

BORDER REGION DEVELOPMENT AND REGIONAL INEQUALITY: A SYSTEMATIC LITERATURE REVIEW OF ECONOMIC DYNAMICS AND DEVELOPMENT STRATEGIES

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Abstract

Border regions occupy a strategic position in regional development, yet many continue to experience economic marginalization, limited market accessibility, infrastructure gaps, and persistent regional inequality. This study examines the relationship between border region development and regional inequality by synthesizing the economic dynamics, development determinants, and strategies identified in the existing literature. A library research approach employing an integrative literature review was applied to relevant scholarly publications, particularly Scopus-indexed studies. The literature was analyzed using thematic content analysis focusing on border connectivity, infrastructure, cross-border trade, market accessibility, economic integration, local economic transformation, productivity, inclusive growth, governance, and regional convergence. The findings demonstrate that connectivity and cross-border economic integration can stimulate economic activity by reducing transaction costs, expanding market access, and facilitating trade and investment. However, these benefits do not automatically reduce regional inequality because economic gains may remain concentrated around border crossings and major economic corridors. Effective border development therefore requires place-based strategies that integrate infrastructure, local productive capacity, institutional quality, and inclusive economic participation. Based on the synthesis, this study proposes a conceptual pathway: Border Connectivity → Cross-Border Economic Integration → Local Economic Transformation → Productivity and Inclusive Growth → Regional Convergence. This framework provides a foundation for understanding how border development can contribute to more balanced and inclusive regional development.

Keywords: border region development; regional inequality; cross-border economic integration; local economic transformation; inclusive growth; regional convergence.

Introduction

Border region development has undergone a paradigm shift from an approach that places borders solely as administrative boundaries, security areas, and peripheral spaces to a perspective that views borders as strategic spaces for trade, investment, mobility of

factors of production, economic integration, and the establishment of new growth centers. In a regional economic perspective, the existence of state borders can produce two distinct consequences. Borders can serve as *barriers* that increase transaction costs and limit market access, but liberalization and economic integration can also turn them into gateways for cross-border economic interactions (Chilla et al., 2026). Globally, the political and economic characteristics of a border are also related to the development patterns of the surrounding region, so that the development of border areas cannot be separated from economic disparities, the level of border openness, and the relationship between bordering countries (Taubenböck et al., 2023). Therefore, the development of border regions is increasingly relevant to be placed as part of regional development strategies to create more inclusive growth and reduce spatial inequality.

Despite having a strategic geographical position, various evidence shows that border areas still face a development gap compared to non-border regions. The OECD (2024) shows that the GDP per capita of the EU's border regions in 2021 only reached around 86% of the EU average, while that of non-border regions reached around 105%. Labor productivity also shows a gap, which is an average of EUR 57,136 in border areas compared to EUR 66,497 in non-border regions. Similar conditions are found in Southeast Asia. Okabe (2025) shows that although ASEAN economic integration has strengthened regional trade, the development gap between urban areas and land border areas is still a challenge. The study found that trade with neighboring countries, reduced transportation costs, increased market access, and the development of domestic and international transportation infrastructure are important factors in boosting economic activity in the ASEAN border region (Okabe, 2025). The findings show that economic integration at the national and supranational levels has not automatically resulted in development convergence at the regional level.

The main problem arises when increased connectivity, cross-border trade, fiscal transfers, infrastructure investment, and economic integration have not always resulted in an equitable distribution of development benefits. Border areas still face various structural barriers, such as geographical isolation, high transportation costs, limited access to economic centers, low productivity, regulatory fragmentation, and weak government coordination across jurisdictions. Legal and administrative barriers between countries can even reduce the growth potential of border areas because they limit market integration and increase the cost of economic activities (Camagni et al., 2019). Global research also shows that the level of border fortification and political-economic disparities between neighboring countries are related to settlement dynamics and the population of border areas (Taubenböck et al., 2023). In the Indonesian context, studies on land border areas show that fiscal transfer instruments can affect economic performance differently between border corridors and not all of these instruments directly reduce regional inequality. Therefore, development strategies need to be directed simultaneously at increasing welfare, productivity, and reducing inequality (Rahim et al., 2026).

Previous research has shown that the economic development of border areas is determined by the interaction between market access, connectivity, trade, infrastructure, government policies, and regional economic integration. Studies on market integration in East Africa have found that the formation of regional economic communities provides growth benefits for cities located close to border crossings, although these influences tend to be highly localized (Brühlhart et al., 2019). In the context of ASEAN, Okabe (2025) found that bilateral trade with neighboring countries has a positive effect on the economic activities of border areas, while decreasing transportation costs and increasing market access also strengthen the development process. Meanwhile, Taubenböck et al. (2023) expand this perspective by showing that the characteristics and dynamics of border area development differ substantially based on border typology as well as the political and economic disparities of neighboring countries. Recent studies have also begun to view the marginality of border areas as a multidimensional phenomenon that includes production, livelihood, and ecological dimensions and is influenced by economic structure, transportation accessibility, social services, and environmental characteristics (Zhang et al., 2026).

Although the literature on border region development continues to grow, there are still some research gaps. First, most studies tend to analyze development determinants separately, such as cross-border trade, infrastructure, market access, administrative barriers, or fiscal transfers, so that the multidimensional relationship between these factors and regional inequalities has not been fully integrated within a single analytical framework. For example, Brühlhart et al. (2019) emphasized market integration, Okabe (2025) focused on trade and accessibility, while Rahim et al. (2026) emphasized fiscal transfer and economic performance. Second, the results of the study show that the effects of economic integration are not always spatially homogeneous; the benefits of growth can be concentrated in specific regions around border crossing points and not automatically spread across peripheral regions (Brühlhart et al., 2019). Third, a synthesis is still needed that explicitly connects border region development, economic dynamics, development strategies, and regional inequality. The variations in the typology and dynamics of border development found by Taubenböck et al. (2023) as well as the multidimensional nature of border area marginalization indicate that these relationships require a more integrative perspective. Thus, there is room for research to conduct a *systematic literature review* that integrates driving factors, transformation mechanisms, development strategies, and the consequences of border area development on regional inequality.

This research is important because border area inequality is not only related to low incomes, but also reflects differences in productivity, accessibility, economic opportunity, public services, infrastructure quality, and institutional capacity. International evidence shows that cross-border areas still tend to lag behind non-border areas in a number of economic and public service indicators due to regulatory, administrative, governance, language, and cultural barriers (OECD, 2024). At the same time, Okabe's findings (2025) show that increased trade, market access, and transportation infrastructure can open up

opportunities for border regions to benefit more from regional integration. These conditions demonstrate the importance of understanding the mechanisms that allow border regions to transform from peripheral regions to economic gateways and subsequently develop as centers of economic activity that contribute to the reduction of regional disparities.

Based on these gaps, the research "Border Region Development and Regional Inequality: A Systematic Literature Review of Economic Dynamics and Development Strategies" aims to systematically synthesize the development of the literature on the relationship between border region development and regional inequality. In particular, the research is directed at identifying the main determinants of border region economic development; analyzing the role of connectivity, infrastructure, cross-border trade, market access, fiscal policy, institutions, and governance; identifying strategies used to transform border regions into centers of economic activity; as well as explaining how these processes relate to the reduction of regional inequality. This synthesis is important because empirical evidence shows that the benefits of border region integration and development are contextual and influenced by economic conditions, accessibility, border characteristics, and institutional capacity (Taubenböck et al., 2023; Okabe, 2025; Chilla et al., 2026).

Literature Review

The concept of border region development explains the development of border areas as a process of transforming peripheral spaces into areas that are increasingly connected to domestic economic centers and cross-border economic networks. From a regional economic perspective, borders can function as *barriers* because they increase transaction costs, limit mobility, and separate markets, but they can also develop into *gateways* when cross-border connectivity and integration increase. These characteristics cause the economic performance of border regions to be greatly influenced by accessibility, infrastructure, market proximity, cross-border trade, and the quality of economic and institutional relations between regions. Taubenböck et al. (2023) show that the dynamics of border region development globally are related to border typologies and economic and political disparities between bordering countries. Meanwhile, Chilla et al. (2026) emphasized that geographical proximity alone is not enough to generate economic benefits because the influence of *proximity* depends on the ability of actors and institutions to develop cross-border relationships. Thus, the development of border areas can be understood as a multidimensional process that connects spatial connectivity, institutional proximity, market accessibility, cross-border interaction, and regional economic transformation.

The relationship between border area development and regional inequality is important because the benefits of economic integration are not always evenly distributed. Regional inequality refers to differences in levels of development between regions that can be reflected through income, productivity, employment opportunities, investment,

infrastructure quality, access to public services, and regional economic capacity. In the context of borders, peripheral conditions and high transportation costs can widen the gap between border regions and growth centers. Conversely, increased market access and connectivity can produce agglomeration effects, expand trade, increase investment, and encourage local economic activity. Brühlhart et al. (2019), for example, found that market integration in East Africa provides economic benefits for cities located close to border crossing points, but these benefits tend to be localized. In the context of ASEAN, Okabe (2025) found that trade with neighboring countries, reduced transportation costs, increased market access, and transportation infrastructure development play a role in increasing economic activity in border areas. The findings show that cross-border economic integration has the potential to reduce regional inequality, but its effect is determined by the region's ability to convert increased connectivity and market access into productive economic activities.

Based on this perspective, border development strategies need to move beyond physical infrastructure development approaches towards integrated strategies that combine connectivity, cross-border trade, local economic development, productivity enhancement, institutional strengthening, and governance coordination. Transportation infrastructure can expand market access, but without adequate local and institutional production capacity, increased connectivity does not necessarily result in inclusive economic benefits. Therefore, border development strategies need to build mechanisms that allow *connectivity gains* to be converted into economic integration and subsequently into structural transformation of the local economy. Evidence from ASEAN shows the importance of trade, transportation costs, and market access in the development of border regions (Okabe, 2025), while the variation in border development globally shows the importance of considering economic, political, and spatial heterogeneity (Taubenböck et al., 2023). Based on the synthesis of the literature, the theoretical relationship of this research can be formulated through the Border Connectivity → Cross-Border Economic Integration → Local Economic Transformation → Productivity and Inclusive Growth → Regional Convergence flows, which places *regional convergence* as the end result of border development's ability to transform geographical gains and connectivity into more equitable welfare improvements.

Research Methods

This study uses a library research approach with the integrative literature review method to identify, organize, analyze, and synthesize the literature on *border region development*, economic dynamics, development strategies, and regional inequalities. *Integrative literature review* allows research to combine various theoretical perspectives and empirical findings to gain a more comprehensive understanding and produce a new conceptual framework from the literature that has developed (Snyder, 2019; Torraco, 2016). The primary literature sources were obtained from Scopus using a combination of keywords such as "*border region development*," "*border economic development*," "*cross-*

border economic integration," "regional inequality," "regional disparities," "regional convergence," "border connectivity," and "development strategies." The literature selection was based on the relevance of the article to the research focus, the quality of the publication, the suitability of the context of the border region's economic development, and its contribution in explaining the relationship between border economic activity and regional inequality. Articles that do not have a substantive relationship with the research theme, duplicate publications, and documents that do not provide a theoretical basis or relevant empirical evidence are not included in the analysis. This approach allows the literature review process to be carried out in a structured manner without using the PRISMA procedure (Snyder, 2019; Torraco, 2016).

Literature data was then analyzed using thematic content analysis through the stages of in-depth reading, information extraction, *coding*, categorization, comparison, and thematic synthesis. The analysis focused on the main themes that emerged in the literature, including border connectivity, infrastructure development, market accessibility, cross-border trade, economic integration, institutional and governance capacity, local economic transformation, productivity, inclusive growth, regional inequality, and regional convergence. The thematic synthesis approach was used to find patterns of relationships, similarities and differences in findings, as well as conceptual gaps between studies so that literature review not only produced descriptions of previous research, but also built more integrative interpretations and conceptualizations (Snyder, 2019; Torraco, 2016).

Results and Discussion

Results

The results of the literature review show that the development of border areas has different characteristics from the development of non-border areas because they are simultaneously influenced by geographical, economic, political, institutional, and border openness factors. The literature shows that borders have a dual function, namely as a *barrier* that can increase transaction costs and limit the movement of goods, capital, labor, and information, as well as as a *gateway* that allows the formation of cross-border economic activities. Taubenböck et al. (2023), through an analysis of land borders globally, showed that there are large variations in the dynamics of border area development and found that economic and political differences between neighboring countries are related to the characteristics and level of border fortification. The findings are reinforced by Chilla et al. (2026), who explain that liberalization and integration can create opportunities for cross-border economic interactions, but their realization depends on various forms of proximity that allow economic actors to build cross-jurisdictional relationships. Thus, the literature indicates that a geographical position near borders does not automatically become an economic advantage in the absence of connectivity and the capacity to take advantage of cross-border relationships.

The second finding shows that connectivity, market access, cross-border trade, and transportation infrastructure are the dominant determinants in the economic

development of border regions. Okabe (2025), based on an analysis of the land border areas of Cambodia, Laos, Myanmar, Thailand, and Vietnam, found that trade with neighboring countries has a positive influence on the economic activities of border regions. Lower transportation costs and better market access are also significant factors that support the region's economic development. In addition, domestic and international transportation infrastructure play a role in enabling border regions to benefit economically from regional integration, although involvement in regional production networks still provides limited influence (Okabe, 2025). The findings show a gradual relationship between border connectivity, reduced transaction costs, increased *market accessibility*, intensification of *cross-border trade*, and increased local economic activity.

The third finding shows that cross-border economic integration can increase local economic activity, but its impact on regional inequality reduction is not always automatic or spatially even. Eberhard-Ruiz and Moradi (2019) found that the formation of regional economic communities between Kenya, Tanzania, and Uganda encourages the development of cities located close to internal borders. However, the effects of such growth are highly localized and temporary; the acceleration of growth is mainly found in cities that are within a travel distance of less than about 90 minutes from the border, while the effects on a regional scale are not significant. the other hand, Adam (2023) found that trade agreements are positively related to the per capita income of regions that are directly adjacent to trading partner countries and can partially compensate for the revenue losses associated with the existence of international borders. The findings show that *cross-border economic integration* has the potential to be an instrument for regional development, but its benefits can be concentrated in specific locations if it is not accompanied by a mechanism for spreading growth to a wider area.

The fourth finding shows that border area development strategies need to be multidimensional and place-based, not just based on infrastructure development or increased budget allocation. Studies on inequality in Indonesia's land border areas show that some forms of fiscal transfers affect economic performance, but their impact on regional inequality differs according to border corridors and types of fiscal instruments (Rahim et al., 2026). The literature on border cities also shows the importance of integrating accessibility, business activities, public services, institutions, and cross-border connectivity in regional development policies. of the synthesis show five groups of factors that determine the development of border areas, namely (1) connectivity and infrastructure, (2) cross-border trade and market accessibility, (3) economic and institutional integration, (4) local productive capacity and economic transformation, and (5) governance and place-based development strategies. The interaction of these five factors determines whether the development of border areas only results in concentrated local growth or develops into a process of inclusive growth and regional convergence.

Discussion

The results of the study confirm that the development of border areas needs to be understood through the transformation of border functions from economic barriers to economic gateways. When borders are closed, transaction costs, mobility limitations, and market fragmentation can strengthen the position of border areas as peripheral areas. Conversely, when barriers are reduced and connectivity increases, geographical proximity to neighboring countries can be converted into access to markets, resources, investments, and wider production networks. Taubenböck et al. (2023) show that the typology and political-economic characteristics of borders are related to the dynamics of development of surrounding regions, while Chilla et al. (2026) point out the importance of *proximity* in the formation of cross-border economic integration. Thus, Border Connectivity can be placed as the initial foundation of development, but its benefits only emerge when it is accompanied by economic, institutional, and social connectivity.

This connectivity further forms Cross-Border Economic Integration through reduced transportation and transaction costs, increased market access, and increased trade intensity with neighboring countries. Okabe's (2025) findings are particularly relevant in explaining this mechanism because they show that trade with neighboring countries, lower transportation costs, better market access, and domestic and international infrastructure play a role in the economic development of ASEAN border regions. , the construction of roads, border terminals, logistics facilities, cross-border markets, and digital infrastructure should not be positioned as the final goal of development. Infrastructure is an *enabling mechanism* that must be combined with trade facilitation, harmonization of procedures, institutional capacity building, and strengthening of relationships between local producers and cross-border markets. Without this mechanism, border areas risk becoming only a transit route for goods without generating *meaningful local value creation*.

The next stage is Local Economic Transformation, which is the ability of regions to convert increased cross-border integration into business diversification, productive investment, MSME growth, employment opportunities, increased value-added, and the establishment of local production networks. It is at this stage that there is a difference between temporary border economic growth and sustainable regional transformation. Eberhard-Ruiz and Moradi (2019) show that the benefits of market integration in East Africa can be local and temporary, so economic integration alone is not enough to guarantee the effects of broad regional development. The findings indicate a potential spatial concentration effect, when trade gains are concentrated in specific cities, corridors, or crossing points. Therefore, development policies need to strengthen *backward and forward linkages* between border activity centers with MSMEs, the agricultural sector, processing industries, services, tourism, and hinterland areas so that the benefits of integration can spread more widely.

The transformation of the local economy further needs to produce Productivity and Inclusive Growth before it can effectively contribute to the reduction of regional inequality. The relationship between border development and inequality is thus not a

simple linear relationship. Increased trade or investment can increase regional growth, but if the benefits are concentrated in large companies, specific trade centers, or certain groups of people, then growth does not necessarily reduce inequality. Evidence on fiscal transfers in Indonesia's border regions also shows that development instruments that improve economic performance do not always have the same impact on regional inequality (Rahim et al., 2026). Implication, border development needs to combine growth policies with equity strategies through human resource development, local business empowerment, improving basic services, expanding access to financing, strengthening regional fiscal and institutional capacity, and increasing connectivity between border growth centers and surrounding areas.

Based on the overall synthesis, this study proposes a conceptual mechanism of Border Connectivity → Cross-Border Economic Integration → Local Economic Transformation → Productivity and Inclusive Growth → Regional Convergence. This framework expands on the previous literature by placing border region development as a gradual transformation process, rather than simply a direct consequence of infrastructure development or trade liberalization. Okabe's (2025) evidence supports the relationship between trade, market access, transportation, and border regional economic development, while Eberhard-Ruiz and Moradi (2019) suggest that the benefits of integration can remain localized if they do not develop into broader regional effects. The heterogeneity of border region development found by Taubenböck et al. (2023) further demonstrates the importance of political, economic, and spatial contexts in determining the success of the process. Thus, the conceptual contribution of this study lies in the argument that regional convergence is not generated by connectivity alone, but by the ability of regions to convert connectivity into economic integration, integration into local economic transformation, and such transformation into productivity and inclusive growth whose benefits are spatially dispersed. This framework also provides a basis for border region development strategies that move from *a periphery-oriented development* paradigm to integrated border economic development.

Conclusions and Suggestions

Conclusion

Based on the results of library research and literature synthesis, this study concludes that the development of border areas is a multidimensional process influenced by connectivity, infrastructure, market access, cross-border trade, economic integration, local productive capacity, and the quality of institutions and governance. Border areas are not always synonymous with peripheral areas because increased connectivity and economic integration can change the function of borders from economic barriers to economic gateways. However, increased connectivity and trade activities do not automatically reduce regional inequality. Development benefits can be concentrated in specific cities, corridors, or crossing points if they are not followed by strengthening local economic capacity and spreading development benefits to surrounding areas. Therefore,

the relationship between border development and the reduction of inequality needs to be understood as a gradual transformation process formulated through the framework of Border Connectivity → Cross-Border Economic Integration → Local Economic Transformation → Productivity and Inclusive Growth → Regional Convergence. The framework affirms that regional convergence occurs when the benefits of cross-border connectivity and integration are able to be converted into increased productivity, local value-added creation, expansion of economic opportunities, and growth whose benefits are distributed in a more inclusive manner.

Suggestions

Based on these findings, border area development policies are recommended to use an integrated and place-based border development approach that not only focuses on physical infrastructure development, but also integrates trade facilitation, MSME and local industry development, improving the quality of human resources, digital connectivity, access to financing, public services, and strengthening cross-regional and cross-border institutional coordination. The government also needs to strengthen economic relations between border trade centers and *hinterland* areas so that the benefits of growth are not concentrated at certain crossing points. For further research, the conceptual framework produced in this study needs to be empirically tested through quantitative approaches, *spatial econometrics*, cross-border comparative studies, and longitudinal research. Future research may also include institutional quality, cross-border governance, digital connectivity, fiscal capacity, local entrepreneurship, and geopolitical conditions as mediating or moderation variables to explain the conditions that strengthen or weaken the relationship between border region development and regional convergence.

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