

Article

The Impact of Proliferation on The Poverty in The Case of North Kalimantan

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Abstract

Indonesia's development agenda prioritizes welfare for all citizens, yet disparities persist. To address this, the government initiated a Proliferation policy of North Kalimantan Province in 2012, as a policy intervention for poverty reduction, contributing to Indonesia's SDGs implementation framework. This paper evaluates the effectiveness of proliferation in North Kalimantan province. Using a triple difference-in-differences (DDD) methodology, this quasi-experimental study compares poverty trends across North Kalimantan (treatment group) with East and West Kalimantan (control groups) during pre- and post-formation periods. This approach controls for regional characteristics and temporal shocks to ensure reliable causal inference. We aim to provide insights into the effectiveness of the expansion policy. Results show that districts in newly formed North Kalimantan experienced statistically significant poverty reduction ($p < 0.05$) compared to control regions post-restructuring. The findings suggest that administrative restructuring, combined with enhanced local governance and targeted infrastructure development, effectively reduces poverty outcomes. This research provides empirical evidence that well-designed administrative proliferation serves as a viable policy tool for accelerating SDGs achievement, particularly supporting poverty alleviation (SDG 1), reduced inequalities (SDG 10), and inclusive governance (SDG 16) in Indonesia's remote regions.

Keywords: Administrative proliferation; Poverty reduction; SDGs implementation; Triple difference-in-differences; Regional development; Evidence-based policy

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I. Introduction

One of the fundamental objectives of Indonesia's national development, as mandated in the 1945 Constitution, is to ensure the welfare of all citizens irrespective of social status, ethnicity, or religion. The fourth paragraph of the Preamble explicitly states that one of the purposes of establishing the Indonesian government is to promote the general welfare of the people. Nevertheless, in practice, development in Indonesia remains uneven, resulting in significant disparities between regions.

These inequalities are further exacerbated by the government's limited capacity to effectively reach and serve remote and underdeveloped areas. In an effort to address this issue, the government has adopted a policy of regional expansion. According to (Rustiadi, 2018), several rational foundations must underpin the creation of new administrative regions: (1) improving access to public services and granting local communities greater authority over the management of regional resources; (2) fostering community participation and a sense of ownership in local governance; (3) enhancing economic efficiency and productivity while ensuring environmental and social sustainability; (4) increasing the accumulation of added value and improving overall community welfare; and (5) upholding the principle of equity in the pursuit of prosperity.

The Indonesian government has been actively promoting regional development through the establishment of new administrative regions. This is reflected in the expansion of the number of provinces, which currently totals 38. Between 1999 and 2013, eight new provinces were created: North Maluku, West Papua, Banten, Bangka Belitung Islands, Gorontalo, Riau Islands, West Sulawesi, and North Kalimantan. More recently, in 2022, four additional provinces were established in the Papua region: Central Papua, Papua Highlands, South Papua, and Southwest Papua.

North Kalimantan was officially formed on November 16, 2012 based on Law Number 20 of 2012 concerning the Establishment of North Kalimantan Province (Kaltara) by Indonesian President Susilo Bambang Yudhoyono. This province is a division of Bulungan Regency which was previously part of East Kalimantan Province. The formation of North Kalimantan was based on the fact that the people of North Kalimantan felt far behind in terms of infrastructure development, education, and society from other regions. The expansion of Kaltara divided the regions of Nunukan Regency, Malinau Regency, Tana Tidung Regency and Tarakan City. The capital city of North Kalimantan is Tanjung Selor which was then in Bulungan Regency.

In the above law, it is also stated that economic factors led to the formation of Kaltara, where there were border areas 99% of the interior that were left behind and untouched due to the long span of control from the provincial government center which was then in Samarinda / East Kalimantan. On the other hand, the level of life of the population in neighboring countries is better so that in Sebatik and Krayan, people have transacted using the Ringgit currency and there has been an orientation of life that has been more inclined to 'thermalization'. The border areas of North Kalimantan such as Sebatik and Nunukan have great potential to be developed, both the potential of natural resources and the potential in the field of services, trade and tourism. It has a strategic location because it borders Malaysia and the Philippines.

Government decentralization through the creation of new local administrative units reveals a complex landscape of outcomes that challenges simple assumptions about bringing governance closer to citizens. This idea aligns with Christaller's Central Place Theory, which is built upon three foundational principles, namely the prinsip pasar (market principle),

prinsip transportasi (transportation principle), and prinsip administrasi (administrative principle) (Setiono, 2011). The empirical evidence presents a nuanced picture where theoretical benefits often clash with practical realities.

The theoretical foundation for decentralization policies rests on the principle that transferring authority to local governments can significantly enhance democratic governance by positioning decision-making processes closer to the citizens they serve (Smoke, 2003). This proximity becomes particularly crucial in diverse societies where local needs, cultural contexts, and socioeconomic conditions may vary dramatically across different regions and communities.

However, the relationship between decentralization and improved governance outcomes is far more complex than theoretical frameworks suggest. The implementation of decentralization often maintains a relatively high degree of central government control over local service provision, particularly through deconcentrated sector ministries, with confusion over roles and responsibilities intensified by the multiplicity of government agencies involved, including various central government departments and different levels of sub-national government (Smoke, 2003). The fragmentation effect further complicates governance when new local governments view themselves as autonomous entities or "kingdoms," prioritizing narrow territorial interests over broader regional coordination (Firman, 2009).

When designed effectively, decentralization policies can provide communities with greater access to resources and create supportive environments for local development, though significant challenges persist including bureaucratic inefficiencies and corruption (Achmad, 2024). The phenomenon of increasing local government units has been documented extensively across multiple countries, including Brazil, the Czech Republic, Ghana, Hungary, Nigeria, Pakistan, Uganda, and Vietnam (Grossman et al., 2017). While theoretical motivations often center on enhanced local representation, empirical findings reveal significantly more complex outcomes.

The Indonesian experience offers detailed evidence of proliferation's mixed effects. Analysis of regional expansion from 2001 to 2010 reveals that newly created districts showed no improvement in educational access compared to their original regions, while experiencing notable declines in infrastructure services, particularly in access to water and sanitation (Lewis, 2017). Longitudinal analysis examining 491 districts and cities from 2001 to 2014 demonstrates further complexity (Husna & Rumayya, 2021). Proliferation produced negative effects in education, significantly reducing literacy rates due to decreased budget allocations and insufficient school infrastructure expansion. However, economic impacts proved mixed, with proliferation positively influencing household welfare through increased per capita expenditure and reduced poverty rates, while negatively affecting overall economic growth as measured by declining GDP per capita.

Fundamental challenges in administrative capacity compound these outcomes. Newly formed local governments often possess limited administrative capacity, creating obstacles in governance and service provision (Olowu & Wunsch, 2004). Increased administrative units do not automatically correlate with improved service delivery, as overlapping responsibilities and competition among entities can result in confusion and resource wastage (Faguet, 2014). The political context emerges as crucial, with evidence suggesting administrative reforms can be driven by political motives rather than service delivery considerations (Ribot, 2002). The tendency for proliferation to occur where national and local interests align often means new jurisdictions emerge in politically strategic locations rather than where most needed

from a service delivery perspective (Grossman & Lewis, 2014). Perhaps most concerning is the potential for recentralization, where smaller administrative units possess diminished bargaining power and limited administrative capacity, making them more dependent on central government support and effectively reversing the autonomy that decentralization was meant to create (Grossman & Lewis, 2014).

The evidence suggests that effective government proliferation requires careful attention to institutional design, adequate resource allocation, and ongoing capacity building. Simply multiplying local government units without addressing fundamental governance requirements may create the appearance of democratization while failing to deliver meaningful improvements in service delivery and local empowerment. Moving on from this issue, it is necessary to identify the impact of regional expansion on economic development in North Kalimantan. This is a step that can be taken to determine the extent of the achievements and results of the division of East Kalimantan Province.

II. Methods

Poverty is not simply defined by a lower level of income or consumption relative to measurable welfare benchmarks such as minimum calorie requirements or the poverty line. Rather, poverty carries a deeper meaning that reflects an inability to attain essential non-income dimensions of well-being, including access to basic needs such as health services, education, clean water, and adequate sanitation (Nazara, 2010). The analysis covers three provinces (East Kalimantan, West Kalimantan, and North Kalimantan) from 2010 to 2020. This study employed secondary panel data on the number of poor individuals provided by the Central Bureau of Statistics (BPS), where poverty status is assessed through household expenditure patterns on food and non-food items. We also incorporated several control variables, including the labor force participation rate (LFPR), Gross Regional Domestic Product (GRDP), area size, road length, average years of schooling, the Human Development Index (HDI), the number of schools (elementary, junior high, and senior high), and the number of health facilities (community health centers and hospitals). All of these variables were obtained from the Central Bureau of Statistics (BPS) for the same three provinces. Moreover, to integrate an investment perspective, we included data on foreign direct investment (FDI/PMA) obtained from the Ministry of Investment and Downstreaming. We created Table 1 to make it easier to understand the definitions of the variables.

Table 1. Definition of Variables

Variables	Unit	Description/Measurement
Dependent Variable		
Poverty status	Count	Number of poor people
Independent Variable		
DDD Effect	Dummy (0, 1)	Interaction term: Post x Treatment x Government
Control Variable		
Geographical/regional		
Area	Natural log	Log of area size (km ²) Economy
Economy		
Gross Regional Domestic Product (GRDP)	Natural log	Based on Constant Prices (ADHK) 2010 by Business

		Field (Millions of Rupiah)
Foreign Direct Investment (FDI)	Natural log	Foreign Direct Investment (FDI), in thousand US\$
Economically Active Participation Rate	Percent (%)	Share of economically active population
Education		
Mean Years of Schooling	Years	The average number of years of schooling completed
Primary School	Count	Number of Primary School
Lower Secondary School	Count	Number of Lower Secondary School
Upper Secondary School	Count	Number of Upper Secondary School
Vocational Secondary School	Count	Number of Vocational Secondary School
Public Goods		
Road in Good Condition	Natural log	Length of Road in Good Condition (km)
LnLength of Road in Poor Condition		
Road in Poor Condition	Natural log	Length of Road in Poor Condition (km)
Health		
Human Development Index	Index	HDI score (0–100 or 0–1 depending on dataset)
Public Health	Count	Number of Public Health
Hospital	Count	Number of Hospital

This research is quantitative research using triple differences (DDD). The DDD estimator is an appropriate estimator to use when district or province level analysis is conducted separately due to endogeneity criticism (Lubinga et al., 2016). This group is useful for comparing how the participant group differs from other groups in socioeconomic characteristics (Khandker et al., 2010). In contrast to Lewis, B.D. (2017), who examined the effects of proliferation from the perspectives of education and infrastructure, this study aims to test the null hypothesis that administrative proliferation reduces poverty levels. This method is chosen because there was the difference in trend between the experimental group and the control group than using difference in difference (DiD) as our evaluation approach (Blundell & Dias, 2009; Lee et al., 2019; Zhu et al., 2023).

In this case, we compare three provinces in Kalimantan, namely East Kalimantan, North Kalimantan and West Kalimantan. West Kalimantan was chosen as a control because it has not yet experienced expansion so it can be used as a comparison in the effectiveness of this expansion policy. The districts/cities in East Kalimantan that are not included in the expansion area in North Kalimantan will be the control group in the treated area. In terms of econometric specification, the relationship has the following form:

$$Poverty_{ist} = \beta_0 + \beta_1 T_s + \beta_2 G_{ist} + \beta_3 T_s G_{ist} + \delta_0 Post_{st} + \delta_1 Post_{st} T_s + \delta_2 Post_{st} G_{ist} + \delta_3 Post_{st} T_s G_{ist} + \Gamma_{Xi} + u_{ist} \tag{1}$$

Where $Poverty_{ist}$ represents the result variable “Poverty” for the group “i” of the area at the time “t”. The variable T represents a dummy variable for the government that implements the policy. The variable “G” is a dummy variable for groups affected by policy. While “Post” identifies the period after the implementation of the environmental policy. The variable “X” is a control variable.

III. Results, Analysis, and Discussions

First, we aim to identify the differences in poverty levels across three types of regions new regions, split regions, and original regions—following the classification approach used by Lewis (2017). ‘New regions’ refer to areas that were established through administrative separation, such as North Kalimantan. ‘Split regions’ refer to the parent regions from which the new regions were separated, in this case East Kalimantan. ‘Original regions’ refer to areas that have not undergone any administrative division, such as West Kalimantan. We conduct this analysis to examine the parallel trend assumption, which is a necessary requirement for the implementation of the triple-differences (DDD) method.

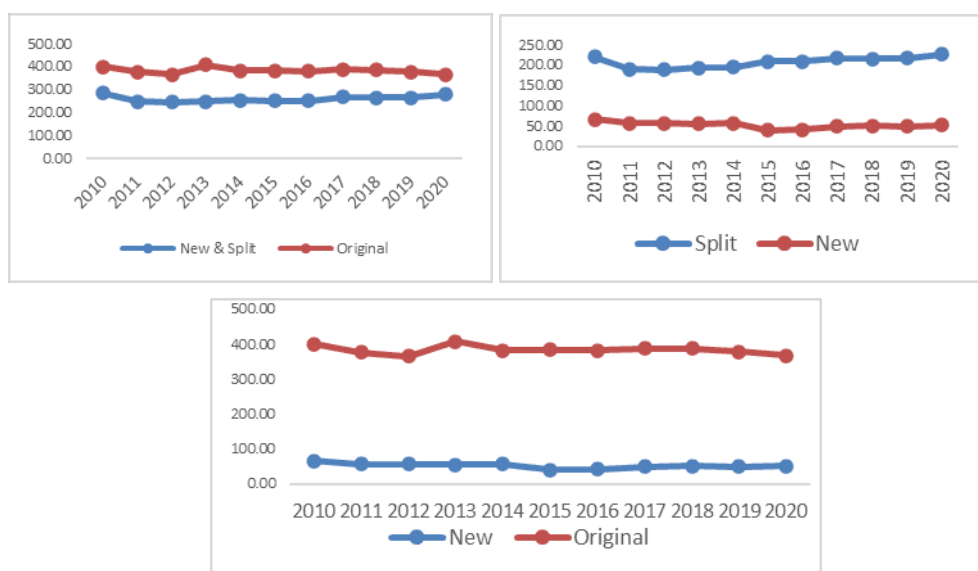


Figure 1. Trend of Poverty outcome

Across all three comparisons, the pre-2012 trends exhibit relatively stable and parallel movements between the region groups. This pattern suggests that the parallel trend assumption is reasonably satisfied in the pre-proliferation period, supporting the use of the triple-differences (DDD) estimation strategy. This result is considered robust, as the supplementary statistical test corroborates the validity of the parallel trend assumption. Specifically, the test fails to reject the null hypothesis (H_0 : the linear trends are parallel), producing a p-value of 0.1526. Given that this value exceeds conventional significance thresholds, we infer that the pre-treatment trends do not exhibit statistically significant differences between the groups. We further examine whether any anticipatory effects occurred prior to the implementation of the policy. The corresponding statistical test also fails to reject the null hypothesis (H_0 : no anticipatory effect), with a p-value of 0.4064. Given that this value is well above conventional significance levels, there is no statistically significant evidence of behavioral or outcome adjustments in anticipation of the treatment.

Turning to the post-proliferation period, the first figure combines the poverty trends of the ‘new’ and ‘split’ regions and compares them with those of the original region. The original region shows an increase in the number of poor people in 2013 relative to 2012, indicating a short-term deterioration in socio-economic conditions during the post-proliferation period. Second, the post-proliferation divergence between the split and new regions indicates that the proliferation affected these regions differently. In the split region, the number of poor people increased continuously after the proliferation, reaching its peak in 2017, before declining in the subsequent years. In contrast to the split region, which shows a more predictable pattern, the new region displays a considerably more fluctuating trend, indicating greater variability in its post-proliferation poverty dynamics. However, when comparing the new region with the original region in the third figure, the new region exhibits a sharper downward trend, indicating a relatively stronger reduction in poverty levels over the observed period.

Table 2. Overall effect of proliferation

Variables	(1)	(2)	(3)	(4)
DDD Effect	-3.783*** (1.35)	3.654*** (1.177)	-3.671*** (1.174)	-3.671*** (1.174)
Control Variable				
Geographical/regional				
Area	1.598 (1.484)	-1.7 (1.342)	-1.576 (1.361)	-1.576 (1.361)
Economy				
Gross Regional Domestic Product (GRDP)	-0.105 (0.174)	-0.111 (0.159)	-0.109 (0.157)	-0.109 (0.157)
Foreign Direct Investment (FDI)	-0.043 (0.056)	-0.141** (0.072)	-0.139* (0.073)	-0.139 (0.073)
Economically Active Participation Rate	0.023 (0.063)	0.037 (0.059)	0.038 (0.058)	0.038 (0.058)
Public Goods				
Road in Good Condition	-0.242 (0.159)	-0.313** (.154)	-0.315** (0.15)	-0.315** (0.15)
Road in Poor Condition	0.44** (0.176)	0.421*** (0.151)	0.423*** (0.153)	0.423*** (0.153)
Education				
Mean Years of Schooling		-2.487* (1.51)	-2.516* (1.52)	-2.516* (1.52)
Primary School		0.06*** (0.018)	0.058*** (0.018)	0.058*** (0.018)
Lower Secondary School		0.04 (0.052)	0.039 (0.054)	0.039 (0.054)
Upper Secondary School		-0.052 (0.074)	-0.054 (0.076)	-0.054 (0.076)
Vocational Secondary School		0.015 (0.166)	0.009 (0.168)	0.009 (0.168)
Human Development		0.185	0.197	0.197

Index		(0.451)	(0.456)	(.456)
Health				
Public Health			-0.002 (0.078)	-0.002 (0.078)
Hospital			0.041 (0162)	0.041 (0162)
Constanta	11.283 (12.939)	23.684 (25.943)	23.684 (25.898)	23.684 (25.898)
Observation	285	285	285	285
Distric Fixed Effect	No	No	No	Yes

Standard errors in parentheses: * p < 0,10, ** p < 0,05, *** p < 0,01

Source: Central Bureau of Statistics (BPS), processed data.

The results presented in Table 2 indicate that the DDD Effect consistently yields a negative and statistically significant coefficient across all model specifications. This finding suggests that districts experiencing administrative proliferation show a significant reduction in poverty compared with districts that did not undergo proliferation. Substantively, the coefficient approximately 3.7 thousand individuals implies that proliferation is associated with an average decrease of around 3,700 poor people per district, after controlling for relevant covariates. This result aligns with previous empirical studies, such as Husna and Rumayya (2021), which find that administrative proliferation can improve access to public services, strengthen administrative presence, and enhance local government responsiveness, thereby contributing to poverty reduction.

The control variables exhibit mixed effects. The Area variable is not statistically significant, indicating that territorial size alone does not systematically influence poverty levels in this context. Economic indicators show similarly varied patterns. GRDP displays a negative but statistically insignificant coefficient, suggesting that although proliferation is expected to enhance local economic capacity, many newly created regions still face constraints in achieving fiscal independence and economic dynamism. This aligns with assessments by Bappenas (2008), Jaweng (2014), and the Ministry of Home Affairs (2014), which highlight that new districts often have weak economic bases, limited investment capacity, and high dependence on central government transfers. Meanwhile, FDI shows a negative and partially significant effect in some specifications, indicating that foreign investment may help reduce poverty, although the effect becomes marginal when more controls are included.

Public goods variables provide clearer relationships. The log of the length of roads in poor condition has a negative and significant effect on poverty, while the length of roads in poor condition in level form shows a positive and significant effect. Together, these results underscore the importance of infrastructure quality in influencing welfare outcomes. In the education category, mean years of schooling has a negative and marginally significant effect, consistent with the view that improved educational attainment contributes to poverty reduction. Other education variables are not statistically significant, likely reflecting structural differences across districts or multicollinearity among schooling indicators. Health variables, including the number of public health centers and hospitals, display no significant effects, suggesting that health infrastructure may influence poverty only over a longer horizon or varies substantially in quality across regions.

In terms of infrastructure, the results show that a 10 percent increase in the length of roads in good condition reduces poverty by approximately 31 individuals, whereas reliance on unpaved or poor-quality roads increases poverty by about 42 individuals. This indicates

that infrastructure quality, rather than its sheer quantity, plays a more critical role in improving welfare outcomes. Regarding human capital, average years of schooling is negatively associated with poverty; each additional year of schooling reduces the number of poor individuals by roughly 2,500, although its statistical significance remains limited. Nonetheless, this finding reinforces the importance of education as a long-term poverty reduction strategy, consistent with Lewis (2017), who argues that administrative proliferation can influence educational development. However, when examining educational infrastructure specifically, only the number of primary schools shows a significant relationship with poverty, suggesting that basic educational access may matter more than the availability of higher-level institutions in this context.

Overall, the findings demonstrate that administrative proliferation has a robust and consistent poverty-reducing effect, even as newly established districts continue to face structural economic constraints. In essence, while proliferation appears to enhance public service provision and administrative accessibility, sustained improvements in local economic capacity will require additional time, stronger institutional foundations, and comprehensive regional development strategies.

IV. Conclusion and Recommendation

This section presents the conclusions derived from the results of the discussion and discussion or discussion of the results of the study. Describe the conclusion in the form of a coherent and systematic paragraph. Recommendations should be based on the results of the analysis and conclusions that have been made.

This study set out to examine whether administrative proliferation contributes to poverty reduction and through which mechanisms such effects may materialize. The findings provide clear evidence that proliferation can reduce poverty when it is embedded within a broader framework of state capacity strengthening, targeted public investment, and improvements in human capital. Rather than viewing proliferation as an isolated administrative reform, this research demonstrates that its effectiveness depends on the quality of governance and the strategic allocation of resources that follow the creation of new administrative units. By highlighting these interactions, the study advances the existing literature—which has often focused solely on fiscal or political motivations for proliferation—by showing empirically how well-designed institutional restructuring can improve welfare outcomes in lagging regions.

The empirical contribution of this research lies in its application of a triple-differences identification strategy, which provides stronger causal inference compared with conventional DiD approaches often used in regional decentralization studies. This methodological advancement helps clarify the conditions under which proliferation yields benefits, moving the academic debate beyond normative arguments to more evidence-based assessments. The study also underscores the importance of infrastructure quality and human capital formation as central channels through which institutional reforms translate into improved socioeconomic outcomes.

The policy relevance of this research is substantial. The results suggest that administrative reforms can serve as a lever for achieving the Sustainable Development Goals (SDGs), particularly in underserved areas, provided they are accompanied by systematic support for infrastructure development, education, and local governance capacity. Governments implementing or considering regional restructuring should therefore

incorporate these complementary investments into their strategic planning to maximize the welfare gains of proliferation.

Looking forward, future research should examine the long-term effects of administrative proliferation on economic diversification, fiscal independence, and governance quality, as these dimensions require more extended periods to fully materialize. Additional qualitative and mixed-methods studies could also help illuminate the political and institutional dynamics that either enable or hinder the successful implementation of proliferation. Finally, comparative analyses across provinces or countries would deepen understanding of when proliferation is most effective and when it may impose risks of administrative fragmentation.

Limitation

Despite its contributions, this study is subject to several limitations that should be considered when interpreting the findings. First, the analysis relies on district-level aggregate data, which restricts the ability to explore intra-district heterogeneity or household-level mechanisms through which administrative proliferation affects poverty. Future studies using microdata would provide a more granular understanding of distributional effects, including gendered, rural–urban, or sector-specific outcomes. Second, although the triple-differences approach strengthens causal inference, the identification strategy still assumes that no other concurrent policies differentially affected the treated and control regions during the study period. While robustness checks support this assumption, unobserved shocks or political interventions cannot be fully ruled out. Third, the study focuses on a relatively short to medium time horizon after proliferation; thus, the long-term trajectories of newly established regions such as their fiscal independence, institutional consolidation, or economic diversification may not yet be observable. Fourth, measurement quality remains a concern for several variables, particularly infrastructure indicators, which may be inconsistently reported across districts and years. Finally, the external validity of the findings is context-dependent; the institutional and political characteristics of Kalimantan may not fully generalize to other Indonesian provinces or other countries undergoing administrative restructuring.

These limitations highlight opportunities for further investigation, including longitudinal analyses over longer periods, mixed-methods approaches that incorporate field-level evidence, and cross-regional comparative studies to better understand the conditions under which administrative proliferation produces sustained welfare gains.

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