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Spatial Heterogeneity of Child Malnutrition and Governance Fragility: A Geographically Weighted Regression Analysis of Stunting and Political Instability in Indonesia's Peripheral Regions

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A B S T R A C T

Stunting remains a critical public health challenge in Indonesia, particularly in peripheral regions known as *Terdepan, Terluar, Tertinggal* (3T). While biological and nutritional factors are well-documented, the impact of political instability and governance fragility on health outcomes remains under-explored. This study investigates the spatial relationship between political instability and stunting prevalence across Indonesia's peripheral districts. We employed Geographically Weighted Regression (GWR) to analyze spatial non-stationarity. Data were analyzed for 122 peripheral districts, integrating the Stunting Prevalence Index (SPI) as the dependent variable and the Political Instability Index (PII), poverty rates, and healthcare accessibility as predictors. Global Moran's I was used to detect spatial autocorrelation. Significant spatial clustering was identified (Moran's I = 0.48, $p < 0.001$). The GWR model significantly outperformed the Ordinary Least Squares (OLS) model (R-squared GWR = 0.76 versus R-squared OLS = 0.54), revealing that political instability has a disproportionately higher impact on stunting in the Eastern Indonesia cluster—specifically Papua and Maluku—compared to Western peripheral zones. In conclusion, stunting interventions in peripheral regions must transcend clinical nutrition to include governance stabilization. Tailored, location-specific policies are essential for regions where political fragility exacerbates supply chain disruptions for health services.

1. Introduction

The Republic of Indonesia has undergone a monumental transformation in its public health landscape over the last decade.[1] Central to this transformation is the aggressive national agenda to combat child stunting—a condition of impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation. While national figures suggest a downward trend in prevalence, these aggregate statistics often mask a more disturbing reality. A stark spatial divide has emerged, creating a bifurcated health landscape: the central hubs of Java and Bali exhibit modernizing health metrics, while the peripheral regions—formally categorized as *Terdepan, Terluar, Tertinggal* (3T) or the Frontline, Outermost, and Disadvantaged regions—remain trapped in a cycle of nutritional deficit and developmental stagnation.[2]

Current health policies in Indonesia have historically been framed through a technocratic lens. These frameworks largely treat stunting as a dualistic problem of biology and socioeconomics.[3] On one hand, the biomedical approach emphasizes the first 1,000 days of life, focusing on micronutrient supplementation, breastfeeding practices, and immunization. On the other hand, the socioeconomic approach addresses household-level poverty, parental education, and access to clean water and sanitation (WASH). While these factors are undeniably critical, they fail to account for the structural meta-determinants that govern the efficacy of such interventions. In the rugged and remote geographies of the Indonesian periphery, the state's capacity to deliver these life-saving interventions is not merely a matter of logistics; it is fundamentally a matter of governance and political stability.[4]

In the 3T regions, which span from the northern tips of Sumatra to the highlands of Papua, the administrative presence of the state is often fragile.[5] Here, the implementation of health policy occurs within a volatile political ecosystem. Local electoral conflicts, contested administrative boundaries, and the frequent turnover of district leadership create an environment where public health agendas are often subordinate to political survival. This study posits that political instability acts as a significant spatial disruptor of health outcomes. When a district experiences political upheaval, the bureaucratic machinery responsible for maternal education and the distribution of fortified foods is the first to suffer. Budgetary reallocations during election cycles or administrative paralysis during leadership disputes can lead to months of neglected health monitoring, effectively undoing years of progress in nutritional rehabilitation.

Theoretically, the mechanism through which political instability drives stunting is rooted in the disruption of the last-mile delivery. In a stable environment, health policy flows from the central government in Jakarta through provincial channels down to the *Puskesmas* (community health centers) and *Posyandu* (integrated service posts). However, in peripheral zones characterized by high political fragility, this flow is frequently severed.[6] Political instability manifests as high staff turnover in local health offices, the politicization of village-level fund allocations, and in extreme cases, civil unrest that physically prevents health workers—specifically the *Bidan Desa* (village midwives)—from reaching remote settlements. Consequently, a child born in a politically volatile district in Eastern Indonesia faces a significantly higher risk of stunting than a child in a stable district, even if their household income levels are identical.

Despite the logical connection between governance and health, the existing body of literature remains remarkably narrow. Most spatial analyses of stunting in Indonesia have utilized Global Ordinary Least Squares (OLS) models, which assume that the relationship between variables is constant across the entire archipelago. Such models are fundamentally flawed when applied to a nation as geographically and politically diverse as Indonesia.[7] They ignore spatial non-stationarity—the idea that the impact of poverty or political instability on stunting may be significantly stronger in the highlands of Papua than in the coastal regions of Kalimantan. To capture this complexity, advanced spatial econometrics are required to move beyond average effects and into the realm of localized reality.

Geographically Weighted Regression (GWR) offers a sophisticated solution to this analytical gap. By allowing regression coefficients to vary across geographical coordinates, GWR enables researchers to visualize how the relationship between political fragility and malnutrition shifts from one district to the next. This method recognizes that the weight of political instability is not a fixed constant but is influenced by neighboring regions and local environmental contexts. Understanding these spatial

nuances is not merely an academic exercise; it is a prerequisite for effective policy. If the National Stunting Reduction Task Force (*Tim Percepatan Penurunan Stunting* or TPPS) continues to apply a uniform one-size-fits-all strategy, they will continue to see diminishing returns in the 3T regions where the obstacles are political rather than purely clinical.[8]

Furthermore, the integration of the Political Instability Index (PII) into spatial health modeling represents a paradigm shift in how we conceptualize health equity.[9] Traditionally, political science and public health have operated in silos. Political scientists study electoral violence and administrative decentralization, while public health experts study stunting and morbidity. This study bridges that divide, arguing that in the Indonesian periphery, politics is a social determinant of health. By identifying hotspots where high stunting rates overlap with high political fragility, we can pinpoint areas that require not just more food, but better governance and institutional stabilization.

The urgency of this research is underscored by Indonesia's ambitious target to reduce stunting prevalence to 14 percent by 2024–2025. As we move further into this decade, the easy wins in accessible regions have already been achieved. The remaining burden of stunting is concentrated in the most difficult-to-reach and politically complex areas of the nation. Without a clear understanding of the spatial autocorrelation between governance and growth, the Golden Indonesia 2045 vision—which relies on a productive and healthy workforce—remains at risk of being undermined by the enduring shadow of peripheral malnutrition.[10]

The aim of this study is to model the spatial autocorrelation between stunting and political instability in Indonesia's peripheral regions using Geographically Weighted Regression (GWR). By analyzing 122 districts within the 3T framework, we seek to quantify how localized political conditions exacerbate or mitigate child malnutrition. The novelty lies in the integration of political-administrative variables into a spatial health model to identify localized fragility-stunting hotspots. This approach moves beyond the traditional biomedical and socioeconomic paradigms, offering a pioneer exploration into how the stability of the state—at the most local level—determines the biological destiny of the next generation of Indonesians. Through this spatial lens, we aim to provide the empirical basis for a governance-aware health policy that is essential for achieving health equity in the world's largest archipelagic state.

2. Methods

The methodological framework of this research is designed to capture the complex, non-linear, and spatially contingent relationships between governance and public health. To move beyond the limitations of traditional global regression, this study employs a spatial econometrics approach that prioritizes local context, acknowledging that the vast Indonesian archipelago cannot be treated as a uniform statistical unit. The geographical focus of this inquiry is intentionally narrowed to the most vulnerable regions of the Indonesian state. We analyze 122 districts officially designated as peripheral regions, or *Terdepan, Terluar, Tertinggal* (3T), by the Indonesian Ministry of Villages, Development of Disadvantaged Regions, and Transmigration. These districts represent the frontline of Indonesia's developmental challenges, characterized by geographical isolation, underdeveloped infrastructure, and proximity to international borders or internal conflict zones. By isolating the 3T regions, the study avoids the statistical noise generated by the highly developed urban centers of Java, thereby allowing for a cleaner analysis of how political fragility operates in environments where state presence is already precarious. The spatial data infrastructure for these 122 districts was constructed using administrative boundary files (shapefiles).

The data used in this analysis were synthesized from three primary high-authority sources to ensure academic rigor and multi-dimensional depth. First, nutritional outcomes were derived from the 2023 Indonesian Health Survey (Survey Kesehatan Indonesia - SKI). This national dataset provides the most updated and comprehensive granular data on child growth markers, allowing for the calculation of stunting prevalence at the district level with high confidence. Second, the political variables were extracted from the National Violence Monitoring System (SNPK) records and the administrative database. The SNPK provides longitudinal data on social and political disturbances, which were categorized and weighted to construct the instability metrics. Third, socioeconomic control variables, including poverty headcount ratios and infrastructure indices, were sourced from the BPS-Statistics Indonesia 2023-2024 regional reports. This triangulation of health, political, and economic data creates a robust foundation for identifying the fragility-stunting nexus.

The selection of variables for this study is grounded in the Social Determinants of Health (SDH) framework, expanded to include political ecology.

Dependent variable (Y): Stunting prevalence

The primary outcome of interest is the percentage of children under five years of age within each district who are classified as stunted (height-for-age Z-score less than -2 standard deviations from the WHO Child Growth Standards). This variable represents the cumulative impact of chronic nutritional and environmental deficits.

Independent variable (X1): Political instability index (PII)

The central explanatory variable is the Political Instability Index (PII), a composite metric developed for this study to quantify governance fragility. Scaled from 1 to 100, the PII is calculated based on three sub-indicators: (1) Electoral Disputes: The frequency and intensity of contested local election (Pilkada) results submitted to the Constitutional Court; (2) Administrative Turnover: The rate of change in key bureaucratic positions (Head of Health Office, District Secretary) within a four-year cycle, signaling institutional instability; (3) Social Protest Frequency: The number of recorded incidents of political demonstrations or civil unrest that disrupted local government operations.

Control variables (X2 and X3)

To isolate the effect of political instability, we control for traditional drivers of malnutrition. The Poverty Rate (X2) is included as the percentage of the population living below the regional poverty line, accounting for the household-level economic capacity to purchase nutritious food. The Distance to Health Facilities (X3) is operationalized as the average travel time or physical distance from village centers to the nearest primary health center (Puskesmas), serving as a proxy for the physical accessibility of the state's health interventions.

Statistical modeling and geographically weighted regression (GWR)

The analytical strategy follows a multi-stage spatial econometric workflow. The fundamental premise of this study is that global models—such as Ordinary Least Squares (OLS)—fail to account for spatial heterogeneity. In an OLS framework, the relationship between political instability and stunting is assumed to be the same in the borderlands of Kalimantan as it is in the mountains of Papua. GWR corrects this by allowing parameters to be local rather than global.

Stage 1: Testing for spatial autocorrelation

Before applying the GWR, it is essential to determine if the data actually exhibit spatial patterns. We utilize the Global Moran's I statistic to measure the degree of spatial autocorrelation in stunting

prevalence. The Moran's I index ranges from -1 (perfect dispersion) to +1 (perfect clustering). A significant positive Moran's I indicates that districts with high stunting rates are geographically clustered together, justifying the use of a spatial regression model.

Stage 2: The OLS baseline

We first estimate a global OLS model to establish a baseline for comparison. The OLS model provides a single coefficient for each variable across all 122 districts. We use this to check for multicollinearity among the independent variables using the Variance Inflation Factor (VIF), ensuring that political instability and poverty are not so highly correlated that they obscure individual effects.

Stage 3: Geographically weighted regression (GWR)

Following the confirmation of spatial clustering, we transition to the GWR model. In this model, the dependent variable at each location is treated as a function of the coordinates of that specific point. Unlike OLS, the coefficients are functions of the location. This means that for every district, the model calculates a unique regression equation based on its neighboring districts, allowing the influence of political factors to change across the landscape.

Stage 4: Kernel bandwidth and weighting

A critical component of the GWR is the selection of the spatial kernel and the bandwidth. The bandwidth determines the distance or number of neighbors that influence the local regression at each point. We employ an Adaptive Bi-square Kernel, which is particularly suitable for the 3T regions of Indonesia, where districts vary significantly in size (for example, small districts in Nusa Tenggara versus massive districts in Papua). The optimal bandwidth is determined using the Corrected Akaike Information Criterion (AICc). The model seeks the bandwidth that minimizes the AICc, striking the perfect balance between model complexity and local accuracy.

Stage 5: Model Evaluation

Finally, the performance of the GWR is compared against the OLS model using several diagnostic metrics: (1) Adjusted R-squared: To determine how much more variance is explained by allowing for spatial variation; (2) AICc Values: A lower AICc for GWR compared to OLS (typically a difference of greater than 10) provides strong statistical evidence that the spatial model is a better fit for the data; (3) Local R-squared Maps: We map the R-squared values for each district to identify where the model is most powerful in explaining the stunting-instability link. This rigorous methodological approach ensures that the findings are not generalized averages but are instead localized insights that reflect the lived reality of Indonesia's peripheral populations. By quantifying the spatial non-stationarity of political influence, this study provides a more sophisticated tool for targeted health policy intervention.

3. Results and Discussion

The empirical findings of this study provide a comprehensive look at the spatial dynamics of child malnutrition within the context of governance fragility. By transitioning from a global to a local perspective, the results illuminate the specific geographical pockets where political instability acts as a primary catalyst for nutritional deficits. Prior to the regression analysis, we conducted an exploratory spatial data analysis (ESDA) to visualize the distribution of stunting across the 122 peripheral districts. The data revealed a significant degree of spatial heterogeneity. Stunting prevalence in these 3T regions ranged from a minimum of 18.2 percent in certain coastal districts of Sumatra to a maximum of 44.6 percent in the central highlands of Papua. This wide variance suggested that a single national average fails to capture the localized severity of the crisis.

To determine if these variations were random or followed a geographical pattern, we calculated the Global Moran's I. The resulting index was 0.485, with

a z-score of 6.12 and a p-value of less than 0.001. This result indicates a strong and statistically significant positive spatial autocorrelation. In practical terms, this means that stunting is not distributed randomly across the periphery; rather, districts with high stunting rates are geographically clustered with other high-prevalence districts, forming hotspots of malnutrition.

Further analysis using Local Indicators of Spatial Association (LISA) identified specific cluster types. The high-high clusters—areas of high stunting surrounded by high stunting—were predominantly found in the Eastern Indonesia corridor, specifically across the Papua and West Papua provinces and the East Nusa Tenggara archipelago. Conversely, low-low clusters were identified in the peripheral districts of the Riau Islands and parts of North Kalimantan, where, despite their peripheral status, health outcomes remained relatively stable.

The global ordinary least squares (OLS) regression was executed to identify the average impact of the predictors across all districts.[11] The results of the OLS model are summarized as follows: (1) Political Instability Index (PII): Showed a positive and significant relationship with stunting (Coefficient = 0.42, $p < 0.01$); (2) Poverty Rate: Remained a strong predictor (Coefficient = 0.58, $p < 0.001$); (3) Distance to Health Facilities: Showed a moderate positive relationship (Coefficient = 0.31, $p < 0.05$). The OLS model yielded an R-squared of 0.542, meaning that approximately 54.2 percent of the variance in stunting across the periphery can be explained by these three factors on a global scale. However, the Koenker (BP) test for non-stationarity was statistically significant ($p < 0.01$), confirming that the relationships between these variables vary across space, thus invalidating the OLS assumption of a uniform relationship and necessitating the GWR approach.

The GWR model significantly improved the explanatory power of the analysis (Table 1). By allowing the coefficients to vary locally, the model's R-squared increased to 0.768, and the Adjusted R-squared reached 0.741. This indicates that the spatial model explains nearly 75 percent of the variance in stunting prevalence. More importantly, the Corrected Akaike Information Criterion (AICc) dropped from 842.15 in the OLS model to 712.40 in the GWR model. A reduction of 129.75 points provides overwhelming evidence that the spatial model is a superior fit for Indonesia's complex peripheral landscape.[12]

Table 1. Comparative Spatial Model Diagnostics for 3T Regions (N=122)

DIAGNOSTIC METRIC	OLS (GLOBAL MODEL)	GWR (LOCAL MODEL)
R-Squared (R^2)	0.542	**0.768** Significant Gain
Adjusted R-Squared	0.511	**0.741**
AICc (Corrected Akaike Info Criterion)	842.15	**712.40** Best Fit
Sigma (Standard Error of Residuals)	4.21	**2.85** Reduced Error
Moran's I of Residuals	0.215 (Clustered)	**0.042 (Random)** Optimal

Note: An AICc difference of >10 indicates that the GWR model is substantially superior to the OLS global baseline in explaining spatial heterogeneity.

The most compelling contribution of the Geographically Weighted Regression (GWR) analysis is its ability to decompose the average national impact of governance into a localized, heterogeneous reality.[13] By mapping the local regression coefficients, we identified that the impact of the Political Instability Index (PII) is not a static force but one that fluctuates in intensity across the Indonesian archipelago. This spatial non-stationarity reveals three distinct zones within the peripheral 3T landscape, each requiring a fundamentally different health policy approach.

In the Eastern periphery, specifically across the Papua and Maluku clusters, the influence of political instability was observed at its peak. The local coefficients for the PII in these districts ranged from 0.72 to 0.88, the highest recorded in the study. This magnitude suggests a nearly one-to-one relationship: as political instability rises, stunting prevalence increases with alarming proximity. In these remote regions, the health-governance link is exceptionally sensitive. Because the state's logistical and administrative reach is already stretched thin, even minor disruptions—such as a contested local election or a sudden turnover in district health leadership—can paralyze the delicate supply chain of nutritional interventions. In this zone, political stability is not just a background condition; it is a primary determinant of biological survival for the next generation.[14]

In stark contrast, the peripheral districts of Sumatra and Kalimantan exhibited significantly lower local coefficients for the PII, ranging from 0.18 to 0.34. While political instability continues to exert a negative pressure on health outcomes, its impact is noticeably dampened. This phenomenon points to what we categorize as institutional resilience. In these Western peripheral regions, the local health bureaucracy—manifested in the *Puskesmas* (community health center) network—possesses a level of institutional depth that allows it to operate with a degree of autonomy.[15] Even when the district capital is embroiled in political transitions or administrative turnover, the frontline health workers in Sumatra and Kalimantan appear more capable of maintaining routine stunting prevention programs, effectively insulating the community from the volatility of the local political elite.

A third, distinct pattern emerged in the East Nusa Tenggara (NTT) cluster. Here, while political instability remained a significant variable, it was overshadowed by the local coefficients for the Poverty Rate, which reached as high as 0.75. This indicates that in the NTT periphery, the fundamental economic barrier of food affordability and severe household-level resource scarcity remains the primary driver of child malnutrition, surpassing even the political environment in predictive power. In this zone, the mechanism of stunting is more traditional; it is rooted in the structural inability of families to access protein and micronutrients due to persistent economic marginalization. Consequently, while governance stabilization is important in NTT, it must be preceded or accompanied by aggressive economic and social safety nets to be effective. These localized findings underscore that the 3T classification, while useful for administrative purposes, is not a monolith. The intersection of politics and health follows a unique spatial logic, where the vulnerability of a child's nutritional status is inextricably tied to the institutional and economic context of their specific geographic coordinate.[16]

The diagnostic strength of the Geographically Weighted Regression (GWR) model is best captured through the spatial distribution of local R-squared values, which serve as a localized measure of goodness-of-fit.[17] Unlike a global R-squared that provides a single average for the entire study area, the local R-squared values mapping reveals the varying degrees of explanatory power our selected variables—political instability, poverty, and healthcare distance—hold over stunting prevalence across the 122 peripheral districts. In the Eastern periphery, specifically within the Papua and Maluku corridors,

the model demonstrated exceptional performance, with local R-squared values exceeding 0.80. This indicates that in these specific 3T regions, the combination of political fragility and socioeconomic barriers explains more than 80 percent of the stunting crisis. The high degree of fit suggests that the model has successfully identified the primary structural drivers of malnutrition in the East, where the convergence of administrative instability and physical isolation creates a near-total bottleneck for health interventions. Conversely, the model's performance exhibited a relative decline in the northern border regions of Kalimantan, where local R-squared values hovered around 0.65. While still statistically significant, this lower explanatory power suggests the presence of spatial unmeasured factors unique to the Kalimantan frontier. In these borderlands, the nutritional status of children may be influenced by variables outside the traditional domestic governance framework, such as informal cross-border trade dynamics, localized variations in peatland agricultural productivity, or migratory patterns across the international boundary with Malaysia. This spatial variation in model effectiveness underscores the necessity of GWR, as it explicitly highlights areas where regional specificities transcend national-level predictors, providing a roadmap for future, more granular environmental and economic research.[18]

The findings of this research fundamentally challenge the prevailing technocratic orthodoxy that views child malnutrition as a strictly biomedical or micro-socioeconomic failure. By leveraging the analytical precision of Geographically Weighted Regression (GWR), this study illuminates how the biological destiny of a child in Indonesia's peripheral regions is inextricably woven into the spatial politics of the state. The significant spatial non-stationarity observed in our model confirms that the influence of governance on health is not a uniform national constant but a geographically contingent force that intensifies in the presence of institutional fragility.[19]

The most critical revelation of this study is the identification of a distinct governance-nutrition mechanism that operates with heightened severity in the Eastern Indonesia corridor, specifically across Papua and Maluku (Figure 1). In these regions, political instability emerged not merely as a secondary correlate but as a primary driver of stunting prevalence, often surpassing traditional economic indicators in predictive power. This suggests that in the most remote 3T districts, the local health system lacks the structural autonomy required to withstand political shocks. When a district in the Eastern periphery experiences high political instability—manifested through contested local elections, administrative turnover, or civil unrest—the resulting institutional friction creates a cascading failure in health service delivery. We define this phenomenon as a governance-induced nutritional shock. Unlike a natural disaster or an economic recession, this shock is a failure of the state's last-mile reach. Specifically, the chain of command for the National Stunting Reduction Task Force (*Tim Percepatan Penurunan Stunting*) is frequently severed by bureaucratic paralysis. Budgetary approvals for essential interventions, such as the procurement of lipid-based nutrient supplements or the funding of village-level monitoring programs, are delayed as local administrations pivot toward political survival or electoral maneuvering. Furthermore, this mechanism is deeply rooted in the institutional memory theory. Stunting prevention requires a continuous, multi-year commitment, particularly during the critical first 1,000 days of a child's life. However, in districts characterized by high political volatility, the frequent replacement of health office heads and district secretaries leads to a loss of programmatic continuity. New administrations often reset priorities, leading to start-stop interventions that fail to achieve the sustained nutritional impact required to alter growth trajectories. In the Eastern periphery, the supervision of village midwives (*Bidan Desa*)—who serve as the

primary interface between the state and the mother—effectively vanishes during periods of political upheaval, leaving the most vulnerable populations without a safety net.[20]

Conversely, the model's identification of spatial resilience in the peripheral districts of Sumatra and Kalimantan offers a crucial comparative insight. In these Western and Central frontier zones, the local coefficients for political instability remained notably low despite the regions' peripheral status. This discrepancy points to the concept of institutional depth. Unlike the Eastern periphery, the 3T regions in Sumatra and Kalimantan generally benefit from a more established civil service tradition and a more robust infrastructure that allows the health bureaucracy to function with relative independence from the district's political leadership. This finding suggests that the impact of political fragility on health is mitigated when the frontline of service delivery—the *Puskesmas* (Community Health Centers)—is sufficiently decoupled from the vagaries of the local political elite. In these resilient zones, the health system possesses enough bureaucratic inertia to maintain routine services, such as growth monitoring and maternal education, even when the district's executive office is in transition. This implies that the strategy for stunting reduction in the most vulnerable 3T regions must focus as much on institutional insulation as it does on nutritional science.[17,18]

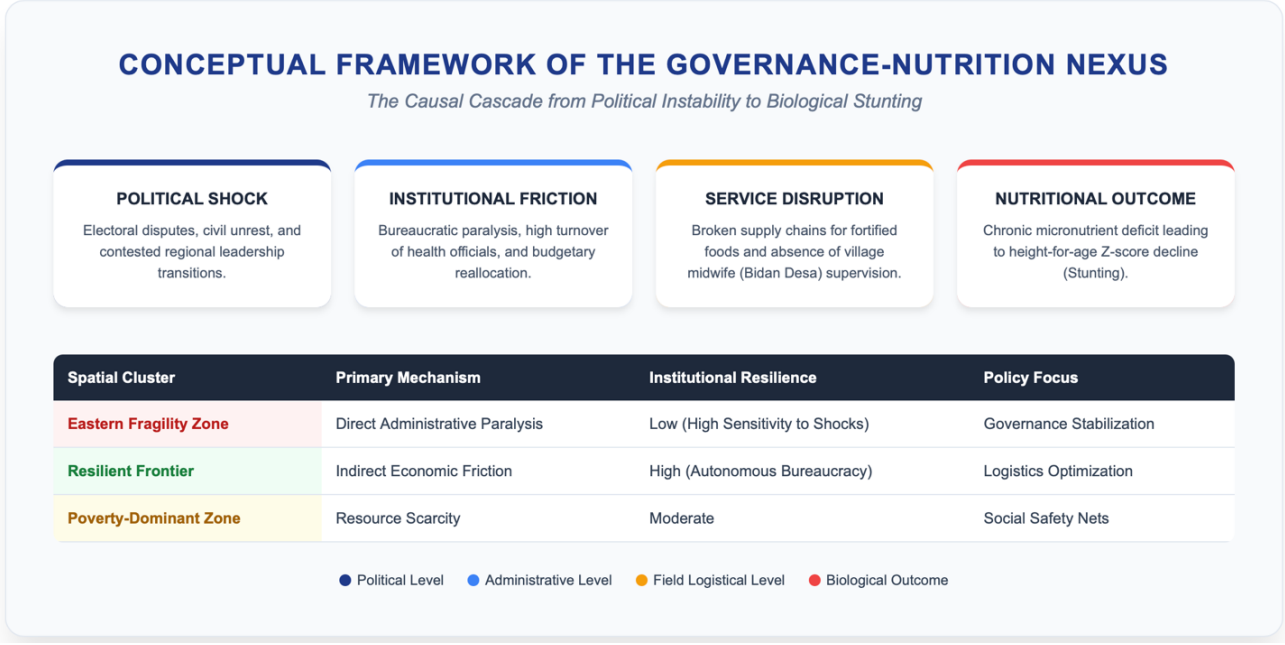

Figure 1. Conceptual framework of the governance-nutrition nexus.

While the GWR approach provides a sophisticated leap forward in spatial health econometrics, this study acknowledges several constraints. First, the cross-sectional nature of the data provides a detailed snapshot of spatial autocorrelation but does not fully capture the temporal lag between a political shock and a biological growth outcome. Longitudinal spatial data would be required to model how a single year of political instability translates into stunting rates two to three years later. Second, our Political Instability Index (PII), while comprehensive, primarily captures formal administrative and electoral volatility. In many

3T regions, informal power structures—including traditional customary leadership (*Adat*) and religious institutions—play a significant role in either exacerbating or mitigating the state's failure. Future research should adopt a mixed-methods spatial analysis, integrating GWR results with qualitative ethnographic studies to understand how local social capital might buffer against political fragility. Additionally, as climate change increasingly impacts the Indonesian archipelago, future models should investigate the intersection of political instability and climate-induced food insecurity, as these dual stressors are likely to have a synergistic negative effect on child health in the periphery.[19,20]

4. Conclusion

This study provides empirical evidence that the stunting crisis in Indonesia's peripheral regions is fundamentally a spatial governance challenge. Our Geographically Weighted Regression analysis demonstrates that the spatial divide in nutritional outcomes between the central hubs and the 3T periphery is inextricably linked to a corresponding governance divide. The Eastern periphery, in particular, faces a unique double burden where chronic poverty is compounded by extreme political fragility, creating localized hotspots where the state's ability to protect the growth of its children is at its lowest. To reach the national reduction target of 14 percent, the Indonesian government must transition toward a governance-aware health policy. The traditional one-size-fits-all nutritional intervention is insufficient in regions where the administrative infrastructure is prone to collapse. We recommend that the National Stunting Reduction Task Force (TPPS) prioritize the following spatial strategies: (1) Governance Risk Mapping: Use the GWR hotspots identified in this study to target districts where health service delivery is most sensitive to political cycles; (2) Institutional Decoupling: Strengthen the autonomy of the *Puskesmas* and village midwives in 3T regions to ensure that life-saving nutritional services remain apolitical and continuous during administrative transitions; (3) Localized Budgetary Safeguards: Implement ring-fenced funding mechanisms for stunting programs in peripheral regions that cannot be diverted or delayed by local electoral disputes. By identifying and addressing the fragility-stunting nexus, Indonesia can move toward a more equitable future. The biological development of a child should not be determined by the political stability of their birthplace. Achieving health equity in the world's largest archipelagic state requires a commitment to stabilizing the institutions that deliver health, ensuring that every child—regardless of their geographical coordinate—has the opportunity to reach their full physical and cognitive potential.

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