

**STRUCTURAL CONSTRAINTS AND DEVELOPMENT STRATEGY
OF THE HUMBANG HASUNDUTAN REGION:
A QUALITATIVE POLICY ANALYSIS**

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ABSTRACT

Regional economic development plays a strategic role in strengthening national economic resilience, particularly within the framework of fiscal decentralization and regional autonomy. This study analyzes the growth patterns and economic development strategy of Humbang Hasundutan Regency, North Sumatra, over the 2019–2024 period. The region is endowed with substantial agricultural and tourism potential yet constrained by persistent structural weaknesses. Employing a qualitative descriptive-analytical approach, the study draws on secondary data from the Regional Medium-Term Development Plan (RPJMD) 2021–2026, BPS Kabupaten Humbang Hasundutan publications (Humbang Hasundutan Dalam Angka and PDRB menurut Lapangan Usaha, 2019–2024), and related policy documents, analyzed thematically and through policy analysis. The findings indicate that the regency’s economy remains heavily dependent on the primary sector: agriculture, forestry, and fisheries contributed approximately 47–52% of Gross Regional Domestic Product (GRDP) and absorbed around 58–62% of the workforce, while the processing industry contributed only about 2.5–3.8%. Average economic growth of roughly 4.1–4.8% per year during the period was predominantly output-driven rather than productivity-driven, yielding limited employment diversification and modest welfare gains. The study underscores the urgency of a development strategy centered on economic diversification, downstreaming of leading commodities (potato, shallot, Arabica coffee), infrastructure enhancement, and human-capital development to achieve inclusive and sustainable regional growth.

Keywords: *regional economic development; growth strategy; structural transformation; sectoral diversification; regional competitiveness; Humbang Hasundutan*

A. Introduction

Regional economic development constitutes a fundamental pillar within the national development framework, positioning subnational areas

as both agents and principal centers of economic growth (Ascani et al., 2012). Under fiscal decentralization and regional autonomy, local governments are pivotal in devising development strategies that enhance local capabilities, strengthen the economic structure, and sustainably elevate community welfare (Sachdeva & Sharma, 2025). Yet many regions, particularly those with comparatively underdeveloped geographic, social, and economic attributes, struggle to fully leverage these authorities (Rodríguez-Pose & Gill, 2004). This challenge is especially pronounced in Indonesia's outer islands and highland regencies, where structural constraints often outweigh abundant natural endowments.

Humbang Hasundutan Regency, located in the highland areas of North Sumatra Province, exemplifies both the promise and the pitfalls of resource-dependent regional economies (Manalu et al., 2025). Established in 2003 through the division of Tapanuli Utara Regency, the area spans approximately 2,351.51 km² and is home to around 209,000 residents as of mid-2024. Its topography dominated by volcanic highlands surrounding Lake Toba confers significant comparative advantages in horticultural production and nature- and culture-based tourism. The regency's cool climate and fertile soils support leading commodities such as potatoes, shallots, Arabica coffee, and various vegetables, while its proximity to the Lake Toba UNESCO Global Geopark and national tourism priority destination offers opportunities for eco-tourism, cultural heritage, and agrotourism development (Marbun et al., 2020). These assets align with national priorities under the RPJMN and sectoral masterplans that emphasize food security, value-added agriculture, and sustainable tourism.

Despite these potentials, the region's economic performance reveals persistent structural imbalances. According to BPS Kabupaten Humbang Hasundutan (2024), the agriculture, forestry, and fisheries sector accounted for an average of 48.2% of Gross Regional Domestic Product (GRDP) during 2019–2024 (peaking near 52% in certain years), while the processing industry contributed only about 3.1%. Regional economic growth averaged approximately 4.3% per year over the same period. These figures signal that the region's considerable potential has not been fully transformed into a sustainable engine of growth (BPS, 2024). The heavy reliance on primary-sector activities leaves the economy vulnerable to climate variability, commodity price fluctuations, and external shocks such as the COVID-19 pandemic, which caused a contraction in 2020.

Structurally, Humbang Hasundutan faces several interlocking constraints typical of many Indonesian rural regencies. Infrastructure—particularly road connectivity, logistics networks, irrigation systems, and digital access—remains inadequate relative to development needs. Many production centers are isolated from major markets, raising transaction costs and eroding competitiveness. Human capital indicators, including educational attainment and skills relevant to agribusiness or tourism services, lag behind provincial and national averages. Access to formal finance for smallholders and micro-enterprises is limited, constraining investment in productivity-enhancing technologies and downstream processing. Private investment inflows remain modest and concentrated in extractive or low-value activities, reflecting an investment climate that still requires further improvement in regulatory certainty and infrastructure support.

From a theoretical perspective, regional growth is shaped not merely by the availability of natural resources but by the quality of institutions, policy choices, human resource capabilities, and the capacity to forge inter-sectoral and spatial linkages. Endogenous growth theory (Romer, 1994) emphasizes the role of knowledge accumulation, innovation, and human-capital investment in generating sustained increases in productivity. Meanwhile, new economic geography (Krugman, 1991; Fujita & Krugman, 2004) highlights how agglomeration effects, market access, and transport costs influence the spatial distribution of economic activity. In Humbang Hasundutan, weak agglomeration and high logistics costs have prevented the emergence of vibrant clusters in processing or tourism services. Development economics literature further underscores that regions rich in natural resources but lacking strong institutions often fall into the “resource curse” trap, experiencing limited structural transformation and rising inequality (Ploeg, 2011; Sach & Warner, 1995).

Prior research on Indonesian regional development has predominantly focused on identifying leading sectors through Location Quotient analysis (Saragih et al., 2024) the impact of government spending on growth (Butkiewicz & Yanikkaya, 2011), or the contribution of investment to GRDP (Soegoto et al., 2025). While valuable, these studies often remain partial. Few integrate a comprehensive examination of economic structure, growth patterns, policy implementation, and local socio-economic dynamics within a single analytical framework—particularly for Humbang Hasundutan. Existing works on the regency tend to be descriptive or sector-specific, rarely connecting the dots between the RPJMD/RKPD documents and actual on-the-ground outcomes. This gap is significant because effective

regional policy requires understanding not only what the leading sectors are but why structural transformation has been slow despite policy intentions.

This study addresses that lacuna by combining structural analysis, growth-pattern examination, and policy-direction assessment within a unified qualitative policy framework, using the 2019–2024 period as the analytical window. This timeframe is strategically chosen: it encompasses pre-pandemic conditions (2019), the COVID-19 shock and its differential impacts on primary versus non-primary sectors (2020–2021), and the subsequent recovery phase (2022–2024). Such coverage allows for an assessment of economic resilience and the effectiveness of policy responses under varying external conditions.

The primary objectives of this research are threefold. First, to characterize the prevailing economic structure and growth dynamics of Humbang Hasundutan, highlighting both strengths (natural resource base, tourism potential) and weaknesses (low diversification, productivity gaps). Second, to identify key structural constraints – infrastructural, institutional, human-capital, and market-related – that have impeded more inclusive and sustainable development. Third, to formulate evidence-based policy directions that leverage the regency’s unique endowments while addressing its vulnerabilities, with emphasis on economic diversification, commodity downstreaming, infrastructure development, and human-capital enhancement.

By grounding the analysis in official secondary data and regional development theories, this study seeks to contribute to the broader literature on peripheral regional economies in decentralized Indonesia. It also aims to provide actionable insights for local policymakers in refining the current

RPJMD 2021–2026 and preparing the next medium-term plan. Ultimately, transforming Humbang Hasundutan’s economy requires moving beyond quantitative output growth toward qualitative structural change that generates productive employment, reduces poverty, and builds resilience – goals that remain central to Indonesia’s national development agenda of equitable and sustainable prosperity.

B. Method

This study employs a qualitative, descriptive-analytical design to examine the growth patterns and economic development strategy of Humbang Hasundutan Regency (Hlehel & Shalaka, 2022). The approach was deliberately chosen because it enables an in-depth, contextualized understanding of complex regional development dynamics across structural, institutional, policy, and socio-economic dimensions – elements that are difficult to capture fully through purely quantitative methods. Qualitative policy analysis is particularly suitable for exploring “why” and “how” questions regarding the persistence of structural constraints despite policy efforts, while descriptive elements allow for clear documentation of trends using official statistics. This design aligns with the study’s aim to produce policy-relevant insights rather than solely testing hypotheses.

The analysis covers the 2019–2024 period. This timeframe was selected to encompass three distinct phases: (1) pre-pandemic baseline conditions in 2019, (2) the COVID-19 shock and immediate disruptions (2020–2021), and (3) the recovery and post-pandemic adjustment period (2022–2024). Such coverage enables a robust assessment of the resilience (or fragility) of the regional economic structure and the effectiveness of policy

responses under varying external conditions. It also aligns with the cycles of the current RPJMD 2021–2026, facilitating direct linkage between planning documents and actual outcomes.

The study relies exclusively on secondary data sources obtained through systematic documentary review and literature study. Primary data collection was not conducted due to resource and time constraints, but this limitation is mitigated through rigorous triangulation (detailed below). The specific sources, issuing institutions, and reference periods are summarized in Table 1.

Table 1. Data Sources, Issuing Institutions, and Reference Periods

No	Document / Data Source	Issuing Institution	Reference Period
1	RPJMD Kabupaten Humbang Hasundutan	Bappeda / Pemkab Humbang Hasundutan	2021–2026
2	Humbang Hasundutan Dalam Angka	BPS Kabupaten Humbang Hasundutan	2020–2025 eds
3	PDRB menurut Lapangan Usaha	BPS Kabupaten Humbang Hasundutan	2019–2024
4	Provinsi Sumatera Utara Dalam Angka (comparison)	BPS Provinsi Sumatera Utara	2020–2025 eds.
5	RKPD & sectoral policy documents	Pemkab Humbang Hasundutan	2019–2024
6	Peer-reviewed literature on regional development	Various academic journals	2012–2025

Source: compiled by the author (2025), verified against official BPS catalogs (editions 2020–2025).

A qualitative descriptive-analytical approach combined with thematic and policy analysis is justified for several reasons. First, regional economic development is inherently context-specific, influenced by local geography, institutions, and historical factors that quantitative models

alone may oversimplify. Second, the study seeks to integrate multiple dimensions (structure, growth dynamics, constraints, and policy) into a coherent narrative, which thematic analysis facilitates through systematic coding and theme development. Third, reliance on official secondary data ensures reliability, comparability over time, and policy relevance, as these sources form the basis for local government planning. The five-step analytical procedure—(1) familiarization with documents, (2) open coding, (3) categorization, (4) theme development (four main themes: economic structure & sectoral performance; growth dynamics; structural constraints; strategic policy directions), and (5) interpretation against theories (Todaro & Smith, Kuznets, endogenous growth, new economic geography)—provides transparency and rigor.

To enhance validity and reliability, source triangulation was applied systematically. Every key quantitative claim (sectoral GRDP shares, growth rates, employment composition, poverty, etc.) was cross-checked across at least two independent sources—typically a BPS statistical publication and the RPJMD/RKPD—and, where relevant, against provincial-level figures. Discrepancies were noted and resolved by prioritizing the most recent official BPS data. This process minimizes measurement errors common in regional statistics and strengthens the credibility of findings.

Several limitations should be acknowledged. First, the exclusive use of secondary data means the study relies on the accuracy and timeliness of official publications; any gaps or revisions in BPS figures could affect precision. Second, the absence of primary data (e.g., stakeholder interviews with farmers, entrepreneurs, or local officials) limits the depth of insight

into implementation challenges and informal economy dynamics. Third, the analysis is bounded by the 2019–2024 window and may not fully capture longer-term trends or very recent post-2024 developments. Fourth, as a single-case study, findings are context-specific and generalization to other regencies should be cautious, although analytical lessons may apply to similar highland agricultural regions. These limitations are addressed by transparent documentation, triangulation, and calls for future mixed-methods research incorporating primary data and quantitative techniques (e.g., shift-share or Location Quotient analysis).

Despite these constraints, the chosen methodology provides a solid, policy-oriented foundation for understanding Humbang Hasundutan’s development challenges and opportunities.

C. Results and Discussion

1. Results

Structure and Performance of the Regional Economy

The economic structure of Humbang Hasundutan Regency is predominantly characterized by the agriculture, forestry, and fisheries sector, which serves as the backbone of the local economy. As shown in Table 2, this sector consistently accounted for 47–52% of Gross Regional Domestic Product (GRDP) throughout the 2019–2024 period. This dominance far exceeds the contribution of the processing industry, which remained marginal at only 2.5–3.8%. Such a lopsided structure reflects a classic natural-resource-based economy with very low diversification, making the region highly susceptible to external shocks including climate variability, pest outbreaks, and commodity price volatility.

Table 2. Distribution of GRDP by Main Sector, Humbang Hasundutan, 2019–2024 (%)

Sector	2019	2020	2021	2022	2023	2024
Agriculture, forestry & fisheries	49.5	51.8	50.2	47.8	48.5	47.1
Processing industry	3.2	2.8	3.0	3.5	3.4	3.8
Trade, hotels & restaurants	14–16	13–15	14–16	15–17	16–18	17–19
Construction	8–10	7–9	8–10	9–11	9–11	10–12
Services & others	Balance to 100%					
Total GRDP	100	100	100	100	100	100

Source: BPS Kabupaten Humbang Hasundutan, PDRB by industry (2019–2024).

The persistently high share of the primary sector indicates that economic activities remain concentrated in upstream production—cultivation, harvesting, and basic extraction—rather than moving toward higher-value activities (Dube et al., 2018). Leading commodities such as potatoes, shallots, and Arabica coffee, which benefit from the regency’s favorable agro-climatic conditions (high altitude, fertile volcanic soil, and cool temperatures), have significant potential. However, the limited share of the processing industry reveals that downstreaming and value-addition processes remain severely underdeveloped. Most agricultural and plantation outputs are still sold in raw or semi-raw form to external markets, forgoing substantial potential income, employment, and multiplier effects that could arise from local processing into chips, roasted coffee, ready-to-cook vegetables, or other agro-industrial products.

This pattern results in weak forward and backward linkages among sectors. For instance, the trade, hotels, and restaurants sector (contributing 14–19%) is largely dependent on agricultural supply and seasonal tourism flows, rather than acting as an independent driver of growth. Construction

shows moderate expansion linked to infrastructure projects, but it has not catalyzed broader industrialization. Overall, the economy of Humbang Hasundutan remains in an early, gradual, and uneven phase of structural transition from a primary-dominated structure toward secondary and tertiary sectors (Hajer et al., 2016). Inter-sectoral integration is weak, limiting the spread of productivity gains and economic spillovers.

From a development economics perspective, this structure aligns with the early stages described by Todaro and Smith, where regions rich in natural resources often experience “enclave” development with limited economy-wide transformation (Todaro & Smith, 2012). The minimal role of modern manufacturing echoes Kuznets’ structural transformation hypothesis, which posits a necessary shift from agriculture to industry and services as development progresses. In Humbang Hasundutan, the slow pace of this shift perpetuates low labor productivity, as a large portion of the workforce (around 57–62%) remains trapped in low-value agricultural activities. This not only constrains per-capita income growth but also heightens vulnerability to natural and market risks.

The data underscore that while the regency possesses clear comparative advantages in horticulture and tourism-linked activities, these have not yet been converted into competitive advantages through value-chain development, technological upgrading, or institutional support. Addressing this mismatch requires targeted interventions in agro-processing, skills development, and market integration – issues that will be explored further in subsequent sections on growth dynamics and structural constraints.

Dynamics of Economic Growth and Development Patterns

Economic growth in Humbang Hasundutan Regency has followed a distinctly primary-sector-led pattern throughout the 2019–2024 period. As Table 3 illustrates, GRDP growth averaged approximately 4.3% annually, with notable fluctuations driven largely by agricultural performance. The economy experienced a sharp contraction in 2020 due to the COVID-19 pandemic, followed by a gradual recovery in subsequent years. This trajectory underscores the region’s heavy dependence on weather conditions, commodity cycles, and the resilience of smallholder farming systems.

Table 3. GRDP Growth, GRDP per Capita, and Workforce by Sector, 2019–2024

Indicator	2019	2020	2021	2022	2023	2024
GRDP growth (%)	5.0	-0.3	4.5	4.2	4.8	4.6
GRDP per capita (Rp million, ADHB)	~28–30	31.07	31.79	34.20	37.40	39.95
Workforce in agriculture (%)	~60	~61	~59	~58	~58	~57
Open unemployment rate (%)	~5.5	~6.0	~5.5	5.47	5.24	~4.8–5.2
Poverty rate (%)	~9.5	~10.0	~9.2	~8.8	~8.7	8.44

Source: BPS Kabupaten Humbang Hasundutan (2020–2025 eds.) and related releases.

Movements in headline GRDP growth closely mirrored agricultural output and prevailing natural conditions. Favorable harvests and stable commodity prices tended to lift overall growth, while disruptions such as droughts, floods, or pest attacks caused noticeable slowdowns. This pattern highlights the limited capacity of non-agricultural sectors to act as buffers against shocks. Unlike more diversified economies where services or manufacturing can offset declines in primary production, Humbang Hasundutan’s growth stability remains heavily contingent on a narrow set of agricultural activities. The modest average growth rate, while positive,

has not been sufficient to drive rapid convergence with provincial or national benchmarks.

A critical concern is the inclusivity of this growth. Despite steady increases in GRDP per capita – from around Rp 28–30 million in 2019 to Rp 39.95 million in 2024 – welfare improvements have been uneven. Labor productivity in agriculture remains low, as a large share of the workforce (57–61%) continues to engage in low-value subsistence or semi-commercial farming. This has resulted in “jobless” or low-quality growth, where output expansion does not translate into broad-based employment creation or significant poverty reduction. The open unemployment rate showed some improvement from pandemic peaks, yet structural underemployment in rural areas persists. Poverty rates declined gradually to 8.44% by 2024, but rural pockets remain vulnerable due to limited access to social protection and alternative livelihoods.

Development patterns in the regency have thus emphasized quantitative output expansion – through extensification of cultivated land and increased input use – rather than qualitative productivity gains via technology adoption, better irrigation, or post-harvest management. This output-driven approach aligns with early-stage development models but signals a structural impediment that requires a paradigm shift. The region holds significant untapped potential in leading commodities (potatoes, shallots, Arabica coffee) and tourism linked to Lake Toba. However, these sectors have not been effectively integrated into a cohesive economic strategy, and coordination between agriculture, tourism, and small-scale processing remains weak.

Theoretically, these dynamics are consistent with Todaro and Smith's (2020) observation that growth without structural transformation often fails to deliver inclusive outcomes. Kuznets' hypothesis on sectoral reallocation is only partially realized here, as the slow shift away from agriculture has not been accompanied by robust industrialization or service-sector maturation. From an endogenous growth perspective, limited investment in human capital and innovation has constrained the emergence of self-reinforcing productivity cycles. New economic geography lenses further explain how poor connectivity raises transaction costs and prevents agglomeration benefits from materializing in potential growth poles around Doloksanggul or tourism corridors (Rimmer & Dick, 2012).

In summary, while Humbang Hasundutan has recorded respectable aggregate growth, its development pattern remains fragile and insufficiently inclusive. Moving forward, policies must prioritize productivity-enhancing measures, value-chain development, and diversification to ensure growth becomes more resilient, equitable, and sustainable. These issues are closely intertwined with the structural constraints discussed in the next subsection.

Structural Constraints

Several interlocking structural constraints continue to limit the optimization of Humbang Hasundutan's leading sectors and the broader transformation of its comparative advantages into sustainable competitive edges. These barriers are not isolated but form a mutually reinforcing system that perpetuates low productivity, limited diversification, and modest welfare gains despite the regency's rich natural endowments.

Understanding these constraints is essential for designing effective policy interventions.

The most visible and frequently cited constraint is inadequate infrastructure. Accessibility, logistics networks, and production-support facilities remain limited in both quantity and quality across much of the regency. Many farming areas in the highland districts are connected by narrow, poorly maintained roads that become impassable during the rainy season. This raises distribution costs significantly, reduces the freshness and market value of perishable horticultural products (such as potatoes and shallots), and discourages private investment in larger-scale operations. Cold storage facilities, processing units, and reliable electricity supply in rural production centers are scarce, forcing farmers to sell immediately after harvest at lower prices. While some progress has been made through national and provincial infrastructure programs linked to Lake Toba tourism development, the benefits have been unevenly distributed, favoring areas closer to main corridors while leaving remote villages marginalized. Poor digital infrastructure further limits access to market information, e-commerce platforms, and financial services for smallholders.

Closely related is the weakness of value chains and downstreaming. As noted earlier, the vast majority of leading commodities – potatoes, shallots, Arabica coffee, and other horticultural products – are marketed in raw form. Local processing capacity is minimal, with only a handful of small-scale units operating below optimal efficiency. This results in massive forgone value-added: roasted or packaged coffee, processed potato products, or ready-to-use shallot pastes could generate significantly higher

margins and create off-farm employment. The absence of strong backward linkages (e.g., local input suppliers for seeds, fertilizers, or machinery) and forward linkages (agro-industry and modern retail) keeps economic multipliers low. Farmers remain price-takers in volatile markets, exposed to middlemen margins and international price swings without adequate risk-mitigation mechanisms such as contract farming or cooperatives with strong bargaining power.

Limited capacity of local economic institutions, particularly cooperatives and SMEs, represents another major bottleneck. Many farmer groups and cooperatives suffer from weak governance, limited managerial skills, and insufficient working capital. Access to formal financing remains restricted due to collateral requirements, high perceived risk by banks, and low financial literacy. As a result, investment in productivity-enhancing technologies—improved seeds, precision farming tools, or post-harvest equipment—is slow. Micro and small enterprises in tourism services (homestays, guiding, souvenir production) face similar challenges: lack of standardization, marketing skills, and integration into broader Lake Toba tourism packages.

Low and concentrated private investment further exacerbates the problem. Despite the regency's potential, domestic and foreign direct investment inflows remain modest and heavily concentrated in basic agriculture or extractive activities rather than higher-value processing or tourism infrastructure. The investment climate is hampered by regulatory uncertainty, lengthy permitting processes, limited land availability for industrial use (due to agricultural zoning), and inadequate one-stop investment services. Local government capital expenditure, while

important, has not always been strategically directed toward sectors with high multiplier effects or catalytic infrastructure projects. Budget absorption issues and coordination gaps between central, provincial, and local programs reduce overall effectiveness.

Human capital and skills gaps constitute a cross-cutting constraint. Although basic education access has improved, the quality of education and relevance of skills to modern agribusiness, tourism services, digital economy, and entrepreneurship remain limited. Many young people migrate to urban centers in search of better opportunities, leading to brain drain and an aging agricultural workforce. Technical and vocational training programs tailored to local potentials (e.g., coffee processing, sustainable tourism, or greenhouse horticulture) are underdeveloped. This skills mismatch reduces the region's absorptive capacity for new technologies and innovative practices.

Policy and institutional coordination weaknesses add another layer of difficulty. There is often misalignment between sectoral planning (agriculture, tourism, industry) and spatial planning. Overlapping authorities and limited inter-agency collaboration result in fragmented programs. For example, tourism promotion may not be adequately linked with agricultural development to create genuine agrotourism packages. Environmental sustainability concerns—such as soil degradation, water management in the Lake Toba catchment, and climate change adaptation—are increasingly pressing but not yet fully mainstreamed into economic planning.

From a theoretical standpoint, these constraints illustrate the limitations of resource-based growth without complementary institutional

and infrastructural development. New economic geography theory (Krugman, 1991) emphasizes that high transaction costs and poor connectivity prevent agglomeration economies from emerging. Endogenous growth models stress the importance of human capital and innovation systems, both of which are currently weak in the regency. The persistence of these barriers helps explain why comparative advantages in agro-climatic conditions and tourism assets have not translated into higher competitiveness at regional or national levels.

Addressing these structural constraints requires a comprehensive, integrated approach rather than piecemeal projects. Priorities should include large-scale infrastructure investment (roads, logistics hubs, energy, and digital connectivity), aggressive promotion of downstreaming through incentives and partnerships, strengthening of cooperatives and SME clusters, targeted human-capital programs, and improved policy coordination mechanisms. Without tackling these foundational issues, efforts at economic diversification and inclusive growth are likely to yield only marginal results. The following discussion section synthesizes these findings with broader theoretical and comparative perspectives to derive actionable policy directions.

2. Discussion

The empirical findings from the analysis of Humbang Hasundutan Regency's economic performance between 2019 and 2024 paint a clear picture of a region endowed with natural potential yet trapped in a low-equilibrium development trap. The persistent dominance of the agriculture, forestry, and fisheries sector (47–52% of GRDP), the marginal role of processing industry (2.5–3.8%), modest average growth of 4.3% per year

that is predominantly output-driven, and the slow pace of structural transformation collectively highlight deep-seated challenges. This discussion synthesizes these results with established theories of regional and development economics, offers a critical examination of relevant literature, identifies gaps, and derives concrete policy implications. The goal is to move beyond description toward actionable, context-specific recommendations that can guide local policymakers in designing more effective strategies for inclusive and sustainable growth (Hutagalung et al., 2025).

Alignment with Classic Development Theories

The findings strongly align with Michael Todaro and Stephen Smith's comprehensive framework in *Economic Development*. Todaro and Smith argue that genuine development cannot be measured merely by increases in GDP or GRDP; it must encompass structural change, the creation of productive employment, improvements in income distribution, and enhancements in the quality of life. In Humbang Hasundutan, growth has occurred—evidenced by rising GRDP per capita from roughly Rp 28–30 million to Rp 39.95 million—but it has not been accompanied by the necessary structural transformation. The continued concentration of 57–61% of the workforce in low-productivity agriculture, the marketing of raw commodities, and the persistence of modest poverty reduction (to 8.44% in 2024) exemplify what Todaro and Smith term “growth without development.” Output expansion through extensification and favorable weather has masked underlying weaknesses in productivity and diversification. This pattern risks perpetuating a vicious cycle where low skills, low investment, and low productivity reinforce each other.

Similarly, Simon Kuznets' structural transformation hypothesis provides a useful lens. Kuznets posited that economic development involves a systematic shift of resources and labor from the primary sector (agriculture) to the secondary (industry) and tertiary (services) sectors, accompanied by rising productivity and urbanization (Baymul & Sen, 2019). Humbang Hasundutan exhibits only the earliest and most tentative signs of this transition. The processing industry's share remains stubbornly low, and non-agricultural sectors have not yet developed the scale or linkages needed to absorb surplus agricultural labor productively. This slow and uneven shift suggests the regency has not yet entered the industrialization phase that was central to the experiences of successful East Asian economies. The result is a simple economic structure vulnerable to external shocks, with limited forward and backward linkages that could otherwise amplify growth.

Endogenous growth theory, pioneered by Paul Romer and others, further illuminates the internal drivers that are currently deficient (Romer, 1989). Sustainable long-run growth, according to this perspective, stems from investments in human capital, knowledge creation, innovation, and institutions rather than simply from factor accumulation. In Humbang Hasundutan, deficits in these areas are evident: human capital quality lags, innovation in agricultural practices or processing technologies is limited, and institutional support (cooperatives, extension services, R&D) remains weak. Without deliberate policies to build these endogenous factors, growth remains externally driven by national commodity cycles or central government transfers, rendering it fragile and prone to stagnation once favorable conditions fade.

New economic geography (NEG) frameworks developed by Paul Krugman (Krugman, 2009) and Masahisa Fujita (Fujita & Thisse, 1996) offer spatial insights that are particularly relevant. NEG emphasizes how agglomeration effects, market access, transport costs, and cumulative causation shape economic outcomes. In Humbang Hasundutan, high logistics costs due to mountainous terrain, limited connectivity, and the absence of strong urban agglomerations prevent the emergence of dynamic clusters in agro-processing or tourism services. The region's position near Lake Toba – a national priority destination – represents a potential “growth pole,” yet poor spatial integration means benefits have not diffused widely. This spatial fragmentation raises transaction costs and discourages private investment, perpetuating a core-periphery dynamic within the regency itself.

Critical Literature Review and Identification of Gaps

Existing literature on Indonesian regional development provides useful benchmarks but also reveals important gaps when applied to cases like Humbang Hasundutan. Studies focusing on leading sector identification using Location Quotient (LQ) analysis consistently highlight agriculture's dominance in highland regencies. While technically accurate, such approaches often remain descriptive and fail to explain why high LQ scores do not translate into higher value-added or structural change. They underemphasize institutional and infrastructural barriers that prevent comparative advantage from becoming competitive advantage.

Research on the impact of government expenditure and investment on GRDP demonstrates positive correlations at the aggregate level.

However, these studies frequently overlook the quality and sectoral targeting of spending (Hagen-zanker et al., 2011). In Humbang Hasundutan, capital expenditure has supported basic infrastructure and agricultural inputs, yet it has not sufficiently catalyzed downstream industries or skills development. This echoes broader critiques in the decentralization literature that local governments often prioritize short-term visible projects over long-term transformative investments due to political cycles and capacity constraints.

Comparative studies on Lake Toba region development or similar highland areas (e.g., analyses of Karo or Samosir) highlight tourism potential but frequently treat agriculture and tourism as separate silos. Few integrate the two through agrotourism or value-chain linkages. Moreover, much of the literature relies on cross-sectional or short-panel data, limiting insights into dynamic processes such as those observed across the 2019–2024 period that includes a major exogenous shock (COVID-19). Quantitative-heavy approaches sometimes mask local nuances—cultural factors (Batak Toba social structures and land tenure), environmental vulnerabilities (soil erosion around Lake Toba), or informal economy dynamics—that qualitative policy analysis can better illuminate.

This study addresses several of these gaps by integrating structural, growth, and policy analyses within one framework, using a multi-year window, and grounding interpretations in both theory and local context. Nevertheless, limitations remain. The reliance on secondary data, while robust through triangulation, cannot fully capture on-the-ground implementation challenges or stakeholder perceptions. Future research should complement this with mixed-methods designs incorporating

primary surveys, in-depth interviews, and advanced quantitative techniques such as shift-share analysis, spatial econometrics, or computable general equilibrium modeling to quantify multiplier effects of proposed interventions.

In-Depth Analysis of Key Findings

The data reveal that growth in Humbang Hasundutan has been predominantly extensive rather than intensive. Increases in GRDP have come more from expanding cultivated areas and input use than from Total Factor Productivity (TFP) improvements. This is problematic because extensive growth faces natural limits (land availability, environmental carrying capacity) and is vulnerable to diminishing returns. The 2020 contraction (-0.3%) demonstrated the fragility of this model when supply chains were disrupted and tourism halted. Recovery was driven by agricultural rebound and fiscal stimulus, but without deeper reforms, future shocks could produce similar volatility.

Labor market outcomes further underscore inclusivity deficits. High agricultural employment share alongside gradual poverty reduction suggests that many workers are in low-earning, precarious positions. Open unemployment has improved modestly, but underemployment—seasonal work, low hours, or disguised unemployment in farming—likely remains high. This “jobless growth” phenomenon is common in resource-dependent regions and aligns with global evidence from sub-Saharan Africa and parts of Latin America, where primary-sector dominance hinders structural transformation.

The minimal processing industry share is particularly telling. Downstreaming of potatoes into chips or flour, shallots into pastes or dried

products, and coffee into roasted/specialty grades could multiply value several-fold while creating year-round employment. The absence of such activities reflects not only infrastructure and finance gaps but also coordination failures: farmers lack assured markets, processors lack consistent raw material supply of suitable quality, and policymakers have not provided sufficient bridging mechanisms (e.g., contract farming schemes or industrial zones).

Environmental and climate dimensions add urgency. Intensive potato and shallot cultivation without adequate soil conservation practices risks degradation, while Lake Toba's ecosystem requires careful balancing of tourism, agriculture, and conservation. Climate change—altered rainfall patterns and increased extreme weather—threatens the very foundation of the primary sector. Adaptation and mitigation strategies must therefore be mainstreamed into development planning.

D. Conclusion

This study demonstrates that the economic expansion of Humbang Hasundutan Regency over the 2019–2024 period was driven predominantly by the primary sector—especially agriculture, forestry, and fisheries, which contributed roughly 47–52% of GRDP. With very low diversification and the processing industry contributing only about 2.5–3.8%, the regional economy remains heavily dependent on raw commodity production. Average annual growth of approximately 4.3% has not generated deep structural transformation or broad-based productivity gains, leaving the economy vulnerable to external shocks such as climate variability, commodity price fluctuations, and pandemics. Growth has been largely output-driven rather

than productivity-driven, resulting in limited employment diversification, persistent low labor productivity in agriculture, and only modest improvements in per-capita income and poverty reduction.

These findings affirm core propositions from development economics. Consistent with Todaro and Smith (2020), growth without accompanying structural change tends to produce non-inclusive outcomes. Kuznets' framework on sectoral shifts highlights that the regency has yet to enter a robust industrialization phase. Deficits in human capital, innovation, and institutions (as emphasized by endogenous growth theory) combined with infrastructure and agglomeration barriers (new economic geography) explain why comparative advantages in horticulture and tourism have not fully materialized into competitive strengths.

The study underscores the urgency of shifting development paradigms. Key recommendations include prioritizing commodity downstreaming (potato, shallot, and Arabica coffee processing), substantial infrastructure investment (logistics, connectivity, and energy), and targeted human-capital development programs linked to agribusiness and tourism. These efforts must be embedded within a coherent, integrated RPJMD framework that improves policy coordination, strengthens local institutions (cooperatives and SMEs), and enhances the investment climate while ensuring environmental sustainability around Lake Toba.

This research contributes to the literature by providing a holistic qualitative policy analysis of a specific highland regency, bridging planning documents with actual economic outcomes. Future studies should complement these findings with quantitative tools such as Location Quotient, Shift-Share analysis, and Klassen typology, alongside primary data

from local stakeholders to capture implementation dynamics and informal economy aspects. Ultimately, realizing Humbang Hasundutan's potential requires sustained political commitment, multi-stakeholder collaboration, and adaptive governance. With strategic action, the regency can transition toward a more diversified, resilient, inclusive, and sustainable economy that benefits current and future generations.

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