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Article

Village fund and Indonesia rural development: Rethinking institutional capacity and governance

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Abstract: This study offers a new perspective on measuring the impact of village funds (DD) on rural development. Using a mixed-method approach, the qualitative analysis reveals that, like previous rural development programs, the DD program struggles to implement inclusive methods for capturing community aspirations and evaluating outcomes. Despite rural infrastructure improvement, many villagers feel they have not fully benefited and do not view it as offering economic opportunities. The econometric model confirms the qualitative findings, indicating no significant DD influence on the village development index (IPD). Instead, effective governance factors like *Musdes*, regulations, and leadership are essential for the IPD improvement. Thus, enhancing village governments' institutional capacity is crucial for increasing the DD effectiveness. The paper recommends several measures: training village officials in financial management and project planning, providing guidelines for the DD allocation and usage, creating robust monitoring-evaluation systems, developing communication strategies, and fostering partnerships with local NGOs and universities.

Keywords: Indonesia; village fund; community development; rural infrastructure; governance

1. Introduction

Indonesian Village Law No. 6/2014 strengthens the legal status and autonomy of village governments, empowering them to manage development, stimulate local economic growth, improve public services, and enhance the well-being of villagers. The law also mandates that the central government allocate at least 10% of the state budget to the Village Fund (Dana Desa, or DD), alongside the existing fiscal transfers to provinces and districts. This funding mechanism aligns with President Jokowi's vision of developing Indonesia from the periphery (Gonschorek and Schulze, 2018). Village governments incorporate DD into their budget plans (APBDes) through consultations with villagers.

Between 2015 and 2023, the allocation for the DD increased from Rp 20.8 trillion to Rp 70 trillion, totaling Rp 538.4 trillion. Over the period, its average contribution to each APBDes rose from Rp 280.3 million to Rp 907.9 million. This surge in funding has driven significant rural infrastructure development, including the construction of 316,590 km of village roads, 1,597,529 meters of village bridges, 501,054 irrigation units, and 12,297 village markets (Ministry of Villages, 2023).

As the state budget (APBN) continues to grow, future DD funding is expected to rise accordingly to meet the mandated 10% allocation. This increase will enable village governments to better fulfill the law's objectives. However, rapid infrastructure development alone will be insufficient to achieve the law's broader goals. Village governments must shift their focus from primarily infrastructure development to fostering economic empowerment within their rural communities.

This paper examines the design of the DD, evaluates its implementation, and assesses its impact on rural development. It provides valuable insights for improving policy and practice, emphasizing DD's role in advancing rural development in Indonesia. For instance, identifying gaps in DD's effectiveness in poverty alleviation and income generation can guide policymakers in allocating more resources toward community-driven development. The findings can also offer practical recommendations for relevant government agencies to enhance village governance and strengthen institutional capacities.

Few studies (Hartojo et al., 2022; SMERU, 2018; TNP2K, 2021) have explored the impact of the DD on rural development in Indonesia, making this paper a pioneering contribution to the field. Its findings are particularly relevant for the newly elected President Prabowo's government, which is committed to continuing the DD program. The paper offers several benefits: First, it provides guidance for policymakers to optimize the allocation and utilization of funds, ensuring resources more effectively meet the needs of rural communities. Second, it identifies strengths and weaknesses in village governance, fostering better practices, accountability, and transparency. Third, it informs long-term strategies to align local initiatives with national goals for sustainable rural growth and resilience.

The paper is organized as follows: Section 2 reviews the literature on previous rural development programs in Indonesia. Section 3 outlines the methodology used. Section 4 overviews the DD program's design, analyzes its implementation, and assesses its impact on village development. Section 5 concludes and offers policy recommendations.

2. Literature review

Indonesia's rural development programs have evolved significantly over time, adopting various approaches and strategies. In the 1970s and 1980s, the focus was primarily on agricultural development. However, in December 1993, the government shifted its strategy with the introduction of the Presidential Instruction for the Left-Behind Villages Program (IDT).

Coordinated by Bappenas, the IDT program aimed to improve living standards in left-behind villages through sustainable development and job creation. In collaboration with relevant agencies, governors, and regents, the program provided revolving funds for productive activities in selected villages (Bappenas, 1994). The implementation process involved two key stages: identifying left-behind villages and selecting eligible borrowers. However, structural challenges in these stages hindered the program's effectiveness in reducing rural poverty (Suryahadi and Sumarto, 2010; Yamauchi, 2004).

Previous studies have identified two key challenges in selecting left-behind villages for the IDT program. First, the fixed grant of Rp 20 million per village did not account for the varying numbers of poor households, resulting in insufficient funding for villages with larger populations of impoverished households (World Bank, 1997; Yamauchi, 2004). Second, the selection process relied on village scores and field officers' assessments, which led to inconsistencies and potential bias. Villages with similar scores were often treated differently depending on provincial thresholds and the subjective judgments of the officers (Daimon, 2001; Evers, 2000; Yamauchi, 2004).

In each selected village, eligible household groups, known as *Pokmas*, were formed during the Village Community Resilience Institute (LKMD) *musyawarah* forum. Village heads and community leaders determined eligibility based on residency and living standards, with criteria varying by village. The government recommended that each *Pokmas* include approximately 30 poor households, which submitted proposals outlining their identities, requested funds, and planned activities. Approved proposals were forwarded to the Regional Development Working Unit (UDKP) at the sub-district level for coordination with other village programs. Once approved, *Pokmas* received grants through local Bank Rakyat Indonesia branches, which were lent to members, with households expected to repay the funds for reuse and further development (Bappenas, 1994; World Bank, 1997).

The effectiveness of the IDT program in improving rural job opportunities and welfare was questioned (Daimon, 2001; Yamauchi, 2004). Recipients had weak repayment obligations, and local governments provided inadequate monitoring of grant usage (Daimon, 2001). Many unprofitable proposals received funding, particularly in villages with low grant demand, as the program required the full disbursement of funds (Yamauchi, 2004).

The IDT program faced significant challenges during the 1997–1998 economic crisis, which triggered a severe downturn and caused poverty rates to soar from 15% to 33%, pushing 38 million people into poverty (Suryahadi, 1999). In response, the government introduced the Social Safety Net (JPS), which encompassed five key programs: subsidized rice, job creation, scholarships, health cards, and the Sub-district Development Program (PPK), a village block grant aimed at public works and revolving credit (Suryahadi and Sumarto, 2010).

Despite the JPS program, poverty remained persistently high in Indonesia, particularly in rural areas. From 1998 to 2006, urban poverty decreased from 21.9% to 12.5%, while rural poverty only marginally declined from 25.7% to 20.4%. This disparity underscores the ineffectiveness of rural anti-poverty efforts, which were hindered by weak institutions, poor targeting, unsustainable projects, corruption, and limited community participation (Adam and Negara, 2011).

The disappointing results in poverty reduction prompted the government to reassess its programs. In response, it launched the National Community Empowerment Program (PNPM) in August 2006 (Bappenas, 2012). While the program includes several components, this paper focuses on its largest, PNPM-Rural.

PNPM integrated the PPK with other community-based programs to empower communities and actively involve the poor in development. Similar to the World Bank's Community-Driven Development (CDD) program, which grants communities

direct control over resources and decision-making to enable their involvement in identifying, planning, and managing development initiatives, PNPM is built on two key principles: (1) fostering community participation in project selection, design, and implementation; and (2) enforcing accountability measures to ensure the achievement of its objectives (World Bank, 2009).

PNPM provided block grants to selected villages, empowering them to set their own development priorities. Villages qualified for funding based on four criteria: high poverty rates, limited access to services, low fiscal capacity, and underdeveloped status. Proposals were created through a participatory process supported by both empowerment and technical facilitators (Bappenas, 2012). Empowerment facilitators helped build managerial skills within communities, while technical facilitators assisted with the design, implementation, and monitoring of public works projects (Susilo, 2012).

Adam and Negara (2011) found that PNPM-Rural allocated 70% of its budget to infrastructure projects and 30% to women's savings and loan programs. They identified several weaknesses, including an unclear program focus, elite influence, a bias toward infrastructure over human resource development, and weak commitment from local governments. These issues limited the program's effectiveness in generating jobs and improving living standards.

When President Jokowi took office in 2014, his administration replaced PNPM with the DD under Village Law No. 6/2014, citing PNPM's limited success in empowering rural communities and generating employment. DD was designed to more closely align with Jokowi's vision of developing Indonesia's periphery by providing village governments with the authority and resources to manage their own development. Following the methodology, the next section will discuss DD's design, evaluate its implementation, and assess its impact on rural development.

3. Methodology

3.1. Data used

Data on the DD is scattered across multiple agencies, leading this paper to rely on several key secondary data sources. First, the *Statistik Keuangan Pemerintah Desa* (Village Government Financial Statistics), an annual Indonesia's National Statistic Board (BPS) survey, covers 4000–4500 villages. This survey collects essential data from APBDes, including revenue sources (DD, village-owned enterprises, local government transfers, and other revenues), expenditures (infrastructure projects, social assistance, and other areas), and budget allocation. While this data provides valuable insights into the role of DD in rural development, only aggregate data is publicly available, limiting the scope for detailed analysis.

Second, the *Indeks Desa Membangun* (IDM, Village Development Index) is a comprehensive assessment tool created by the Ministry of Villages (2020). It evaluates the development status of villages across Indonesia using 50 indicators scored from 0 to 5, covering three core domains: social (health, education, social capital), economic (product diversification, markets, banking, transportation), and environmental (environmental quality, disaster-prone areas, disaster response). Villages are classified into five categories based on their IDM scores: left behind, underdeveloped,

developing, developed, and self-sufficient. The IDM plays a critical role in rural development by identifying village needs, guiding resource allocation, and tracking progress. However, similar to the previous source, only aggregate data is publicly available, as access to raw data is restricted by the Ministry of Villages.

Third, the *Indeks Pembangunan Desa* (IPD, Village Development Index) is a composite index developed by Bappenas and BPS to measure village development levels across Indonesia, utilizing data from the *Podes* (Village Potential Survey) conducted in 2014 and 2018. Scored from 0 to 100, the IPD includes 42 indicators across five key areas: basic services (education, health), infrastructure (economy, energy, water, sanitation, communication), transportation (facilities, accessibility), public services (health, sports), and governance (independence, human resources) (BPS, 2019). Similar to the IDM, the IPD classifies villages into five categories: left behind, underdeveloped, developing, developed, and independent. Unlike the IDM, the IPD offers publicly accessible raw data, making it particularly suitable for econometric analysis despite some limitations.

Alongside these three primary data sources, we integrate additional secondary data from various ministries, including the Ministry of Villages, the Ministry of Finance, and BPS. These supplementary sources enrich our analysis, providing a more comprehensive understanding of the DD's impact on rural development.

These secondary data sources offer substantial quantitative information on DD, village finances, and development indicators but lack insights into villagers' perspectives on financial priorities, program impacts, and community empowerment. To address this gap, we conducted qualitative surveys and in-depth interviews with selected village stakeholders to capture their views on DD utilization, benefits, and needs. Due to resource constraints, our survey covered only six villages (**Table 1**).

Table 1. Distribution of sample by background and villages.

	Village Head	BPD Head	Community Figure	Religious Leader	Ordinary Villager	Total Interview by Village
Brebes, Central Jawa:						
Kalilangkap-Bumiayu	1	1	1	1	4	8
Kedungoleng-Paguyangan	1	1	1	1	4	8
Kulon Progo, Jogyakarta:						
Gerbosari-Samigaluh	1	1	1	1	4	8
Donomulyo-Nanggulan	1	1	1	1	4	8
Gowa, South Sulawesi:						
Sunggumanai-Pattallassang	1	1	1	1	4	8
Tamannyeleng-Barombong	1	1	1	1	4	8
Total Interview by Villagers's background	6	6	6	6	24	48

Source: BRIN-TNP2K survey.

The six villages were selected for three reasons: First, their development levels varied according to IPD, ranging from high (Gerbosari, Kalilangkap) to moderate (Donomulyo, Sunggumanai) and low (Kedungoleng, Tamannyeleng). Second, they represent Indonesia's sociocultural diversity, including both Java (Kalilangkap,

Kedungoleng, Gerbosari, Donomulyo) and non-Java regions (Sunggumanai, Tamannyeleng), each with unique characteristics. Third, their differing regional contexts, from urban-adjacent (Sunggumanai, Tamannyeleng) to remote (Kedungoleng), highlight diverse infrastructure needs, economic activities, and market access.

The survey used structured, one-on-one interviews with villagers from diverse backgrounds, relying primarily on open-ended questions with some quantitative elements. Due to the targeted nature of respondents (village heads, Village Representative Council (BPD) members, community leaders, and religious figures), random sampling was not feasible. Instead, we applied purposive sampling to gather in-depth insights from individuals with significant perspectives on the DD and its role in rural development. This approach allowed us to focus on local elites, including village heads, BPD leaders, prominent community members, and religious figures, who participate in the *Musdes* and influence the allocation and use of DD resources. Most local elite respondents are male, born between 1970 and 1985, with educational backgrounds at the senior high school level or higher.

To ensure a balanced perspective, we also included ordinary villagers in our sample. They are individuals who do not participate in the *Musdes* and have limited influence over DD allocation and use but are significantly affected by its outcomes. These villagers offer valuable insights into how DD impacts community empowerment and economic opportunities. To capture a broad range of experiences, we purposefully selected respondents from varied backgrounds, including farmers, microenterprise owners, and social assistance recipients. They are majority male, born between 1965 and 1990. While microenterprise owners typically have a senior high school education or higher, other respondents generally have a junior high school education or less.

3.2. Variables and measures

This paper employs both quantitative and qualitative analyses to achieve its objectives. The framework integrates cross-tabulation and estimation techniques with qualitative data derived from texts, interviews, and FGDs to identify common themes and patterns in village government and community perceptions of DD's design, implementation, and impact.

The estimation strategy involves three steps. First, to address gaps in previous studies, we incorporated non-economic indicators, such as *Musdes*, village regulations, and leadership, into the 42-IPD variables. Studies like SMERU (2018), TNP2K (2021), and Hartojo et al. (2022) emphasize the significant role of these non-economic factors in rural development. However, their complexity and the limited availability of reliable data often result in their exclusion from econometric testing.

Second, we assume that villages in Java may outperform those outside Java due to Indonesia's economic centrality, which is heavily concentrated on Java. This centrality could give Java-based villages certain advantages. To test this assumption, we created dummy variables to distinguish between villages located on Java and those outside Java.

Third, we developed two estimation models using the 2018-IPD data and the average IPD for 2014 and 2018. This approach was designed to assess parameter sensitivity. We excluded the 2014-IPD as an independent variable due to its high correlation with the 2018-IPD.

The regression is as follows:

$$Y_i = \beta_0 + \beta_1 D_i + \beta_2 DD_i + \beta_3 NM_i + \beta_4 VR_i + \beta_5 lead_1 + \varepsilon_i$$

where *Y* (IPD); *D* (regional dummy, Java and outside-Java); *DD* (village fund); *NM* (number of *Musdes*); *VR* (number of village regulation); *lead* (Leadership), and ε (error terms)

However, the model may face endogeneity issues, as DD allocation could be correlated with selected IPD indicators. This correlation could lead to biased estimates and error terms. To address this, we introduced instrumental variables (IV) that are correlated with DD but uncorrelated with unobserved determinants of IPD. A valid instrument must meet two criteria: it must be independent of the error terms and sufficiently correlated with DD after controlling for other variables. We chose the number of poor people as the instrument. This variable is a key factor in DD allocation and meets the necessary technical criteria.

4. Result and discussion

4.1. DD's design

Literature reviews show that Indonesia's rural development programs have historically struggled with structural challenges, leading to persistent underdevelopment and worsening poverty and inequality. A major factor has been the limited authority granted to village governments (Antlov, 2003; Astariyani et al., 2023; Zakaria, 2000). Prior to the Village Law, programs such as IDT and PNPM lacked clear guidance on village autonomy and legal status, largely viewing villages as extensions for implementing central government initiatives rather than as self-governing entities (TNP2K, 2018).

The Village Law promotes sustainable and rapid rural development by empowering village governments with greater authority and resources to manage local affairs. It strengthens their roles in administration, socio-economic development, community empowerment, and the enforcement of customary law. The law also establishes a more robust funding mechanism, the DD, which significantly expands financial resources compared to the previous village allocation (ADD). Previously, ADD comprised only 10% of district-level transfers and revenue, excluding Special Autonomy Funds (DAK) (Gonschorek and Schulze, 2018; Salim et al., 2017).

To ensure transparent and accountable use of the DD, the law mandates the establishment of *Musdes* (Village Consultative Forum) for community involvement in planning and monitoring local development programs. Ministry of Villages Decrees No. 2/2015 and No. 16/2019 require annual *Musdes* meetings to discuss and develop key planning documents, including the APBDes, annual village work plan (RKPDes), and medium-term village development plan (RPJMDes). Each village must also form a Village Representative Council (BPD), which may establish a smaller committee led by the BPD head. This committee includes council members, village officials,

facilitators, and community representatives, such as religious leaders (Jayasinghe et al., 2020; Salim et al., 2017).

Various regulations (e.g., PP No. 43/2014, PP No. 60/2014; PMK No. 205/2019) highlight the DD as a key mechanism for accelerating rural development in Indonesia. Its specific objectives include improving village public services, reducing poverty, promoting socio-economic prosperity, supporting local economies, and empowering rural communities as agents of development (Ministry of Finance, 2017; Ministry of Villages, 2019). To better achieve these goals, the DD allocation scheme has been progressively refined. Initially, from 2015 to 2017, only 10% of DD was allocated based on a formula incorporating population size, poverty rate, area size, and construction price index, with the remaining 90% distributed equally across villages (Gonschorek and Schulze, 2018). By 2023, formula-based allocations had increased to over 20%, better aligning DD utilization with its development objectives.

Despite annual adjustments to the formula-based allocations, DD's effectiveness in achieving its objectives, particularly for underfunded villages facing high poverty rates or elevated construction costs, remains uncertain. Our analysis suggests that the DD design does not adequately address the critical need to strengthen village government institutional capacity. This oversight leaves village institutions unprepared to manage increased funding effectively and lacking robust governance and oversight mechanisms (Faoziyah and Salim, 2020; Lewis, 2015; Permatasari et al., 2024).

Our analysis indicates that neglecting to strengthen institutional capacity can diminish the benefits of DD-funded projects, leading to bureaucratic inefficiencies, poor management, and issues like delays, substandard infrastructure, and incomplete initiatives. Weak governance may also result in the misallocation of DD funds, diverting resources away from the poorest areas and limiting the program's effectiveness in stimulating economic activity and reducing poverty.

Limited village government capacity restricts community participation, leading to decisions that may overlook villagers' needs or exclude them from meaningful input. This exclusion can prevent programs from addressing the root causes of poverty or fostering economic empowerment. Without stronger institutional support, DD projects often lack sustainable maintenance plans, reducing their long-term benefits and overall effectiveness in alleviating poverty.

4.2. DD's implementation

4.2.1. Spending pattern

Table 2. DD allocation and its absorption rate, 2015–2022.

	2015	2016	2017	2018	2019	2020	2021	2022	2023
DD Allocation (Rp trillion)	20.8	47.0	60.0	59.9	69.8	71.1	71.9	67.9	70.0
Absorption Rate-Central to District (%)	93.8	99.8	99.7	99.8	99.7	97.3	99.7	99.9	N.A
Absorption Rate-District to Villages (%)	82.7	97.7	98.5	99.6	99.5	97.2	99.4	99.5	N.A

Source: Ministry of Villages (2023).

Over the past nine years, the cumulative DD allocation reached Rp 538.4 trillion, with an absorption rate consistently exceeding that of the APBN, except in 2015. This suggests that village governments have generally managed to utilize DD funds within the designated timeframe (see **Table 2**).

From 2015 to 2017, similar to PNPM, DD expenditures were heavily concentrated on infrastructure (**Table 3**). Although national data on DD usage has not been available since 2018, our analysis of six villages shows that infrastructure spending still predominates, ranging from 72% in Donomulyo to 85% in Tamannyeleng. In contrast, spending on community empowerment remains minimal, at only 3% in Tamannyeleng and 9% in Gerbosari, reflecting village governments' reluctance to allocate substantial funds toward this area.

Table 3. The utilization of DD by sector, 2015–2017 (in %).

	2015	**2016**	**2017**
Infrastructure: Village roads Health facilities Village markets Early-childhood learning center facilities	82.2	87.7	84.2
Community Empowerment Business coaching on agriculture/fisheries/trade Training on applied technology Capacity-building of community Education, training and counseling for village heads/village officials/village representative councils	7.7	6.8	12.3
Governmental administration Village government office facilities Village boundaries landmark Village spatial planning document	6.5	3.6	2.0
Community Initiative Development Social institution development Peacefully institution development Customary institution development	3.5	1.8	1.4

Source: Ministry of Finance (2018).

Indonesian Law No. 6/2014 (Article 54) and Ministry of Villages Decree No. 2/2015 (Article 2) mandate that all DD-funded programs within RKPDes and APBDes must be initiated, selected, and prioritized by villagers through their participation in *Musdes*. This emphasis on infrastructure spending within DD reflects the community's priorities, highlighting a strong focus on addressing urgent infrastructure needs.

In the six villages studied, *Musdes* participants prioritized DD-funded infrastructure development for three main reasons. First, infrastructure projects offer immediate benefits by enhancing access to services and improving mobility. Second, village heads and BPD leaders often viewed infrastructure as a key indicator of their success, frequently making election promises tied to infrastructure development.

Third, past experience with PNPM Rural programs made infrastructure projects easier to plan and execute, as they involved simpler administrative processes compared to non-infrastructure initiatives.

From 2015 to 2022, the government reported that DD spending significantly accelerated infrastructure development (**Table 4**), contributing to a reduction in the rural-urban gap, improved access to essential services, and enhanced community empowerment (Hilmawan et al., 2023; Ministry of Villages, 2023; Rammohan and Tohari, 2023). The government claims that much of this infrastructure investment has positively influenced village development indicators, such as the IDM and IPD. During this period, 6066 villages achieved independent status, and the number of left-behind villages decreased by 4621, though most villages still remain classified as developing (**Table 5**).

Table 4. DD-funded rural infrastructures development, 2015 and 2022.

Types of Outputs	**Achievements**	
	2015–2018	**2018–2022**
Roads (km)	191,600	316,590
Bridges (m)	1,140,378	1,597,529
Markets (Units)	8983	12,297
Village-owned enterprises (BUMDes) (Units)	37,830	42,300
Boat moorings (Units)	5371	7435
Water reservoirs (Units)	4175	5430
Irrigations (Units)	58,931	501,054
Sport facilities (Units)	19,526	65,594
Land anchoring (Units)	192,974	213,248
Clean water supply facilities (Units)	959,569	1,474,544
Public lavatories (Units)	240,587	444,374
Health facilities (Units)	9692	14,455
Drainages (m)	29,557,922	45,775,443
Early-childhood learning center facilities (PAUD) (Units)	50,854	66,678
Monthly-clinic for children and pregnant women (Posyandu) (Units)	24,820	42,357
Draw wells (Units)	45,169	126,681

Source: Ministry of Villages (2018, 2023).

However, using the IDM or IPD to assess DD achievements is problematic. According to regulations (e.g., Village Law Articles 18, 19, 20, 72, 74; Government Regulation No. 4/2014; MoHAs Regulation No. 1/2016), only around 14 of the 50 IDM indicators fall within the authority of village governments. Critical areas like education, health facilities, and hostel construction lie outside village jurisdiction, restricting the scope of DD allocations for these projects.

Table 5. Village status based on village development index.

Village Status	2015		2019		2022	
	Number	%	Number	%	Number	%
Independent	173	0.3	831	1.1	6239	8.4
Developed	3576	5.3	8634	11.5	20,248	27.3
Developing	22,522	33.3	38,463	51.3	33,892	45.8
Under Developed	32,256	47.7	20,370	27.2	9234	12.5
Left Behind	9059	13.4	6653	8.9	4438	6.0
Total Village	67,586	100	74,951	100	74,051	100

Source: Ministry of Villages (2023).

Claiming that DD significantly impacts the IPD is overly simplistic, given the complex divisions of authority across multiple government levels (**Table 6**). TNP2K (2021) found that only 31% of the 42-IPD indicators fall under village government authority. Furthermore, various DD-funded rural development programs, such as early childhood education and public service access, do not directly influence the IPD. Thus, the impact of DD on IPD may be limited, contributing to only about one-third of total village development expenditure.

Table 6. Three main indicators to IPD improvement.

Dimension	Score (improvement between 2014–2018)	Top 3 indicators contribution	Under village government control*)
Basic services	0.92	Access to high school	No
		Access to pharmacy	No
		Access to hospital	No
Infrastructure condition	5.42	Fuel for cooking	No
		Sanitation	Partly
		Internet and post	No
Transportation	3.5	Travel time to sub-district office	No
		Travel time to district office	No
		Travel traffic and road quality	No
General services	1.88	Sport facility	Partly-minor
		Malnutrition	Partly-minor
		Handling extraordinary situation	Partly-very minor
Service of village governance	9.81	Village autonomy	Yes
		Village government	Yes
		Village head's quality	Yes
IPD	3.65		

Note: *) authors analysis.
Source: adopted from BPS-Statistics Indonesia (2019).

4.2.2. Critical notes

In the six villages, *non-Musdes* participants fell into two distinct groups. *First*, those who believed that DD was entirely controlled by village heads and saw it as their prerogative to allocate funds for infrastructure projects without consultation. *Second*, those who viewed DD as a communal resource and felt they should be involved in its planning and utilization. This latter group expressed dissatisfaction with the BPD and *Musdes*, citing their inadequate representation of community views. This suggests that, like previous programs such as IDT, PPK, and PNPM, the DD program continues to struggle with effectively incorporating inclusive, participatory methods that capture community aspirations and ensure proper monitoring of its initiatives.

Our findings corroborate the concerns raised by the second group, showing that BPDs in the six villages inadequately represented the aspirations of *non-Musdes* participants. They often neglected villagers' expectations in the DD planning process and played a minimal role in monitoring DD-funded projects. Their oversight was largely limited to physical construction, overlooking crucial aspects such as alignment with planning documents, inclusive benefits, quality standards, and appropriate material use. Additionally, BPDs rarely provided feedback on DD utilization reports for these projects.

Non-Musdes participants, especially those in the second group, voiced dissatisfaction with DD-funded infrastructure projects due to their exclusion from the planning process. Their concerns included: *First*, poor construction quality and inadequate maintenance of projects such as irrigation systems, clean water supply, and health facilities, leading to rapid deterioration and reduced long-term benefits. *Second*, DD funds were often allocated to high-visibility projects, like sports facilities, at the expense of essential local needs such as irrigation, markets, and health services, creating a disconnect with community priorities. *Third*, DD-funded projects often favored local elites from Musdes, such as village roads built near their properties.

Rural communities, especially *non-Musdes* participants, expressed dissatisfaction with DD-funded infrastructure projects, believing they did not promote productive or sustainable economic activities. This frustration stemmed partly from the reliance on external materials and non-local workers (SMERU, 2018). In the six villages studied, most residents felt that these projects failed to support local economic initiatives, leading to a widespread perception that the infrastructure developments did not provide significant economic benefits to the community.

Insufficient efforts to promote productive economic activities have hindered village governments' ability to generate revenue. Between 2016 and 2021, PADes declined by 1.7% annually, reducing its share of village revenue from 4.3% to 2.6%, while DD increased by 12.3% annually, boosting its contribution from 56.6% to 60.3% (**Table 7**). This trend highlights that the steady growth of DD funding has made villages increasingly dependent on the central government's financial support.

Table 7. Village government revenue in Indonesia (billion Rp).

Village income sources	2016*	2019	2021
Village Own Sources Revenues (PADes)	3535	2935	3241
Village fund (DD)	46,613	67,263	75,325
District's own revenue sharing (DBH)	2042	3565	3839
Village allocation fund (ADD)	26,372	35,229	34,926
Province's financial assistance	4277	3370	2739
District's financial assistance		3931	3991
Other revenues	472	1150	819
Total revenue	82,312	117,443	124,880

Source: Calculated from BPS, financial statistics of village government, various issues.
Notes: * In 2016, provincial and district financial assistance was combined into a single village income component.

Shifting DD allocation from infrastructure to community empowerment is essential for reducing village financial dependence and enhancing economic capacity. While infrastructure improves mobility and narrows the rural-urban gap, it alone does not guarantee economic growth or increase villagers' incomes. Without fostering local businesses or improving agricultural productivity, poverty may persist, and economic opportunities may remain limited. Village governments should adopt an integrated approach that combines infrastructure with initiatives to support local enterprises and agriculture. This includes using DD to fund entrepreneurial training, provide access to low-interest microfinance, and strengthen cooperatives, or Village-owned enterprises (BUMDes), to pool resources and connect small producers to larger markets.

Unfortunately, echoing SMERU (2018), village governments in the six studied areas are hesitant to increase spending on community empowerment initiatives like entrepreneurial training, business mentoring, and BUMDes support. This resistance stems from several factors. First, many lack experience and expertise, viewing these programs as more complex than infrastructure projects. Second, they often see empowerment as the responsibility of higher government levels (districts, provinces, or the central government). Third, they perceive empowerment's economic benefits as harder to measure, delayed, and limited to participants, making it seem riskier and less predictable than infrastructure investments.

Moreover, despite central government efforts to strengthen formula-based DD allocation for community empowerment and poverty alleviation, village governments have been slow to adopt this approach. They continue to allocate minimal DD directly to support the poor, which likely contributes to the limited reduction in rural poverty and inequality compared to urban areas (**Table 8**).

Our study, in line with SMERU (2018), identified several reasons for village governments' limited use of DD to assist and empower the poor. *First*, officials in villages like Kalilangkap, Kedungoleng, Donomulyo, and Sunggumanai perceive socio-economic inequality among residents as minimal. They fear that targeting specific groups as "the poor" could create jealousy and harm social cohesion. Consequently, they design DD-funded programs that can provide equal benefits to all villagers.

Table 8. Several poverty and inequality indicators before and after DD implementation.

Changes	Before DD (2011–2014) (%)	After DD (2015–2019) (%)
Rural Poverty	−11.7	−8.43
Urban Poverty	−10.23	−19.61
Rural Poverty Severity Index	−16.18	−7.02
Urban Poverty Severity Index	−20.51	−25.81
Rural Poverty Gap Index	−13.79	−6.22
Urban Poverty Gap Index	−15.54	−18.40
Rural Gini Coefficient	2.13	−6.25
Urban Gini Coefficient	9.34	−9.70

Source: Pusat Kajian Anggaran Setjen DPR RI (2021).

Second, villages like Gerbosari and Tamannyeleng recognize their poor residents but do not allocate budgets for affirmative programs, assuming that poverty reduction is the responsibility of central government initiatives. They rely on the central government's social assistance programs like food vouchers, the Family Hope Program (PKH), Indonesia Smart Cards (KIP), and Indonesia Health Cards (KIS) to address local poverty needs.

Third, the six village governments admitted that programs benefiting the broader community often overshadow poverty concerns. As with PNPM, *Musdes* discussions are dominated by local elites, sidelining the interests of *non-Musdes* participants, particularly the poor. Thus, despite repeated proposals, affirmative programs for impoverished residents are rarely prioritized in RKPDes planning.

Enhancing *Musdes* participation by involving impoverished individuals, women, and marginalized groups is essential for the effective use of DD in community empowerment and poverty alleviation. Their involvement allows them to actively participate in the planning and monitoring of DD usage, fostering community-led initiatives that directly address local needs. This inclusive approach supports sustainable and equitable use of DD, helping to reduce rural poverty and empower disadvantaged groups.

Improving the institutional capacity of village governments is crucial to this effort. Greater capacity fosters inclusivity and transparency, encouraging community participation in development planning and implementation. It also equips village governments with essential project management skills, ensuring that DD is used effectively and reaches its intended beneficiaries. Furthermore, stronger institutions can establish robust monitoring and evaluation systems to track the effectiveness of funded initiatives, ensure accountability, and enable timely adjustments to improve outcomes.

4.3. DD influence on village development

With the anticipated increase in the DD, evaluating its impact on village development is essential for refining its design and implementation. However, limitations in reliable data have hindered comprehensive DD evaluations. Notably, the limited literature available (Hartojo et al., 2022; SMERU, 2018; TNP2K, 2021)

consistently recommends incorporating socio-political factors, such as leadership and elite capture, into DD evaluations, as these factors are believed to significantly influence the fund's utilization. To address this, we aim to integrate these socio-political aspects into our DD impact modeling to enhance its accuracy and relevance.

Despite its limitations, the IPD remains the most reliable measure of DD achievements due to the lack of alternative data sources. This study utilizes IPD data from BPS's Podes survey, covering the period from 2014 to 2018. Village-level data were aggregated to the district level by calculating average values. In 2018, the Ministry of Finance allocated nearly Rp 60 trillion in DD funding, supporting 74,910 villages across 434 districts and cities.

Our analysis focused on villages classified as underdeveloped or developing in 2014. From 2014 to 2018, the minimum IPD score increased from 22.25 to 50.14, while the average IPD rose from 54.17 to 63.5. We selected villages that progressed from underdeveloped to developing or independent status during this period. To align with the primary scale of available DD data, we aggregated the data at the district level.

The methodology section outlines the variables included, the estimation strategy, and the approach to addressing potential endogeneity issues. Our econometric estimation begins with descriptive statistics for the model variables, as presented in **Table 9**.

Table 9. Statistic descriptive of variables.

Variable	Minimum	Maximum	Average
Dummy Java	0	1	0.177
Log village fund	20.42	21.07	20.52
Number of *musyawarah*	0	31.5	6.1
Number of village regulation	0	13	4.1
Leadership	0	3173.4	247.5

Source: PODES (author calculation).

Village development in Indonesia often follows regional patterns. Hill and Vidyattama (2014) found that decentralization has not significantly altered growth, social outcomes, or inter-regional inequality. In 2022, Java contributed 56.5% of Indonesia's GDP and had a growth rate of 5.31%, surpassing the national average. Therefore, villages in Java benefit from spatial advantages, offering more economic opportunities than those in other regions.

The frequency of *Musdes* by village-supporting bodies reflects the level of program dialogue in villages, with an average of over six meetings annually, though some villages hold none. Strengthening communication within these bodies, in keeping with Indonesia's tradition of inclusive decision-making (Permatasari et al., 2021), could enhance program support. However, frequent meetings alone do not ensure meaningful participation (Kuniyo and Larasati, 2019), and gender representation remains low (Mandafi et al., 2015).

Village head age, uncaptured by the IPD (only considers education level), is introduced as a variable by interacting age squared with education level (graduate degree or higher). This approach assumes that mature, educated leaders can positively

impact village outcomes. Effective leadership can drive development by motivating staff to provide better services (Lako et al., 2016) and fostering community participation through transformational or democratic leadership styles (Pangalila et al., 2015).

Table 10. Regression results.

Parameter	Model 1	Model 2
	Dependent variable IPD 2018	**Dependent variable average IPD 2014 and 2018**
Dummy Java	12.55	15.14
	(2.173) *	(2.97) *
Log village fund	−53.40	−108.74
	(71.13)	(97.21)
Number of *Musyawarah*	0.873	1.26
	(0.468) **	(0.64) **
Number of village regulation	0.890	0.958
	(0.264) *	(0.361) *
Leadership	0.0052	0.0071
	(0.0022) **	(0.003) **
Number of observation	423	423
Adj. R^2	0.246	-

Note: figures in brackets indicate standard error; significant at * (1%); ** (5%); *** (10%).

Table 10 presents the econometric analysis results, comparing two models: Model 1, which uses the 2018 IPD level, and Model 2, which uses the average IPD for 2014 and 2018 to assess parameter sensitivity. Model 1 shows that villages in Java outperformed those outside Java by 12.5 IPD points, underscoring Java's economic centrality in driving village development and widening regional disparities. This aligns with Lewis's (2015) finding that unequal fiscal transfers can exacerbate imbalanced growth, particularly in disadvantaged regions such as Maluku, West Nusa Tenggara, East Nusa Tenggara, West Papua, and Papua, which receive 70% less funding than needed, despite facing high poverty, vast areas, and challenging terrain.

The DD fails to account for the IPD, contradicting government claims of its impact, for three key reasons: First, the model focuses solely on DD, neglecting other financial resources. Second, many IPD indicators rely on spending from district, provincial, and central governments. Third, regional spillover effects play a significant role in influencing local and village development.

An increase in *Musdes* frequency raised the average IPD by 0.873 points, positively influencing village development outcomes. Similarly, a greater number of village regulations led to a 0.890-point increase in IPD, indicating that stronger regulations in fund management, asset handling, environmental practices, and social interactions improve program clarity and evaluation. Moreover, villages led by heads with at least a graduate diploma scored 0.0052 points higher than those led by uneducated heads.

In Model 2, instead of using only the 2018 IPD, we adjusted the dependent variable to the average IPD from 2014 to 2018. While the parameter signs and significance remained consistent, the estimated coefficients for leadership, rural regulations, Musyawarah, and the Java dummy variable showed slight increases.

The econometric models identified three key factors influencing IPD variability, each with distinct implications. First, the central government's spatial control may favor certain villages over more remote ones in terms of development. Second, the impact of the DD on IPD may be overstated, given its limited scale and resources, highlighting the need for improved DD. Third, village governance, measured through *Musdes*, regulations, and leadership, plays a significant role in enhancing IPD and presents opportunities for more effective DD management.

5. Conclusion and recommendation

The DD was designed to support President Jokowi's vision of developing Indonesia from the periphery. Its implementation has empowered village governments with substantial financial resources for independent development. However, like previous programs such as IDT, JPS, and PNPM, DD faces challenges in adopting inclusive and participatory approaches for gathering community aspirations and evaluating initiatives.

The findings show that most DD funding has been allocated to infrastructure, leading to significant improvements in rural areas. However, it was also found that many villagers, particularly in the six study locations, feel they have not fully benefited and do not perceive infrastructure as a means to alleviate poverty or generate income. While enhanced infrastructure can help narrow the rural-urban divide, it does not automatically create greater economic opportunities. To effectively reduce poverty and foster growth, infrastructure must be coupled with support for local businesses and improvements in agricultural productivity. The government should allocate DD for entrepreneurial training and low-interest microfinance for small businesses. Additionally, DD could support local economic institutions, such as cooperatives or BUMDes, to pool resources, strengthen bargaining power, and help small producers access larger markets.

The econometric model supports the qualitative analysis, revealing no significant impact of DD utilization on the IPD. Instead, factors related to effective governance, such as *Musdes*, regulations, and leadership, are crucial for improving IPD. This indicates that enhancing fiscal capacities must go hand in hand with improving governance quality and promoting community participation. Such an approach can lead to more targeted, transparent, and accountable DD implementation, ultimately fostering greater community satisfaction and acceptance.

As DD budget allocations increase, reforming its design and implementation is essential to enhance rural development outcomes. Strengthening the institutional capacity of village governments is key to this reform, promoting inclusivity, transparency, and community participation in development planning. It also equips village leaders with the project management skills necessary for effective DD utilization and delivery. By reinforcing these institutions, robust monitoring and

evaluation systems can be established to track effectiveness, ensure accountability, and enable timely adjustments for better outcomes.

This paper recommends several actions to strengthen the institutional capacity of village governments. First, establish training programs for village officials in financial management, project planning, and community engagement. Second, enhance transparency and accountability by implementing clear guidelines for DD allocation and usage. Third, develop robust monitoring and evaluation systems to assess the effectiveness of community empowerment programs and their impact on poverty reduction and income generation. Fourth, create communication strategies to inform villagers about available funds, programs, and participation opportunities. Fifth, foster partnerships with local NGOs, universities, and donors to provide technical support for community projects.

This paper offers valuable insights into the complex relationship between DD and rural development but has several limitations. The lack of reliable data hampers an accurate assessment of DD's impact, and restricted access to updated data reduces the study's robustness. Additionally, the small, less rigorous sample selection of villages limits the generalizability of the findings, potentially overlooking specific local challenges and opportunities and distorting their applicability to a broader village population. Furthermore, the cross-sectional data collected at a single point in time makes it difficult to observe long-term effects or establish causal relationships. Therefore, caution should be exercised when interpreting these findings, as they may not fully represent all villages. Future research should include a more diverse range of villages across the country and employ robust sampling methods to better understand DD's influence. Longitudinal studies are also recommended to track the evolution of DD and its long-term impacts on rural development. Finally, rural development data producers, such as the Ministry of Villages, Bappenas, and BPS, should adopt more open data-sharing policies with academics and policymakers. Greater data accessibility would foster evidence-based rural development policies, ultimately enhancing the prosperity of rural communities.

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