	1.290.407	1.477.395	1.500.022	1.522.426
*READ	507.376	492.217	511.827	512.686	532.757	540.511
WK	446.113	450.109	453.921	476.871	481.036	485.056
TUBA	445.797	450.902	455.891	427.152	431.208	431.623
PSWR	440.192	444.380	448.410	481.708	487.153	492.474
PRING	397.219	400.187	403.115	406.823	408.415	409.858
MSJ	199.168	200.198	200.999	229.772	232.685	235.546
TBB	271.206	273.215	274.905	287.707	289.620	291.437
PSB	153.743	154.895	155.883	165.937	164.816	165.937

Source: Central Statistics Agency, 2024

*Data does not include residents in the sub-district only includes residents in the village

From 2020 to 2022, North Lampung Regency always ranked 12th out of 13 provinces and only ranked 10th in 2018 to 2019. In 2023, North Lampung Regency ranks 13th below West Coast Regency which is an expansion of West Lampung Regency. When compared to Central Lampung and South Lampung Regency which are included in the oldest districts in Lampung Province, North Lampung Regency is still far from a good status because South Lampung and Central Lampung Regency always occupy the top five positions every year. North Lampung Regency has always been under West Lampung, Tulang Bawang and Way Kanan Regency from 2020-2023. With the ranking results in Table 5., it shows that North Lampung Regency has an increase in the small or stagnant developing village index, only one rank above the newly blooming districts and lagging behind the increase of other districts. Therefore, it is necessary to analyze the factors that can affect the value of the Building Village Index in North Lampung Regency.

Based on the formulation of the problem and background, the purpose of this writing is to find out the status and performance of the Building Village Index in North Lampung Regency in the 2018-2023 period, analyze the factors that affect the index, and examine strategies that can be applied to have a positive impact on the Building Village Index in the region; This research is expected to provide benefits for the North Lampung Regency government as a material for advice and information in designing a village development strategy, for villages as a guideline in improving the performance and status of the Building Village Index in the future, as well as as a reference and consideration for further research.

Despite the strategic purpose of the Developing Village Index (IDM) to measure and enhance rural development, North Lampung Regency has consistently ranked among the lowest in Lampung Province from 2018 to 2023. No village in the district has achieved independent status by 2023. The recurring stagnation or decline in IDM performance across many sub-districts suggests underlying inefficiencies in fund allocation, population management, and poverty alleviation, highlighting the need to investigate the driving factors behind these developmental disparities.

Improving the status of the IDM is essential for reducing inequality and achieving balanced regional development. North Lampung's consistently low rankings compared to neighboring regencies like Central and South Lampung emphasize the urgency of optimizing development strategies, particularly since the district is one of the oldest in the province. Without a clear understanding of the causes behind weak IDM performance, villages risk being left behind in national development targets.

Furthermore, proper allocation and utilization of village funds are vital, given their intended function to support governance, development, empowerment, and service delivery. Misalignment between demographic indicators—such as poverty rates and population density—and funding allocation not only hampers growth but also wastes valuable state resources. A timely and accurate analysis is required to inform effective policy and ensure North Lampung can catch up with its regional counterparts.

Ekawati et al. (2022) found that village fund utilization significantly impacts the IDM by supporting community empowerment initiatives. Their study emphasized the importance of aligning fund usage with local socioeconomic needs to improve village status. Similarly, Arina et al. (2021) reported that both village funds and fund allocations had a partial impact on IDM growth, reinforcing the value of financial management at the village level.

However, Halim and Taryani (2023) presented different findings, suggesting that village fund distributions only affect IDM performance after a two- to three-year lag, indicating that immediate outcomes may not always reflect the long-term benefits of funding. This discrepancy suggests the need to assess both timing and contextual application of fund usage to ensure effective development.

Ifitah and Wibowo (2022) highlighted that village fund usage for capital in BUMDes (Village-Owned Enterprises) has a direct positive impact on IDM. In contrast, allocation of village funds did not always yield similar effects, pointing to a gap between intended allocation and practical outcomes. Their research underscores the importance of not only fund distribution but also its strategic application for sustainable results.

While existing studies address the impact of village funds on IDM performance, few have examined the combined influence of village fund allocation, population density, and poverty within a comprehensive panel data framework. Moreover, limited attention has been paid to the persistent stagnation in IDM rankings in older, historically established districts like North Lampung. There is also a lack of integrated strategic analysis—such as SWOT—to formulate region-specific solutions based on empirical data.

This study introduces a unique combination of narrative descriptive analysis, panel data regression, and SWOT strategic formulation to assess and address the stagnation in the Developing Village Index of North Lampung Regency. It not only quantifies the influence of multiple socioeconomic factors on IDM performance but also proposes actionable, regionally grounded strategies to improve developmental outcomes, offering both academic and practical contributions to village governance discourse.

The primary objective of this research is to evaluate the status and performance trends of the Developing Village Index in North Lampung Regency from 2018 to 2023, identify the key socioeconomic factors influencing IDM—including village funds, fund allocation, population density, and poverty—and formulate effective strategies to enhance IDM performance using the SWOT analysis approach.

This study provides crucial insights for policymakers, local government authorities, and development planners. It offers evidence-based recommendations for improving fund allocation practices and targeting poverty alleviation and population planning efforts. Moreover, the proposed strategic framework supports more efficient village development planning, contributing to the long-term goal of elevating North Lampung's village status and enabling it to serve as a development model for other regions.

METHOD

The basic method of this research begins with a narrative descriptive method to analyze the building village index, then the collected data is sorted based on years and villages in the North Lampung Regency area and analyzed using panel data regression to determine the relationship between variables, and continued with the SWOT method to formulate the right strategy to improve the building village index; the basic concept and operational limitations include the definition of village according to Law Number 6 of 2014, the definition of village funds, the allocation of village funds, population density, poor population, and the developing village index which are the research variables, with secondary data collected from various related agencies; analysis using quantitative and descriptive narrative methods with panel data regression which includes the selection of the best panel data models through Chow, Hausman, and Lagrange Multiplier tests, as well as testing classical assumptions such as multicollinearity and heteroscedasticity; the feasibility test of the model includes a determination coefficient (Adjusted R-Square), a simultaneous significance test (Test F), and a partial test (Test t) to test the influence of independent variables on the index of developing villages; Finally, the third objective analysis uses the SWOT method detailed through IFAS and EFAS to facilitate strategic decision-making that has an impact on the development village index in North Lampung Regency, as described in the SWOT matrix on the supporting figures of the study.

RESULTS AND DISCUSSION

A. Status and Performance of the Building Village Index

1. Performance of the Building Village Index in Each District

The status of each sub-district is obtained from the average value of the building village index in each village in the sub-district. After knowing the performance value of the village index that built it, the next step is to determine the status based on the average value that has been obtained. The determination of status is carried out by the Ministry of Villages, Development of Disadvantaged Regions and Transmigration every year in all villages in Indonesia.

North Lampung Regency, which consists of 23 sub-districts and 232 villages, has a different status and performance or value of the developing village index every year. The performance of the village index in several sub-districts has increased, but not significantly. This causes the status of each sub-district to not change or stagnate every year. Another cause of the unchanged status of the developing village index is that several sub-districts experienced a decline in performance from the previous year. Although there has been an increase in performance from several sub-districts, the decline in performance has also had an impact on the status of the village index in North Lampung Regency. The most significant impact is that North Lampung Regency is always at the bottom when compared to other districts in Lampung Province.

In addition, North Lampung Regency ranks last in 2023 even with a smaller score compared to West Coast Regency. The performance of the development village index in each sub-district in the North Lampung Regency area for the period 2018-2023 will be explained by Table 2.

Table 2. The performance of the village development index in each sub-district

No	Name of the sub-district	Performance of the Building Village Index					
		2018	2019	2020	2021	2022	2023
1	Kemuning Hill	0,525	0,659	0,663	0,666	0,681	0,689
2	Kotabumi	0,581	0,601	0,618	0,625	0,645	0,657
3	South Sungkai	0,565	0,555	0,616	0,631	0,658	0,662

No	Name of the sub-district	Performance of the Building Village Index					
		2018	2019	2020	2021	2022	2023
4	Tanjung Raja	0,573	0,583	0,609	0,655	0,663	0,670
5	East Abung	0,607	0,615	0,638	0,649	0,670	0,659
6	West Abung	0,569	0,581	0,623	0,630	0,648	0,661
7	South Abung	0,602	0,620	0,652	0,665	0,687	0,692
8	North Sungkai	0,583	0,609	0,640	0,652	0,686	0,696
9	North Kotabumi	0,616	0,669	0,686	0,710	0,733	0,745
10	South Kotabumi	0,558	0,581	0,605	0,616	0,629	0,643
11	Central Abung	0,588	0,594	0,631	0,639	0,656	0,664
12	Abung Tinggi	0,620	0,661	0,661	0,659	0,669	0,680
13	Abung Semuli	0,657	0,641	0,647	0,659	0,672	0,676
14	Abung Surakarta	0,643	0,641	0,657	0,658	0,674	0,684
15	Sungkai Estuary	0,543	0,565	0,579	0,588	0,625	0,652
16	Bunga Mayang	0,601	0,601	0,641	0,647	0,666	0,662
17	Hulu Sungkai	0,583	0,663	0,679	0,686	0,687	0,693
18	Central Sungkai	0,590	0,608	0,637	0,637	0,669	0,669
19	Abung Perkurun	0,547	0,665	0,659	0,651	0,671	0,667
20	Sungkai Jaya	0,543	0,575	0,594	0,595	0,657	0,657
21	West Sungkai	0,550	0,573	0,605	0,627	0,665	0,671
22	Abung Kunang	0,587	0,646	0,634	0,636	0,661	0,671
23	Blambangan Fence	0,574	0,582	0,656	0,669	0,683	0,666

Source: Ministry of Villages, Developers of Disadvantaged Regions and Transmigration of the Republic of Indonesia, 2023

Remarks: Bolded numbers indicate a decline or stagnation in performance

Based on the performance in Table 20, it can be concluded that there are 11 sub-districts that have experienced a decline in performance or stagnation. The sub-districts that experienced a decline in performance were South Sungkai, East Abung, Abung Tinggi, Abung Semuli, Abung Surakarta, Bunga Mayang, Abung Pekurun, Abung Kunang and Blambangan Pagar. The decline in performance in several years in the sub-district, followed by an increase in the following year's period. For example, in 2019 South Sungkai District had a performance value of 0.555 and in 2020 it had a performance of 0.616 or an increase of 0.111.

The sub-districts that experienced a significant decline in performance were East Abung, Abung Kunang and Blambangan Pagar Districts. In 2023, East Abung District experienced a considerable decrease in performance compared to other sub-districts, which was 0.011. Furthermore, Abung Kunang District experienced a decrease in performance of 0.012 in 2020, while Blambangan Pagar experienced a much larger decrease of 0.017 in 2023. The impact of this decline is that in 2023 only 1 sub-district will have the status of an advanced sub-district. If these sub-districts want to become developed sub-districts, then the performance of Abung Kunang, Abung Timur and Blambangan Pagar sub-districts must increase significantly in the following year and have a performance of > 0.707.

Abung Pekurun District is the only sub-district that has experienced a decline in performance for up to 2 consecutive years. Although in 2019 there was an increase in performance of 0.665 or an increase of 0.118, the decline occurred the following year with a performance of 0.659. The decline continued until 2021 which had a performance value of 0.651. Although the performance improvement occurred again in 2022, in 2023 there was a decrease in performance. This shows that Abung Pekurun District has an unstable performance with other sub-districts.

The decline in performance can be caused by the value of the index which has decreased from the previous year. One example is in South Sungkai District. South Sungkai District experienced a decrease in the value of the Environmental Resilience Index (IKL). The IKL value decreased from 0.6242 in 2018, to 0.5576 in 2019. Furthermore, Abung Semuli and Abung Surakarta Districts also experienced a decrease in the value of IKL variables in 2019. The variables included in IKL are environmental quality and potential/prone to natural disasters. Environmental quality has indicators such as water, soil and air pollution and rivers that are exposed to waste. Improving environmental quality can be done from local governments in synergy with the community as well as supervision from civil servants.

Furthermore, the sub-districts that have stagnant performance are Abung Tinggi, Bunga Mayang, Sungkai Tengah and Sungkai Jaya Districts. Abung Tinggi and Bunga Mayang sub-districts also have a period of years of performance decline. Abung Tinggi District in 2020 experienced stagnant performance and in 2021 had stagnant performance. Meanwhile, Bunga Mayang in 2019 experienced stagnant performance, and in 2023 experienced a decline in performance. Sungkai Jaya District has a developing status in 2022 with a fairly high performance surge, but in 2023 there will be no increase in performance. Central Sungkai District since 2019 has had a developing status, but the increase from 2019-2023 is not significant. In 2021, Central Sungkai District experienced stagnant performance. Not only has there been an increase or stagnation in performance, but in some sub-districts there has also been an increase.

The sub-districts that have experienced performance improvement every year and have not experienced a decrease or stagnation in performance are Bukit Kemuning, Kotabumi, Tanjung Raja, West Abung, South Abung, North Sungkai, North Kotabumi, South Kotabumi, Central Abung, Muara Sungkai, Hulu Sungkai and West Sungkai. Bukit Kemuning District in the 2018-2023 period has the largest performance improvement among other sub-districts. In 2019, Bukit Kemuning District experienced an increase of 0.134. Although it experienced a large increase, the following year Bukit Kemuning District experienced a relatively small increase, so that in 2023 it will still have the status of a developing district. The following is the difference each year and the average performance improvement of each sub-district for the 2018-2023 period can be seen in Table 3.

Table 3. The difference in IDM performance values in the sub-district every year

No	Name of the sub-district	Difference in the Performance of IDM in Sub-districts Every Year				
		2019	2020	2021	2022	2023
1	Kemuning Hill	0,134	0,004	0,003	0,015	0,008
2	Kotabumi	0,020	0,017	0,007	0,020	0,012
3	South Sungkai	-0,009	0,061	0,015	0,028	0,004
4	Tanjung Raja	0,009	0,027	0,046	0,008	0,007
5	East Abung	0,008	0,023	0,011	0,021	-0,011
6	West Abung	0,012	0,042	0,007	0,018	0,013
7	South Abung	0,018	0,032	0,013	0,022	0,005
8	North Sungkai	0,026	0,031	0,012	0,035	0,009
9	North Kotabumi	0,053	0,017	0,024	0,023	0,012
10	South Kotabumi	0,023	0,024	0,011	0,014	0,014
11	Central Abung	0,006	0,037	0,008	0,017	0,008
12	Abung Tinggi	0,041	-	-0,002	0,010	0,010
13	Abung Semuli	-0,016	0,006	0,011	0,014	0,003
14	Abung Surakarta	-0,002	0,016	0,001	0,016	0,011

No	Name of the sub-district	Difference in the Performance of IDM in Sub-districts Every Year				
		2019	2020	2021	2022	2023
15	Sungkai Estuary	0,022	0,014	0,009	0,037	0,027
16	Bunga Mayang	-	0,040	0,006	0,018	-0,003
17	Hulu Sungkai	0,080	0,015	0,007	0,001	0,007
18	Central Sungkai	0,018	0,029	-	0,032	0,001
19	Abung Perkurun	0,118	-0,006	-0,008	0,020	-0,004
20	Sungkai Jaya	0,032	0,020	0,001	0,062	-
21	West Sungkai	0,024	0,032	0,021	0,038	0,006
22	Abung Kunang	0,059	-0,012	0,002	0,025	0,011
23	Blambangan Fence	0,008	0,074	0,014	0,014	-0,017

Source: Ministry of Villages, Developers of Disadvantaged Regions and Transmigration of the Republic of Indonesia, 2023

The small increase in performance has an impact on the status in each sub-district, so that there are only 3 sub-districts with a performance of > 0.690 , namely South Abung, North Sungkai and Hulu Sungkai Districts. As can be seen in Table 21, Bukit Kemuning District has the highest average increase in the 2018-2023 period, but the performance in 2023 only reaches 0.689. North Kotabumi District has an average annual increase of 0.026 and the highest performance improvement occurred in 2019, so that in 2021 it has become an advanced sub-district. With the comparison in the 2 sub-districts, for other sub-districts and sub-districts that have a performance of > 0.690 , a stable increase is needed every year so that other sub-districts can have the status of advanced to independent sub-districts. To increase the value of the village index to develop sub-districts, it is necessary to increase the index and indicators first in the sub-district villages.

2. Performance and Status of the Building Village Index in Each Village

After knowing the status and performance of the village development index in each sub-district, the next step is to find out the status and performance of each village in the sub-district. This aims to find out the villages that have an impact on improving performance in each sub-district because in some sub-districts there are still villages with performance that can be categorized as very backward villages.

Based on Table 22, it can be concluded that until 2023 in the North Lampung Regency area, there are still villages that experience performance stagnation or even performance declines. The highest performance improvement was Ogan Jaya Village in 2019 of 0.232, followed by East Tanjung Baru Village and Gedung Raja with an increase of 0.192 and 0.190, respectively. Furthermore, the largest decline in performance occurred in 2019 in Sukadana Ilir Village, Banjar Abung and Banjar Ketapang with values of -0.099, -0.091 and -0.091, respectively. In addition, in 2018 there are still 6 villages that have the status of very backward villages or have a performance of ≤ 0.491 . These villages are Way Melan Village in South Kotabumi District, Bandar Agung and Pakuon Agung Villages in Muara Sungkai District, Sumber Tani and Ogan Jaya Villages in Abung Pekurun District and Way Isem Village in West Sungkai District. The status of the four sub-districts is the same, namely the sub-districts have a backward status. The reason is that there are many villages that have a backward status, and there are villages with a very backward status. In 2023, only Way Isem Village has a performance of 0.708 and has the status of an advanced village out of the six villages that were very backward in 2018.

B. Factors Influencing the Developing Village Index

After knowing the performance and status up to the village stages in North Lampung Regency, the next step is to find out the factors that affect the development village index in North Lampung Regency. Influencing factors will be used as an object of consideration in the

development of the region to become a better region compared to the 2018-2023 period. The influencing factors will be independent variables (variable x), while for the index of developing villages will be dependent variables (variable y). The independent variables are village funds, village fund allocation, population density and poor population. This discussion will use the panel data regression analysis method using *e-views software*.

After knowing the independent variables and their dependent variables, the model used in this study is as follows:

$$IDMit = \alpha + \beta_1 \log (DD)_{1it} + \beta_2 \log (ADD)_{2it} + \beta_3 \log (KP)_{3it} + \beta_4 \log (PM)_{4it} + \epsilon_{it}$$

Information:

IDMit = Developing Village Index

a = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients

DD1it = Village Fund (1st independent variable, Rp)

ADD2it = Village Fund Allocation (2nd independent variable, Rp)

KP3it = Population Density (3rd independent variable, km²/population)

PM4it = Poor Population (4th independent variable, Poor population)

i = Sub-district area in North Lampung Regency

t = 2018, 2019, 2020, 2021, 2022, 2023

ϵ = Error

log = Opera logarithm

1. Panel Data Model Selection

After the dependent variables and independent variables have been collected, the next step is to use the panel data regression estimation using *e-view software*. The first thing that is done is to test the panel data model to determine the panel data model to use. The panel data model was tested using the Chow test, the Hausman test and the Lagrange Multiplier test. A Lagrange Multiplier test will be performed if the results of the chow test and the thirst test cannot provide a conclusion.

2. Chow Test

The chow test is used to determine the *Common Effect Model* (CEM) or Fixed Effect Model (FEM) model that will be used in this study. The results of the chow test using *e-views software* can be seen in Table 30.

Table 4. Chow test results

<i>Effects Test</i>	<i>Statistic</i>	<i>D.F.</i>	<i>Prob.</i>
<i>Cross-section F</i>	5,563894	(231,1156)	0.0000
<i>Cross-section Chi-square</i>	1040,587240	231	0,0000

Source: Research Data Processing Results, 2025

After knowing the value of the probability in the chow test, then the next is to determine the following conclusions:

- a. Menentukan hypothesis
 H_0 : *Common Effect Model* (CEM)
 H_A : *Fixed Effect Model* (FEM)
- b. Determine a significance value (α) of 5% or 0.05
- c. Define criteria.
 H_0 : accepted if the value p is $> (\alpha)$
 H_A : accepted when the value of p $< (\alpha)$

d. Conclusion

The conclusion of this chow test is that H0 is rejected and HA is accepted because of the probability value or $p < \alpha$ or $0.0000 < 0.05$. The model selected in the chow test is the *Fixed Effect Model* (FEM).

3. Classic Assumption Test

This study uses the classical assumption test of multicollinearity and the heterokedasticity test to find out if there is a correlation between independent variables or the occurrence of homokedaticity in the study. The results of the classic assumption test are as follows:

a. Multicollinearity Test

The multicollinearity test was carried out to find out if there is a correlation between variables in this study. The test in this study used *e-views software* and looked at 3 correlations between the variables. The results of the correlation test between variables in this study can be seen in Table 33.

Table 5. Fixed Effect Correlation Test Results Research Model

CORRELATION				
	X1	X2	X3	X4
X1	1,000	0,400	0,054	0,661
X2	0,400	1,000	0,168	0,533
X3	0,054	0,168	1,000	0,225
X4	0,661	0,533	0,225	1,000

Source: Research Data Processing Results, 2025

From the results of the correlation table, we can see that the relationship between variables is no more than the limit of 0.85. The relationship between the variables X1 and X2 is 0.400, X1 and X3 are 0.054 and X1 with X4 is 0.661. Furthermore, the variable X2 and X3 is 0.168 and X2 with X4 is 0.533 and the relationship between the variable X3 and X4 is 0.225. With the results of the relationship between variables, it can be concluded that the study does not have multicollineity.

b. Heteroscedasticity Test

The heteroscedasticity test used a residual graph with a limit between 500 to -500 using *e-views software*. Limitations are used to determine the residual graph of research data. The research data used is data in each village from 2018 to 2023. The results of the heteroscedasticity test will be described in Figure 10 below.

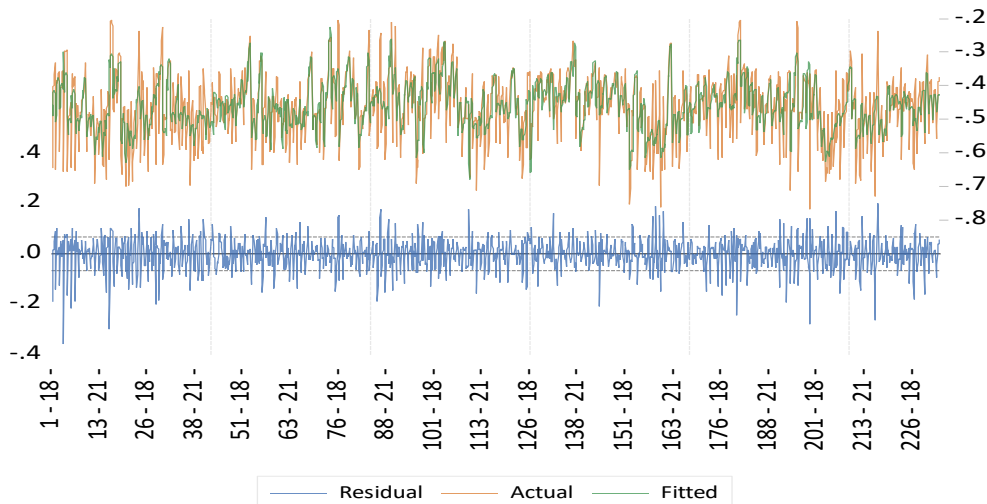


Figure 1. Graphics Residual
Source: Research Data Processing Results, 2025

Based on Figure 10, it can be seen that the model used in this study is still between the limit of 500 to -500 values. With the results of the residual graph, it can be concluded that this research model does not have heteroscedasticity.

4. Model Feasibility Test

After the model selection and classical assumption test have been met, the model feasibility test is carried out to determine the value of each variable and the influence of independent variables on the dependent variables. The model feasibility test includes the determination coefficient, the significance test together or simultaneously and the partial or partial test. The simultaneous and partial significance test in this study compares the probability value with the level or level of significance. The values that will be used in the feasibility test of the model in this study can be seen in Table 32.

a. Coefficient of Determination (R²)

The Determination Coefficient is used to determine the influence of independent variables on dependent variables. Based on Table 32, it can be seen that the *Adjusted R-Squared* value in this research model is 0.4943. This value shows that independent variables consisting of village funds, village fund allocation, population density and poor population can explain the Development Village Index as a dependent variable of 49.43%. Furthermore, the value of 50.57% obtained from (100 - 49.43) was influenced by other variables that were not included in the study.

b. Simultaneous Significance Test (F Test)

The value of the F Calculation and its significance can be seen from Table 32. Based on table 32, the F value obtained is 6.7857 and the significance value obtained is 0.0000. If we compare the significance value with the predetermined level of significance, it can be concluded that H₀ is rejected and H_a is accepted. This means that the independent variables of village funds (X₁), village fund allocation (X₂), population density (X₃) and poor population (X₄) have a simultaneous influence on the developing village index (Y).

c. Partial Significance Test (T Test)

Partial tests in this study were used to determine the influence of each of the independent variables on the dependent variables.

d. Regression Model Equations

The regression data panel used in this study is as follows:

$$\text{IDM}_{it} = 7.198 - 0.006 \text{ Dana_Desa}_{it} - 0.372 \text{ Alokasi_Dana_Desa}_{it} + 0.047 \text{ Kepadatan_Penduduk}_{it} - 0.067 \text{ Poor}_{it \text{ population}}$$

The constant value obtained is 7.198 with a village fund coefficient of -0.006, village fund allocation -0.372, population density 0.047 and poor population -0.067.

The coefficient of village funds, village fund allocation, and poor people have negative values. The poor have a negative coefficient, which means that if the poor population decreases, it can increase the value of the developing village index. The same applies to the variables of village funds and the allocation of village funds. If the village fund and the allocation of village funds decreases, then the value of the building village index in North Lampung Regency increases. The poor and overcrowded population are tied to village funds and village fund allocations in the preparation of the budget every year.

Based on the regression results of the research model, it can be assumed that in the 2018-2023 period there was an inappropriate distribution of village funds and village fund allocation. For example, in several villages in Bukit Kemuning District, Tanjung Baru Village in 2023 has a poor population of 550 people and village funds of IDR 962,113,000, while Muara Aman village has a poor population of 1143 people and village funds of IDR 1,071,938,000. This shows that with a difference of more than 50% in the poor, the allocation of village funds does not have a significant difference. For the allocation of village funds, the population density in Abung Jayo Village is 524 people/km² with a village fund allocation of Rp 498,126,272, and Gedung Ketapang Village with a population density of 611 people/km² and a village fund allocation of Rp 398,993,496. The same problem occurs in the variable allocation of village funds, namely with the population density getting higher, but the allocation of village funds is decreasing. Based on the results of the panel data regression research and examples of budget distribution for village funds and village fund allocation, it can be assumed that the coefficient of village funds and village fund allocation is negative due to inappropriate distribution.

5. Interpretation of Factors in Research

After testing using the panel data regression method, it can be concluded that there are factors that affect the building village index in this study. Simultaneously, independent variables as a whole have a significant effect on the developing village index. However, not all variables have an effect. The variables that have a significant effect on the developing village index (Y) are the allocation of village funds (X2), population density (X3) and poor population (X4). The village fund variable (X1) is the only variable that does not have a partial influence.

The results of the model in this study also have similarities from previous research. The development village index is not affected by the distribution of village funds, the percentage of absorption of village funds and their distribution, but is affected after two and three years of distribution (Halim & Taryani, 2023). Not only the similarity of the influence on the building village index, but there are also previous studies that have different research results in the influence of village funds on the building village index. The use of village funds for capital depositor spending by BUMDes has a positive value and has an effect on the development village index, while the allocation of village funds has no effect on increasing the development village index (Iftitah & Wibowo, 2022). In the study (Arina et al., 2021), village funds and village fund allocation have a partial effect on the allocation of village funds can encourage the financing of village government programs with community participation. The management and utilization of village funds has an impact on increasing the development village index (Ekawati et al., 2022). Although

in realization, village funds have a larger budget compared to the allocation of village funds, but the purpose of use is also different.

The use of village funds is prioritized for economic recovery and priority sector development, while the allocation of village funds is used for the implementation of village government, village development, village community empowerment and village community development. The preparation of the budget for the village fund uses the formulation of the number of population, poverty rate, area area and geographical difficulty. The smaller the number of poor people, the smaller the budget will be. Furthermore, the allocation of village funds uses the formulation of the number of village populations, the area of the village area and the number of village apparatus with BPD and Rukun Tetangga (RT) in the allocation each year. This shows that there is a continuity between village funds and the allocation of village funds with population density and the number of poor people. The allocation of village funds can help in community empowerment and payment needs in the village. The allocation of village funds has continuity for the population in each village, and the poor in each village because the use of village fund allocation can help empower and coach the village to become an economically independent village community.

To improve the performance and status of the developing village index, the allocation of village funds is needed for effective implementation in community development, maximizing the potential of the area and population density and reducing the poor population. Community empowerment can be carried out by local governments by providing training to people in villages that have the potential to create jobs. The provision of this training must also be in synergy with the Neighborhood Units (RT) and the Village Apparatus Agency (BPD). The village apparatus can see the potential of the community, then a hearing is held with the community to prepare a training program that is in accordance with the area in the village and can increase the dimension of the Economic Resilience Index (IKE). One of the variables in IKE is the diversity of community production with indicators that there is more than one population economic activity. If it can be done effectively, then in the next few years it can increase the value of the village index in villages to districts, reduce the poor population and even make villages in North Lampung Regency a *pilot project* for other regions.

C. Strategies to Improve the Performance and Status of the Building Village Index

After the performance and status of each village are known and the factors that affect the village are known, then a strategy is prepared that has an impact on improving the performance of the developing village index. The preparation of this strategy is expected to help the North Lampung Regency area become a district that can compete or even become a pilot district for other districts in Lampung Province for the status and performance of the developing village index in the following year period. The strategy used in this study is a SWOT method to find out each of the strengths, weaknesses, opportunities and threats of factors or variables that affect the building village index. The factors included in the SWOT method in this study will be explained by Table 36.

Table 4. Factors in the SWOT method

SWOT METHOD	
<i>Streghts (Strength)</i>	<i>Weakness</i>
<ol style="list-style-type: none"> 1. The large number of BPDs and RTs for the preparation of village development programs. 2. Land that can be maximized. 3. The potential use of technology in the management of village programs. 	<ol style="list-style-type: none"> 1. Supervision of the implementation of village programs is still lacking from the community to the local government. 2. Inadequate infrastructure. 3. Data on villages is inaccurate.

SWOT METHOD	
<i>Streghts (Strength)</i>	<i>Weakness</i>
4. Public enthusiasm for improving the quality of life	4. The potential of each village is not yet known.
5. The North Lampung Regency area which is in the center of several districts	5. There is environmental pollution that is not supervised.
<i>Oppurtunity (Peluang)</i>	<i>Threat</i>
1. The potential to get human resources from outside the region.	1. There was a rejection of products outside the district area.
2. The potential to bring in investors.	2. High competition for the sale of village products.
3. The potential to bring tourists in the tourism sector.	3. Unpredictable weather.

Source: Research Data Processing Results, 2025

An assessment of each of the strengths, weaknesses, opportunities and threats based on independent variables that affect the dependent variables. The assessment in the table above is a combination of independent variables. The variables that have an influence are the allocation of village funds (X2), population density (X3) and poor population (X4). In addition, there is an assessment based on the performance and status of the development village index in each village. Based on Table 36, it can be concluded that there are many opportunities to improve the performance of the developing village index. After each factor is analyzed, the next step is to create a SWOT matrix. The SWOT matrix and the strategies to be used will be presented in Table 37.

Table 5. SWOT matrix impact on the developing village index

Internal Factors	<i>Streghts - S</i>	<i>Weakness – W</i>
	1. The large number of BPDs and RTs for the preparation of village development programs.	1. Supervision of the implementation of village programs is still lacking from the community to the local government.
	2. Land that can be maximized.	2. Inadequate infrastructure.
External Factors	3. The potential use of technology in the management of village programs.	3. Data on villages is inaccurate.
	4. The public's enthusiasm for improving the quality of life.	4. The potential of each village is not yet known.
	5. The North Lampung Regency area which is in the center of several districts.	5. There is environmental pollution that is not supervised.
<i>Oppurtunity - O</i>	<i>Strategists – SO</i>	<i>Strategy – WO</i>
1. The potential to get human resources from outside the region.	1. Improving the community's human resources so that they can compete through coaching.	1. Increase supervision for the tourism sector.
2. The potential to bring in investors.	2. Optimizing village management based on digital technology.	2. Optimizing the identification of village potential and village data in order to improve the economic and tourism sectors.
3. The potential to bring tourists in the tourism sector.	3. Increasing the potential of the region in the economic sector.	

<i>Threat - T</i>	Strategy – ST	Strategy – WT
1. There was a rejection of products outside the district area.	1. Potential for product marketing outside the district area.	1. Provision of data on marketable products.
2. High competition for the sale of village products.	2. Provision and utilization of land and infrastructure to help in dealing with uncertain weather.	2. Community development about product competition.
3. Unpredictable weather.		

Source: Research Data Processing Results, 2025

Based on Table 7, it can be seen that there are 9 effective strategies to improve the performance and status of the development village index in North Lampung Regency. The strategy based on the SWOT matrix is as follows:

a. SO Strategy

- 1) Improving the community's human resources so that they can compete through coaching. Improving human resources, especially people in rural areas, can be done by conducting coaching or training assisted by the local government to conduct training. The first step for training is with the community and the Village Apparatus Agency (BPD) to identify potential, especially potential in the regional economic sector. After that, the role of the local government is to facilitate training such as providing direction and bringing in mentors. This training can be sourced from the allocation of village funds by the preparation of village programs that have been prepared by the community along with BPD and RT before the preparation of the village fund allocation budget.
- 2) Optimizing village management based on digital technology. Village management based on digital technology can be done by creating an official website or village information system for each village. The website is expected to be an information portal for village communities or other communities to find out about activities, programs, and transparency in the use of village funds and the allocation of village funds every year. The use of digital technology bases can also help the community in marketing related to the excellence of the village.
- 3) Increasing the potential of the region in the economic sector. The improvement of this economic sector cannot be separated from the role of local governments. The local government can help in improving the economic sector by marketing through the cooperative, MSME and Manpower office to areas outside North Lampung Regency or the local government can also use clothing products or used products from the community to increase purchasing power from within the district itself.

b. WO Strategy

- 1) Increase supervision for the tourism sector. One of the tourism sectors in North Lampung Regency is the Way Rahem Dam. Supervision and rehabilitation for dams are needed to increase the attractiveness of people around or outside the district to visit dam tourist attractions. Not only dams, but also supervision is needed in other tourist attractions. Good supervision can also help increase Regional Original Income (PAD) because people of all ages and groups can visit tourist attractions.
- 2) Optimizing the identification of village potential and village data in order to improve the economic and tourism sectors. The potential in each village and each region can vary, especially from the location of the region and the diverse community. Optimizing village potential and village data can help people inside or outside the village know the characteristics of the village. Village

characteristics can be in the form of village excellence in the community's economic sector, or tourism in the village that can bring in end-users from outside the region.

c. ST Strategy

- 1) Potential for product marketing outside the district area.

Product marketing is not only marketed through public discussion, but more effective with marketing through digital technology. Marketing can be done by training the public on the further use of social media which is supported by the application features on social media today. For example, *the Instagram application*, or *Facebook* which has features about product marketing.

- 2) Provision and utilization of land and infrastructure to help in dealing with uncertain weather.

Local governments play an important role in assistance for weather management. Local governments must be able to identify areas that are vulnerable in the event of a natural disaster.

In addition, local governments must also know the areas whose land can be used to help manage natural disasters. This strategy must be carried out in synergy between local governments, related civil servants, and the community to help each other, especially in the event of a natural disaster caused by uncertain weather.

d. WT Strategy

- 1) Provision of data on marketable products.

The provision of this data can be in the form of raw materials contained in the product, the way the product is made, the functions of the product and even the history of product manufacturing. Not only direct purchases, but also online product purchases can make it easier for buyers from outside the region or village who sell the product.

- 2) Community development about product competition.

Competition is inevitable. Therefore, coaching on product competition must be carried out so that the public does not lose enthusiasm in selling products. This coaching is also expected to help the community to continue to hone the creativity of the products sold.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the performance and status of the Building Village Index (IDM) in North Lampung Regency for the 2018-2023 period has increased and changed status, but until 2023 no village has achieved a performance of > 0.815 or independent status, with some areas experiencing decline and stagnation, mainly due to the low Environmental Resilience Index (IKL), which can be improved through reducing plastic use, reduction of private vehicles, provision of proper waste disposal sites, and reforestation programs; all independent variables have a significant effect on IDM simultaneously, with the allocation of village funds, population density, and poor population as partially significant factors, so that effective allocation of village funds is needed for community development, maximization of regional potential, and poverty reduction; The IDM improvement strategy using SWOT analysis produced nine effective strategies including increasing human resources, optimizing village management based on digital technology, developing economic and tourism potential, monitoring the tourism sector, optimizing the identification of potential and village data, marketing products outside the region, providing and utilizing land, providing product data, and community development regarding product competition. As a suggestion, the North Lampung Regency government is expected to evaluate and supervise the use and allocation of village funds to improve the performance and status of IDM in order to compete and become a pilot district in Lampung Province, the village government is encouraged to identify and develop village potential and cooperate with local

governments to improve village performance and economic and tourism sectors. and the researcher is then advised to add variables in the preparation of the village fund allocation budget such as the Village Apparatus Agency (BPD) and Rukun Tetangga (RT), as well as analyze the supporting and inhibiting factors of performance and IDM status.

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