

MINISTRY OF EDUCATION AND TRAINING
NATIONAL ECONOMICS UNIVERSITY



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**IMPACTS OF TOURISM ON URBANIZATION
AND INCOME INEQUALITY IN VIETNAM**

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IN ECONOMICS**

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HANOI - 2026

DECLARATION

I hereby declare that this dissertation is my own work, to the best of my knowledge and belief, it contains no material previously published or produced by another party in fulfillment, partial or otherwise, of any other degree or diploma at another University or institute of higher learning, except where due acknowledgment is made in the text.

I have read and understood the University's policy on plagiarism. I hereby declare on my honor that this dissertation is my own work and does not violate the regulations on good academic practices.

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LIST OF ABBREVIATIONS

SDM	Spatial Durbin Model
GIS	Geographic Information System
GSO	General Statistics Office of Vietnam
GTWR	Geographically and Temporally Weighted Regression
GWR	Geographically Weighted Regression
OLS	Ordinary least squares
PCI	Provincial Competitive Index
JAXA	Japan Aerospace Exploration Agency
STF	Spatio - temporal fix
LUE	Land Use Efficiency
LCL	Land Consumption Level
LVC	Land Value Capture
SDG	Sustainable Development Goal

CHAPTER 1: INTRODUCTION

1.1. Research rationales

Income inequality remains a persistent global challenge that undermines economic growth, social cohesion, and political stability. Tourism development has become an increasingly important driver of regional economic transformation, particularly in developing and transitional economies. However, its significance does not lie only in income generation, employment creation, or fiscal revenue. A prior and equally important economic question is whether tourism reshapes urbanization itself. Tourism development does not merely take place within pre-existing urban systems; it actively reshapes urbanization through land conversion, infrastructure investment, real-estate development, service-sector expansion, and the reorganization of local labor markets. In this sense, tourism-led urbanization is not simply a demographic process but a spatial-economic transformation involving the allocation of land, capital, labor, and public resources.

The concept of tourism urbanization provides the theoretical foundation for this argument. Mullins (Mullins, 1991) argues that tourism can generate distinctive urban forms organized around leisure consumption, accommodation, entertainment, and visitor-oriented services. This implies that tourism may produce urban growth even when such growth is not primarily driven by resident population expansion (Kowalczyk-Anioł, 2023; Koens and Milano, 2024; Agius, Briguglio and Bermúdez Pérez, 2025). More recent discussions of sustainable urbanization similarly emphasize that urban growth should be assessed not only by population change but also by the relationship between land consumption and demographic expansion (Vereinte Nationen, 2025). Therefore, studying the tourism development –urbanization nexus is necessary for evaluating whether tourism contributes to efficient, population-absorbing urbanization or instead produces land-intensive and spatially uneven urban expansion.

This issue is particularly important in Vietnam, where tourism has been elevated to a strategic economic sector and has become closely linked with infrastructure upgrading, coastal development, heritage-city regeneration, and tourism real estate. Tourism development may affect urbanization not only by attracting labor and stimulating services, but also by changing land values, local fiscal incentives, and the spatial priorities of provincial development. Therefore, tourism development has emerged as a contested driver of income distribution

Tourism development has emerged as a contested driver of income distribution. On one hand, tourism creates employment for low-skilled workers and generates government revenues for social programs (UNWTO, 2019; Seetanah, Gopy-Ramdhany and Bhattu-Babajee, 2023). On the other hand, tourism can concentrate benefits among asset holders and large investors, reinforcing structural inequalities through land-intensive development and precarious employment conditions (Freitag, 1994; Zhang, 2021; Valente, Zaragoz  and Russo, 2023).

Critically, the majority of existing studies examine the tourism-inequality relationship through linear, static frameworks that assume spatial independence across regions (Alam and Paramati, 2016; Chi, 2021; Subramaniam, Masron and Loganathan, 2022). This assumption represents a fundamental methodological limitation. Tourism development generates spatial spillover effects: investment in tourism infrastructure in one province reshapes labor markets, land values, and income distribution in neighboring provinces through labor mobility, investment competition, and regional tourism circuits (Anselin, 1988; LeSage and Pace, 2009a; Zeng and Wang, 2021). Ignoring these spatial interdependencies risks misattributing regional processes to purely local drivers, thereby producing biased estimates of tourism's distributional effects (Elhorst, 2014).

Vietnam offers a compelling setting for investigating this spatial dimension. As a transitional economy where tourism has been elevated to a strategic leading sector (Resolution 08-NQ/TW, 2017), Vietnam exhibits substantial provincial variation in governance capacity, cultural heritage, and institutional characteristics. Despite a relatively stable national Gini coefficient over the past decade, substantive progress in reducing inequality has been limited, and the spatial structure of inequality including clustering patterns and interprovincial spillover remains underexplored. These conditions create spatiotemporal heterogeneity in how tourism interacts with income inequality, making Vietnam a unique case for studying the tourism development - income inequality nexus from a spatial dependence perspective.

To address these gaps, this dissertation adopts Harvey's (Harvey, 1982, 2001) spatio-temporal fix (STF) framework, conceptualizing tourism development as a mechanism through which surplus capital is spatially fixed into the built environment resorts, infrastructure, real estate while deferring social tensions through job creation and economic stimulation. Crucially, such fixes produce uneven spatial outcomes (Jessop, 2006; Brenner, 2011), making spatial econometric methods essential. The study employs Geographically and Temporally Weighted Regression (GTWR) as the primary method to capture spatiotemporal heterogeneity in the tourism-inequality

relationship, complemented by a Spatial Durbin Model (SDM) to examine interprovincial spillover effects and the mediating role of urbanization. Additionally, the study incorporates SDG 11.3.1 land-use efficiency diagnostics for selected case studies to assess whether tourism-led development constitutes an efficient or exclusionary spatial fix.

This study focuses on analyzing the relationship between tourism development and income inequality by using a combination of STF and spatiotemporal approach. To achieve this, the study uses the spatiotemporal heterogeneity models with Vietnamese provincial-level data in the period 2018-2022. While existing analyses have examined the mediating role of urbanization in the tourism development – income inequality nexus, they remain limited in directly capturing how this spatial fix materializes in terms of land expansion and efficiency. The study incorporates spatial indicators of land consumption and land-use efficiency, particularly SDG indicator 11.3.1 (Walsh, Banerjee and Murphy, 2022) as complementary empirical evidence. This approach enables a more concrete assessment of whether tourism development functions as an efficient or uneven spatial fix. This indicator was calculated for three specific case studies (Hanoi, Da Nang, Ho Chi Minh city) to provide a more granular perspective. Thereby, the study has a number of contributions, including:

(1) It put tourism development within the dynamics of spatiotemporal fixes, highlighting how tourism development acts as a temporary resolution to regional capital overaccumulation, then producing uneven spatial outcomes in income distribution;

(2) The study proposes a framework that moves beyond conventional economic models by highlighting the role of spatially fixed capital, which may ultimately widen the income gap;

(3) The study provides evidence of the need for coordinated spatial strategies. It suggests that tourism development should be integrated into equity-oriented planning to prevent it from acting as a 'spatiotemporal fix' that widens income gaps

1.2. Research objectives and questions

This dissertation pursues four objectives of the tourism – urbanization – income inequality nexus in Vietnam. First, it seeks to quantify the spatio temporally heterogeneous effect of tourism development on income inequality across 63 Vietnamese provinces during 2018 - 2022, moving beyond the assumption of a single, uniform relationship. Second, it aims to identify the mediating role of urbanization and

to test whether tourism weakens or strengthens the demographic absorption channel through which urbanization reduces income inequality. Third, it provides morphological evidence via the SDG 11.3.1 land-use efficiency framework on whether tourism-led urban expansion represents an efficient spatial fix or a speculative, land-intensive one. Fourth, it derives spatially differentiated policy recommendations that account for interprovincial spillover effects rather than treating each province as an isolated unit.

Corresponding to these objectives, four research questions guide the empirical analysis:

Research Question 1: How does tourism development affect income inequality across Vietnamese provinces, accounting for spatiotemporal dependence?

Research Question 2: To what extent does urbanization mediate the relationship between tourism development and income inequality, and how do spatial spillover effects shape this mediation channel?

Research Question 3: How does tourism-driven urban land expansion relate to land-use efficiency, and what does this reveal about the nature of tourism as a spatio-temporal fix?

Research Question 4: How should tourism policy address the uneven effects of tourism on income inequality?

1.3. Scope and object of the study

The object of this research is the spatial mechanism through which tourism development affects provincial income inequality in Vietnam, with urbanization conceptualized as a mediating channel. The analysis is: first, the direct relationship between tourism development and income inequality; second, the mediation pathway linking tourism development, urbanization, and income inequality; and third, the spatial spillover structure through which tourism development, urbanization, and income inequality effects are transmitted across neighboring provinces. The spatial scope covers 63 Vietnamese provinces (34 provinces at present after administrative reorganization in 2025).

The study period from 2018 to 2022, the period captures three distinct phases of tourism development: the pre-pandemic expansion phase in 2018–2019, the COVID-19 demand shock in 2020–2021, and the initial reopening and recovery phase in 2022. The pandemic represented an unprecedented exogenous shock to tourism demand. This collapse provides an analytically valuable setting for examining whether tourism

development -linked spatial investment remained aligned with visitor demand when tourism demand was externally disrupted. From the perspective of the spatio-temporal fix (Harvey, 2001), built-environment investment is relatively rigid: once capital is committed to hotels, resorts, transport infrastructure, and tourism-oriented real estate, it cannot be easily redeployed. Therefore, if built-up areas continued to expand despite the collapse of tourism demand, this would suggest a decoupling between tourism-led land development and functional demographic or visitor needs. This issue is examined through the land-use efficiency analysis in Chapter 4.

The econometric analysis is based on a provincial panel dataset compiled mainly from the General Statistics Office of Vietnam (GSO) and the Provincial Competitiveness Index (PCI). Provincial income inequality is measured by the Gini coefficient, is used as the dependent variable. Tourism development is proxied by the natural logarithm of accommodation and food-service revenue, which belongs to a tourism-characteristic industry under the Tourism Satellite Account framework (OECD, 2017). Urbanization, the hypothesized mediating variable, is measured by the urban population rate. The model also includes a set of control variables: PCI score to capture institutional quality, CPI growth to reflect macroeconomic conditions, industrial production index to represent manufacturing structure, multidimensional poverty rate to account for baseline deprivation, and logged population to control for agglomeration scale.

To complement explanation the econometrics results, the dissertation also conducts a morphological spatial analysis of three illustrative case studies: Hanoi, Da Nang, and Ho Chi Minh City. These cases are selected as leading tourism and urban growth poles of the Northern, Central, and Southern regions, respectively (Decision No. 509/2024/QĐ-TTg). These cases act as qualitative research allowing the dissertation to connect the econometric findings with observable land-consumption dynamics.

This case-study component uses satellite-derived built-up area data from the Japan Aerospace Exploration Agency (JAXA) for 2010, 2015, and 2020. It applies the SDG 11.3.1 land-use efficiency framework (UN-Habitat, 2018) to assess whether urban land expansion has remained proportionate to demographic growth or whether it indicates a form of land-intensive, tourism-linked spatial development.

1.4. Main contributions of the dissertation

This dissertation makes three main contributions that collectively bridge critical political economic theory with quantitative spatial analysis:

Theoretical contribution: this dissertation contributes to the literature by reframing tourism-led urban development as a socio-spatial process of capital fixation rather than merely as a sectoral driver of growth. Drawing on Harvey's spatio-temporal fix framework, the study conceptualizes tourism as a mechanism through which surplus capital is anchored in urban land, infrastructure, real estate, and service spaces, thereby reshaping the distribution of development gains and socio-spatial inequalities. In doing so, it extends the spatial-fix perspective to the tourism–urbanization–inequality nexus in a state-led transitional economy.

A second theoretical contribution lies in integrating Jessop's concept of strategic state selectivity into the analysis of tourism urbanization. The dissertation argues that tourism development is not a neutral market-led process but is mediated by selective state interventions, including land allocation, infrastructure prioritization, tourism-zone designation, and local development strategies. These interventions privilege particular places, actors, and accumulation paths while constraining others, thereby helping explain why tourism-led development may generate uneven inequality outcomes across provinces.

Third, the dissertation advances a more differentiated understanding of urbanization in tourism studies by distinguishing between demographic urbanization and land-consuming urban expansion. This distinction allows the study to theorize tourism-led urbanization as a potentially dual process: tourism may stimulate the physical expansion of urban land and built environments without generating a proportional increase in resident urban population or inclusive urban absorption. By linking this conceptual distinction with spatial econometric analysis and SDG 11.3.1 land-use-efficiency diagnostics, the dissertation provides a theoretical basis for interpreting inequality not only as an income-distribution outcome, but also as a spatially embedded consequence of uneven urban transformation.

Methodological contribution: The study pioneers a three-pronged spatial approach:

- (i) Geographically and Temporally Weighted Regression (GTWR) to capture spatiotemporal heterogeneity in the tourism– income inequality relationship (Huang et al., 2010);

- (ii) A Spatial Durbin Model (SDM) with mediation analysis to identify interprovincial spillover effects and the urbanization transmission channel (LeSage & Pace, 2009);
- (iii) SDG 11.3.1 morphological diagnostics to ground the statistical findings in physical evidence of land expansion patterns. This integration of econometric and remote-sensing methods within a single dissertation represents a novel methodological synthesis.

Empirical contribution: Based on provincial-level data from Vietnam's 63 provinces over 2018–2022, the dissertation provides new evidence that tourism weakens the equalizing demographic-absorption channel of urbanization, thereby intensifying inequality through spatial spillovers. The case-study analysis of Hanoi, Da Nang, and Ho Chi Minh City reveals morphological signatures: built-up area expanding faster than population consistent with a speculative spatial fix that locks capital into land without proportionate social absorption.

1.5. Structure of the Dissertation

Chapter 1: Introduction: presents the research rationale, objectives, research questions, scope, contributions, and overall structure.

Chapter 2: Literature review: concepts and measurements of tourism, urbanization, and income inequality; reviews the nexus from a spatial perspective and identifies research gaps.

Chapter 3: Theoretical framework and research methodology: develops the theoretical framework, specifies baseline and spatial econometric models, describes the SDG 11.3.1 morphological analysis, and presents the data.

Chapter 4: Empirical Results on Spatial Impacts reports baseline findings, Moran's I spatial autocorrelation evidence, GTWR spatiotemporal heterogeneity results, SDM mediation analysis, and case-study morphological evidence.

Chapter 5: Discussion and Conclusion: discusses the main findings in theoretical perspective, derives policy implications, summarizes contributions, acknowledges limitations, and proposes future research directions

CHAPTER 2: LITERATURE REVIEW

2.1. Concepts and measurement of key variables

2.1.1. *Tourism development*

The meaning of the term “*tourism development*” depends on the content associated with the social practice. According to UN Tourism, tourism can be defined as a social, cultural, and economic phenomenon that involves people travelling beyond their usual living environment to other places for personal or professional purposes (UNWTO, 2019).

This perspective was challenged at the end of the twentieth century (Knafou *et al.*, 1997; Tuppen, 2021). In adopting the term “recreation,” they sought to emphasise a broader social function. Leisure practices, including sport, allowed individuals to temporarily escape routine pressures and restore emotional balance. From this perspective, tourism and recreation are not marginal activities but co-constitutive elements of modern social organization. They contribute to the formation of a new civilizational order shaped by industrial rhythms and their compensatory spaces of leisure. Consequently, the term “tourism development” should be understood not merely as quantitative growth, but as a qualitative transformation, a change in the state and structure of society.

This transformation becomes spatially visible through the invention of tourist territories (Knafou, 2000), whereby a new way of perceiving previously marginal or excluded realities redefines them as desirable destinations (Butler, 1980; McKercher and Prideaux, 2020). This perspective challenges deterministic views that certain places are naturally destined for tourism or simply possess an inherent “potential” waiting to be activated. Instead, it argues that tourism development results from deliberate mutations driven by stakeholders particularly entrepreneurs shaping infrastructure, services, and promotion thereby actively producing new tourist territories.

While this territorial perspective redefined tourism as a spatial mutation, earlier economic approaches had framed it primarily as a development tool. In traditional view, tourism was treated as a benign or purely positive contributor to development, and analyses were mainly practical or empirical with little critical theory (Archer,

1974). From the 1980s onward, more critical and theoretically grounded perspectives emerged, reshaping tourism studies. Researchers began to recognize tourism as not just a collection of leisure activities but as an industry deeply embedded in capitalist systems of production and consumption. A seminal contribution argued that tourism development should be analyzed as an avenue of capital accumulation and spatial restructuring (Britton, 1991a). Britton critiqued earlier work for being descriptive and “weakly theorised,” urging scholars to acknowledge “the capitalistic nature of most travel and tourism production and consumption”. This marked a shift toward political economy: tourism came to be seen as part of global capitalist development, often involving transnational corporations, unequal power relations between tourist-generating and receiving regions, and the commodification of local cultures and places (Brohman, 1996).

Modern tourism development research also expanded into new theoretical domains. Sociological perspectives (Urry, 2002) examined how tourism development involves the consumption of signs and experiences, linking tourism development to postmodern consumer culture and power dynamics. The modern perspective treats tourism as a complex socio-economic system: one that can reproduce inequalities if unchecked, but that might also be harnessed for inclusive development under the right conditions (Nugroho *et al.*, 2025). In this thesis, tourism development is considered as a socio-spatial transformation process rather than mere growth in tourist flows.

Tourism development is assessed through indicators that capture demand intensity, sectoral revenue generation, and macroeconomic contribution.

Tourist arrivals: Tourist arrivals measure the volume of visitors entering a destination and are frequently employed in growth and regional development models to proxy tourism intensity (Balaguer and Cantavella-Jordá, 2002; Brida, Cortes-Jimenez and Pulina, 2016). The widespread use of arrivals in econometric tourism literature suggests that this indicator adequately represents the intensity of tourism flows and destination competitiveness.

Tourism revenue: Tourism revenue reflects not only visitor numbers but also expenditure patterns, length of stay, and consumption intensity. Tourism receipts better capture the economic contribution of tourism because they measure realized monetary flows rather than physical counts of visitors (Rosselló-Nadal and He, 2020).

Revenue indicators also account for differences in spending capacity between domestic and international tourists, thereby providing a more accurate representation of tourism's contribution to local income generation (Chen, 2011; Thao, 2025).

Tourism's share of GDP: Tourism's share of GDP captures the sector's integration into production systems and its relative weight compared to other industries. According to the Tourism Satellite Account (TSA) framework (United Nations, 2001), tourism GDP reflects the direct value added generated by tourism industries and provides a standardized measure for cross-regional comparison. Empirical studies examining the tourism-led growth hypothesis commonly use tourism's GDP contribution as a structural indicator of economic dependence on tourism (Trang, Duc and Dung, 2014).

This study employs revenue from accommodation and food service activities from GSO as a proxy for tourism development. According to the Tourism Satellite Account framework (OECD, 2017), these industries are classified as “tourism-characteristic”, meaning that a substantial share of their output would not exist without visitor demand. While this proxy does not fully isolate tourism ratios, it captures the core sectors most directly linked to tourists' expenditure. Additionally, Vietnam has conducted pilot Tourism Satellite Account (TSA) exercises at the national level with UNWTO support, TSA data at the provincial level are not compiled. Consequently, this study further integrates the number of tourist arrivals as a supplementary metric for specific case studies to validate the primary findings and capture the physical scale of tourism development.

2.1.2. Urbanization

Urbanization is a process through which a population shifts from being dispersed throughout small rural settlements where agriculture is the main economic activity to being concentrated in larger and denser urban settlements where industrial and service activities predominate (UN-Habitat, 2020, p. 20). Therefore, the definition has evolved from a static demographic classification to a dynamic, multidimensional process involving spatial restructuring, economic accumulation, and social stratification.

Historically, scholars viewed this process through the lens of modernization, treating it as a linear, inevitable, and generally positive byproduct of industrialization (Kuznets, 1955). This economic logic was formalized in Lewis's (1954) Dual-Sector Model (Gollin, 2014), which provided the foundational explanation for rural-urban

migration in developing economies. Lewis portrayed the city as a reservoir of productive employment that absorbs "surplus labor" from the countryside.

From early urban sociology view, scholars sought to understand the internal form of this growing "modern" city, proposed the Concentric Zone Model (Park and Burgess, 2019), viewing the city as a social organism that grows radially from a central core. These sociological theories were deeply rooted in an evolutionary perspective, implicitly assuming natural progression from traditional rural forms to complex urban organizations. The policy implication of this paradigm was a pronounced "Urban Bias"(Lipton, 1978) because urbanization was equated with national prosperity, governments in developing nations frequently prioritized urban industrial infrastructure at the expense of the agricultural sector. The prevailing assumption was that the benefits of urban growth would "trickle down," rendering issues of inequality or environmental degradation secondary to the imperative of quantitative expansion.

However, the optimism of these linear models began to fracture. Empirical realities in the Global South where massive urbanization occurred without commensurate industrialization, leading to the proliferation of slums rather than middle-class prosperity (Ooi and Phua, 2007) demanded a new theoretical lens. Harvey (Harvey, 1978, 1982) reconceptualized urbanization not merely as a demographic shift, but as a "spatial fix" for capitalism. He argued that when capital faces crises of overaccumulation, it switches into the built environment. From this viewpoint, urbanization is driven by the need to absorb surplus capital through real estate development and infrastructure projects. Consequently, the city becomes a "terrain of struggle" between different class interests, where urban growth often reflects and reinforces social inequalities rather than erasing them. This critical turn fundamentally altered how scholars analyze urban outcomes. Instead of assuming that a rising urban population share automatically equates to advancement, modern theory examines uneven development (Smith, 2008). It highlights how global circuits of capital create global cities serve as command centers for the global economy while simultaneously generating a marginalized service underclass. Thus, the literature moved from viewing urbanization as a process that produces distinct winners and losers, often exacerbating the very inequalities early theorists hoped it would solve.

In the Asian context, McGee and Robinson (1995) introduced the concept of “desakota” to describe extended metropolitan regions where agriculture, industry, and residential land uses intermingle in a chaotic mix. Unlike the clear concentric zones of Western theory, these regions exhibit a “fuzzy” spatial form driven by rapid land conversion and peri-urban industrialization. (McGee and Robinson, 1995). Expanding this logic, researchers recently proposed the theory of "Planetary Urbanization." They argue that urbanization can no longer be restricted to the administrative boundaries of cities. Instead, the urban process has extended its reach into the entire planetary surface encompassing logistics networks, extraction zones, and agro-industrial corridors that support urban life (Brenner, 2017). This perspective is crucial for the present research, as it suggests that analyzing urbanization requires looking beyond the city center to understand how distant hinterlands and peri-urban frontiers are being operationalized for urban growth. UN-Habitat have absorbed these critical perspectives, advocating for a shift from "urban growth" to "inclusive urbanization." Therefore, a robust analysis of urbanization in the current era must be multi-dimensional (UN-Habitat, 2020).

Urbanization in this study is understood as a process of socio-spatial change in which tourism development supports the expansion of infrastructure and services, leading to adjustments in land-use patterns as well as in the local economic and population structure. This definition bridges the demographic and spatial dimensions, recognizing that tourism-driven urbanization may produce physical expansion (built-up land) without proportionate demographic concentration (population absorption), a divergence that is central to the spatio-temporal fix framework adopted in this dissertation.

Urbanization can be measured through several indicators, each with distinct strengths and limitations:

Urban population: The most conventional measure is the share of the urban population in total population. This indicator reflects the proportion of people residing in areas officially classified as urban and is widely used in international development research (United Nations, 2018). It captures the demographic transition from rural to urban residence and serves as a proxy for structural transformation and migration-driven agglomeration. However, despite its widespread use, this measure depends heavily on country-specific administrative definitions of “urban,” which may vary substantially and underestimate peri-urban or informal growth (World Bank, 2023).

Nighttime light: Nighttime light (NTL intensity, derived from DMSP-OLS or VIIRS satellite imagery, reflects the spatial distribution of electricity consumption, infrastructure, and human activity (Weng, 2014; Ma *et al.*, 2015). Henderson (Henderson, Storeygard and Weil, 2009) demonstrate that nighttime light data strongly correlate with economic growth and urban concentration, making it useful in contexts where official statistics are limited or unreliable. The major advantage of NTL data is its independence from administrative definitions and its high spatial resolution, which allows detection of informal or rapidly expanding urban areas. However, this approach also has limitations, including light saturation in dense metropolitan cores, blooming effects that overestimate urban extent, and sensitivity to changes in energy policy or electrification rates (Ma *et al.*, 2015).

Built - up land area: This indicator quantifies the physical expansion of urban land through remote sensing and land-use/land-cover (LULC) datasets. Built-up area can be calculated by extracting impervious surfaces or constructed land from satellite imagery and measuring changes over time. This spatial indicator directly reflects the material footprint of cities and aligns with global sustainability monitoring frameworks such as SDG 11.3.1, which measures the ratio of land consumption growth rate to population growth rate (UN-Habitat, 2018). The primary strength of this approach lies in its ability to capture peri-urban expansion and land-use efficiency independent of administrative boundaries. However, it is subject to classification errors in remote sensing data, limited temporal resolution depending on satellite availability, and the inability to directly measure population density or economic activity. In this thesis, the urban population rate is selected as the primary proxy variable for urbanization. This variable is preferred because it directly captures the concentration of population in urban areas and is readily available from GSO at the provincial level across the full study period (2018 - 2022). For supplementary explanation of main results, the case study employs built-up land area derived from Japan Aerospace Exploration Agency (JAXA) satellite data. This indicator provides additional context to better interpret the primary findings by illustrating spatial patterns of urban expansion and directly feeds into the SDG 11.3.1 land-use efficiency diagnostic discussed in Chapter 3.

2.1.3. Income inequality

Income inequality is described as “the gap between the rich and the poor”(Keeley Brian, 2015) that leading to lower per capita income for the poor and making it difficult to eliminate or even reduce poverty rates.

In the past, a dominant narrative was that income inequality might follow a particular path as countries develop, Kuznets (Kuznets, 1955) proposed that in the early stages of economic growth, income inequality tends to rise, and in later stages, it falls, yielding an “inverted U-shape” over the development process. This pattern was theoretically grounded in the structural shift from agrarian, rural economies to urban, industrial ones. In the initial phase, a minority in the urban or industrial sector pulls far ahead of the still-poor majority in the rural sector, widening the income gap. Over time, as more of the population urbanizes and benefits from industrial growth, income inequality stabilizes and then decreases. Kuznets’s conjecture was influential: it framed income inequality as a somewhat inevitable but temporary side effect of development, one that would eventually be corrected as nations became wealthier and more urbanized. Beyond Kuznets, the prevailing wisdom up through the 1990s was that policies should focus on growth first and foremost, and that the benefits would “trickle down” to the poor eventually implying that tackling income inequality directly was secondary (Rostow, 1990).

Modern perspectives on income inequality. Since the late 20th century, and especially in the 21st century, the study of income inequality has been revitalized by new data and theories that often challenge older assumptions. A turning point was the work of economists who assembled long-run data on income and wealth distribution revealed that income inequality in many advanced economies has been rising in recent decades, effectively a U-turn from the mid-century lows, and in contradiction to Kuznets’s expected trajectory (Piketty and Saez, 2003). Piketty argues that when the rate of return on capital (r) exceeds the economy’s growth rate (g), wealth concentrates at the top, leading to ever-greater income inequality absent countervailing policies (Piketty, 2015). It suggests that, rather than an automatic decline in income inequality with development, mature capitalist economies can experience widening disparities. This represents a break from the earlier benign neglect of income inequality.

IMF and OECD have produced studies showing that countries with very high

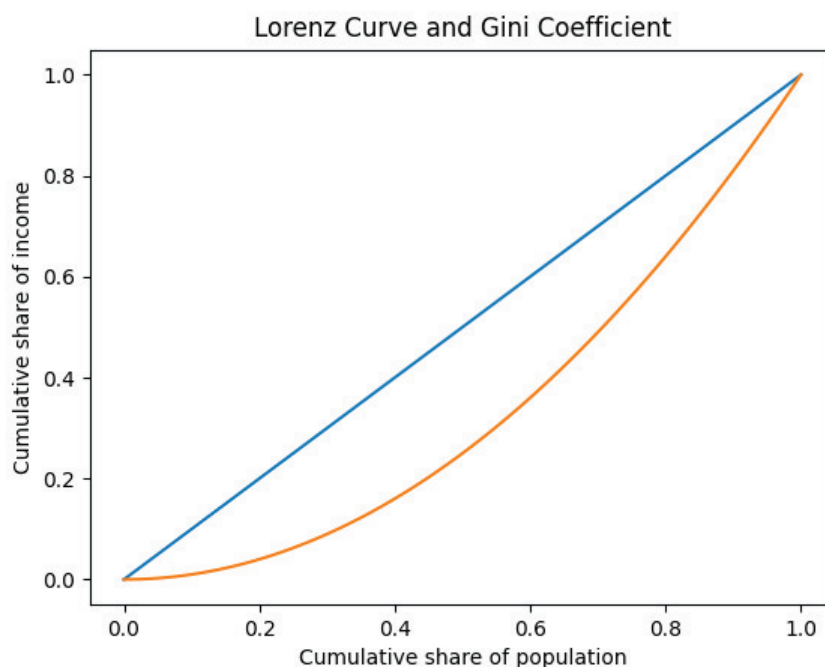
income inequality tend to experience shorter growth spells and more instability. As a result, “inclusive growth” has become a prominent goal in development discourse (Ostry, Berg and Tsangarides, 2014; OECD, 2015). To sum up, the modern perspective on income inequality is less optimistic that it will fix itself with growth. Instead, it recognizes the need for deliberate policies to counteract inherent forces that may drive income inequality higher.

The thesis examines the size distribution of income. By examining the relative income shares across different population deciles, this approach captures the degree of concentration among individuals rather than the functional sources of that income.

Percentile ratios are a class of distribution-sensitive inequality measures that compare income levels at specific points along the income distribution. The most commonly used indicator is the P90/P10 ratio, defined as the income at the 90th percentile divided by the income at the 10th percentile. A value of 4.5, for example, indicates that income at the 90th percentile is 4.5 times that at the 10th percentile. This measure can be further decomposed into P90/P50 and P50/P10, capturing disparities in the upper and lower halves of the distribution, respectively (Michael Förster, Marco Mira d’Ercole, 2005; Cowell, 2011). A related measure is the quintile share ratio (S80/S20 or Q5/Q1), calculated as the ratio of total income received by the top 20 percent of the population to that received by the bottom 20 percent. These indicators rely on quantiles or grouped income shares derived from survey data and provide a direct comparison between selected segments of the income distribution (Faggian, Michelangeli and Tkach, 2023).

The Gini coefficient: Gini coefficient is the most widely employed quantitative indicator for measuring income inequality. It is derived from the Lorenz curve, a graphical representation of the cumulative distribution of income (or expenditure) across a population. In constructing the Lorenz curve, the cumulative proportion of households ordered from the poorest to the richest, is plotted along the horizontal axis, while the cumulative proportion of total income is plotted on the vertical axis. The Gini coefficient is calculated as the ratio of the area between the Lorenz curve and the line of perfect equality (*Area A*) to the total area under the line of perfect equality (*Area A + B*). It captures the degree to which the observed income distribution deviates from a state of absolute equality. The value of the Gini coefficient ranges between 0 and 1. A coefficient of 0 corresponds to perfect equality, where income is distributed evenly among all

individuals. Conversely, a coefficient of 1 reflects perfect inequality, indicating that a single individual receives the entirety of income while others receive none. Accordingly, higher Gini values signify greater disparities in income distribution.



Source: Author's compilation based on Lorenz curve framework

Figure 2.1: Defining the Gini index using the Lorenz curve.

The Palma ratio: The Palma ratio (Palma, 2011) is a distribution sensitive indicator designed to capture inequality dynamics at the extremes of the income distribution. It is defined as the ratio of the income share of the richest 10 percent of the population to that of the poorest 40 percent. The Palma ratio focuses explicitly on the relative position of the “tails” of the income distribution, thereby emphasizing disparities between the most affluent and the most vulnerable segments of society (Cobham, Schlögl and Sumner, 2016).

Gabriel Palma, who argued that the middle 50 percent of the population tends to capture a remarkably stable share, approximately half of national income across countries and over time. Based on cross-country empirical evidence, Palma (2011) observed that variations in overall income inequality are largely driven by shifts in income shares between the top 10 percent and the bottom 40 percent, rather than by changes in the middle of the distribution. This empirical regularity led to the proposal

of the Palma ratio as a more policy-relevant metric of inequality, reframing distributional conflict as primarily occurring between the upper and lower tails of society (Palma, 2011).

While the Gini coefficient aggregates inequality across the entire distribution, it may understate shifts concentrated among the richest or poorest groups. By contrast, the Palma ratio directly reflects changes in income concentration at the top relative to deprivation at the bottom, offering a clearer diagnostic tool for inequality driven by structural polarization. Consequently, it has been increasingly used in development analysis and global inequality monitoring frameworks (UNDP, 2019).

The Theil ratio: The Theil index (Johnston and Theil, 1969) is a theoretically grounded measure of income inequality derived from information theory and widely used within the Generalized Entropy (GE) class of inequality indicators. The Theil index quantifies the divergence of an observed income distribution from a state of perfect equality. Conceptually, it measures the degree of “disorder” or dispersion in the distribution of income, capturing how far the actual allocation of income deviates from an equal distribution benchmark. Theil conceptualized inequality as the informational distance between the observed distribution and an equal distribution, thereby providing a rigorous mathematical foundation for inequality measurement.

One of the primary methodological advantages of the Theil index lies in its property of additive decomposability. Unlike the Gini coefficient, the Theil index can be decomposed exactly into “within-group” and “between-group” components. This feature allows researchers to partition total inequality into inequality arising within regions, sectors, or demographic groups, and inequality attributable to differences between those groups. As a result, it is particularly valuable in spatial and regional analyses, where understanding the contribution of inter-regional disparities versus intra-regional heterogeneity is essential (Shorrocks, 1980)

For empirical consistency and data availability, the Gini coefficient is selected as the primary measure of income inequality. Although the Theil index allows for decomposition and the Palma ratio better captures distributional extremes, the Gini remains the most practical and reliable indicator in this study. In Vietnam, the General Statistics Office (GSO) regularly publishes provincial-level Gini coefficients based on nationally representative household surveys, ensuring standardized and comparable

panel data across provinces and over time.

2.2. Relationship between tourism and income inequality

2.2.1. Tourism and Income inequality

Previous studies have examined the tourism–inequality relationship through neoclassical growth theory and tourism-led development models. Traditional approaches conceptualize tourism as a neutral driver of employment and GDP (Seetanah, 2011). A prominent lens is the Tourism-led Kuznets Curve, which posits an inverted U-shaped relationship: inequality initially rises but eventually declines as benefits “trickle down” through labour markets (Alam and Paramati, 2016; Fang et al., 2021). The Pro-Poor Tourism (PPT) approach similarly argues that integrating marginalized groups into tourism value chains turns the sector into an inclusive vehicle for growth (Ashley and Mitchell, 2009; Bhatt et al., 2024).

However, these frameworks neglect the structural power relations that determine who gains and who loses (Bianchi, 2009). The Kuznets logic assumes an automatic progression toward equality that may never materialize: tourism-specific factors ownership structure, skill requirements, community involvement can short-circuit the presumed curve. Mahadevan and Suardi (Mahadevan and Suardi, 2019) report no eventual decline in inequality, challenging the inverted-U shape. Pro-poor tourism relies on idealized assumptions about community participation, yet empirical evidence frequently reveals elite capture and insufficient empowerment of marginalized groups (Ashley and Mitchell, 2009). Similarly, the enclave tourism concept explains how benefits can be spatially and socially isolated, but it lacks precise mechanisms to predict when such enclaves form or dissolve (Sharpley, 2009).

Empirical findings highlight mechanisms through which tourism can widen inequality. In many developing countries, large hotel chains, resort developers, and tour operators capture a disproportionate share of tourism revenue; gains accrue to capital owners while local wages remain low (Blake, 2008). Tourism’s tendency to create formal-sector jobs that exclude informal workers deepens disparities. Zhang (Zhang, Qiao and Yan, 2021) shows that tourism development significantly increases income inequality in the presence of strong economic growth and openness, aligning with the view that benefits skew toward groups already endowed with assets, skills, or market access.

A critical spatial mechanism concerns the distinction between functional and personal income distribution. Functional distribution the division of national income between capital and labour is directly relevant to the spatiotemporal fix framework because capital switching into the built environment alters the capital–labour ratio in tourism-dependent provinces. When tourism investment is predominantly land-intensive (resorts, hotels, real estate), the capital share of income rises relative to the labour share, widening functional inequality. Piketty’s (2015) demonstration that the rate of return on capital (r) exceeds economic growth (g) implies that tourism-dependent regions with rising capital intensity will experience secular increases in wealth concentration a mechanism operating independently of the Kuznets curve’s focus on between-sector wage differentials. (Piketty, 2015)

The enclave tourism model provides a spatial instantiation of this functional-distribution mechanism. Mbaiwa (Mbaiwa, 2005) documented how luxury lodges in Botswana’s Okavango Delta operate as economic enclaves: foreign-owned, internationally managed, and minimally linked to the domestic economy. Revenue leakage rates of 70–90% are common.

A contrasting strand finds that tourism can reduce inequality under specific spatial and institutional conditions. Tourism is not as geographically concentrated as other industries and can serve as a vehicle for more inclusive growth (Bhatt *et al.*, 2024). Soukiazis and Proença (Soukiazis and Proença, 2008) found that tourism in Portugal was associated with more balanced regional development as poorer peripheral regions benefited from tourism inflows. Lv (Lv, 2019) analysing 113 countries, reports a significant long-run negative effect of tourism expansion on regional inequality. In Thailand, tourism widened income gaps in provinces with high foreign ownership but had equalizing effects where domestic small-scale enterprises dominated (Wattanakuljarus and Coxhead, 2008); in Costa Rica, ecotourism generated more equitable distribution than mass beach tourism through stronger community ownership (Drumm *et al.*, 2005); in the Caribbean, tourism’s inequality effects depended on the degree of vertical integration in the supply chain (Brau, Di Liberto and Pigliaru, 2011). A study of 24 EU countries found that increases in tourism capital investment and tourist arrivals correlated with declining poverty and inequality (Castilho and Fuinhas, 2025). These outcomes are typically observed when tourism generates broad-based employment through local supply chains, SMEs, and community-based initiatives rather than concentrating on enclave resorts.

Tourism's distributional consequences also evolve over the destination life cycle (Butler, 1980). In early stages, benefits may be broadly distributed among local entrepreneurs; as destinations mature, larger operators and external investors capture increasing market share, concentrating income. In stagnation or decline, inequality may persist even as revenue falls, because asset holders maintain income through property rents while tourism workers face unemployment. More broadly, a comprehensive theoretical framework is needed: tourism research must engage with core debates surrounding globalization, capitalism, and structural power (Bianchi, 2009).

2.2.2. Urbanization mediating mechanism

Tourism has evolved from a peripheral economic role to an increasingly important factor in urbanization and spatial change. Mullins (Mullins, 1991, 1994) introduced the concept of "tourism urbanization" whereby tourism functions as the primary engine for building new cities, particularly in coastal and scenic regions, producing distinct urban forms characterized by consumption-oriented development rather than industrial production. Tourism is not merely an activity that happens within a city it is a force that produces the city. Scholars have expanded on this, noting that tourism transforms rural landscapes into "resort cities" through massive deployment of fixed capital: hotels, theme parks, and second-home complexes (Gao and Cheng, 2020). Brouder (Brouder, 2017) rejects the traditional dichotomy between "tourist destinations" and "urban centres," arguing for a co-evolutionary framework.

Gotham (Gotham, 2005) pointed out "tourism gentrification" to describe how tourism-oriented commercial investment transforms residential neighbourhoods into entertainment districts, displacing long-term residents and driving up property values. As tourism capital upgrades the physical fabric through beautification and heritage preservation, it often displaces the local working-class population, leading to a "hollow" urbanism where the city becomes physically more developed but demographically stagnant. In the platform economy era, Wachsmuth and Weisler (Wachsmuth and Weisler, 2018) demonstrated that Airbnb creates a new "rent gap" incentivizing conversion of long-term rental to tourist accommodation. Cocola-Gant and Gago (2021) further documented how buy-to-let investment for short-term rental functions as housing financialization transforming residential property into a financial

asset class and resulting in “phantom urbanization” where high-density buildings house transient visitors rather than a stable population. This process transfers wealth from renters to property owners, widening the gap between asset holders and non-asset holders (Cocola-Gant and Gago, 2021).

The multidimensional urbanization framework (McGranahan and Satterthwaite, 2014) distinguishes three dimensions of land (physical expansion), population (demographic concentration), and economic (structural transformation) that do not always expand in unison. Tourism introduces a characteristic *misalignment*: land urbanization accelerates through resort and infrastructure construction, economic urbanization occurs as the service sector expands, but population urbanization may lag because tourism-oriented built environments do not generate stable, year-round employment that drives permanent settlement (Shan *et al.*, 2021). The “tourist city” requires specialized land uses that inflate the physical footprint “non-place” architectures like convention centres, sprawling resorts, and entertainment districts (Ashworth and Page, 2011). Gollin (Gollin, Jedwab and Vollrath, 2016) distinguish “consumption cities” and “production cities” in developing countries. Production cities urbanize through industrialization, generating broad-based employment and wage convergence. Consumption cities urbanize through resource extraction or tourism revenue without building a diversified productive base, achieving urbanization without industrialization and producing higher inequality.

To understand why tourism development becomes a vehicle of urban restructuring, it is necessary to situate tourism-led urbanization within the broader dynamics of capital accumulation. Harvey (Harvey, 1978, 1982, 2001) conceptualizes *capital switching* as the process whereby investment shifts from the primary circuit of commodity production into the secondary circuit of the built environment infrastructure, housing, commercial real estate, and leisure facilities when industrial investment yields diminishing returns. Tourism-led urbanization exemplifies this process: large-scale investments in airports, resorts, convention centres, and destination districts absorb surplus capital in spatially fixed assets with long turnover times (Zhang, Qiao and Yan, 2021). Importantly, capital switching requires alignment between financial institutions, state policies, and regulatory frameworks that legitimize large-scale spatial investment (Castree and Christophers, 2015).

Harvey's concept of the spatiotemporal fix captures how surplus capital is locked into long-term spatial configurations, simultaneously embedding capital geographically and postponing crisis temporally (Jessop, 2006; Harvey, 2010). The spatial dimension involves geographical restructuring urban expansion, infrastructure corridors, special economic zones, and tourism destinations (Apostolopoulou, 2021). The temporal dimension refers to extending turnover time: tourism infrastructure is justified by projected future returns, often decades ahead (Wijburg *et al.*, 2024). The fix reshapes social relations: revenue is increasingly extracted through control over space land rents, property markets, access rather than direct production (Liodakis, 2019). Returns accrue disproportionately to land and fixed-asset owners, while tourism-sector wages remain precarious. The result is macro-level stabilization of accumulation alongside micro-level intensification of income inequality.

Space is not neutral (Lefebvre, Nicholson-Smith and Lefebvre, 2013). Tourism spaces are socially produced through planning, branding, land conversion, and state regulation. Natural landscapes and cultural heritage are transformed into commodified assets (Young and Markham, 2020). State institutions actively shape where and how capital is fixed through land titling, infrastructure provision, and fiscal incentives (Cohen, 1986; Bramwell, 2015). Jessop's (Jessop, 1990, 2006) state theory emphasizes the selective role of the state in facilitating certain spatial accumulation strategies while marginalizing others. These processes unfold within the tension between territorial logic and capitalist logic: governments may pursue tourism for regional development goals, yet accumulation imperatives can amplify land speculation and spatial polarization (Bianchi, 2009). Once tourism capital is fixed, path dependence emerges reliance on land revenues and pro-growth coalitions may lock territories into continued expansion even when social costs rise (Hampton, Jeyacheya and Long, 2018). Therefore, urbanization is not a passive backdrop but a politically mediated transmission mechanism.

2.2.3. Spatial spillover effects of tourism development

Tourism activities tend to cluster in gateway cities and high-amenity regions because of agglomeration economies (Faber and Gaubert, 2019; Nugroho *et al.*, 2025). International tourists frequently plan multi-destination trips (Yang and Wong, 2012),

and word-of-mouth from one destination raises visitation in adjacent areas. Shared infrastructure roads, airports, railways also binds regions: investments in one province's transport network boost accessibility and tourist flows in its neighbours. These network and agglomeration effects amplify tourism's spatial reach far more than shocks in isolated industries.

Spatial spillover effects in the tourism development – income inequality nexus operate through several interconnected channels.

The first channel is labour mobility tourism expansion in one province attracts workers from neighbours, altering wage as structures across regional labour markets (Faber and Gaubert, 2019). Empirical evidence shows tourism inflows generate significant employment spillovers in non-hotel sectors such as construction, retail, and professional services (Walmsley, Koens and Milano, 2022; Croes and Vanegas, 2025). However, the wage structure is often polarized high returns to capital owners coexist with low wages and seasonal employment for service workers (Konan, 2011). In spatial equilibrium, gains in one region may reduce agglomeration benefits elsewhere.

The second channel is investment competition: provinces compete for mobile tourism capital through land allocation, tax incentives, and infrastructure provision, generating “race-to-the-bottom” dynamics what Jessop (2006) terms “neoliberal competition state” behaviour. Tourism attracts disproportionate investment into urban cores, reinforcing cumulative causation whereby already-developed regions attract further capital while neighbours experience relative underinvestment (Wu *et al.*, 2025; Zhong *et al.*, 2025).

The third channel is multi-destination tourism circuits: tourists visiting multiple provinces in a single trip create revenue interdependencies that transmit distributional effects across provincial boundaries (Kim *et al.*, 2021; Nugroho *et al.*, 2025). Revenue generated flows through supply chains spanning multiple provinces, and changes in one destination trigger cascading effects across an entire corridor.

The fourth channel, land-use transformation and housing-market capitalization: tourism reshapes urban land use in ways that expand urban land while weakening population density (Ullah *et al.*, 2025). Resort complexes, vacation housing, and peri-urban amenities expand urban footprints, but many properties are used seasonally, reducing the effective resident population. Tourism intensification worsens housing

affordability, displacing lower-income households to peripheral areas (Cocola-Gant and Gago, 2021; Zeng and Wang, 2021; Lerfald, 2024). The spatial outcome is a paradox: urban land consumption increases while permanent population growth slows (Tanaka, Kato and Matsushita, 2023), altering wealth distribution through land capitalization and creating spatial inequality spillovers as lower-income residents transfer to neighbouring jurisdictions (Sari, Sunarta and Wijaya, 2025).

Finally, environmental and congestion externalities: tourism growth has been linked to increases in CO₂ emissions and environmental pressure (Baloch *et al.*, 2023), which may reduce productivity or living standards in adjacent areas (Hof and Blázquez-Salom, 2013). When tourism revenues are not redistributed through fiscal mechanisms, benefits remain concentrated locally, intensifying regional disparities (Nugroho *et al.*, 2025).

Once tourism concentrates spatially, it reshapes urbanization patterns through labour mobility, capital allocation, and land-use transformation (Wang and Liu, 2013; Croes and Vanegas, 2025; Guo and Chen, 2025). These urban changes then transmit effects to income distribution both locally and across neighbouring regions. Overall, the tourism–urbanization–inequality relationship exhibits spatial effects through four main mechanisms:

- (1) migration-induced labour reallocation;
- (2) spatially concentrated capital and infrastructure investment;
- (3) tourism-driven land expansion and housing-market capitalization that may reduce urban density while increasing land consumption;
- (4) environmental and fiscal externalities.

Anselin's (1988) taxonomy distinguishes substantive spatial dependence where the outcome in one location directly affects neighbouring outcomes, captured by the spatial autoregressive from nuisance spatial dependence arising from omitted spatially correlated variables (Anselin, 1988). The Spatial Durbin Model (SDM) nests both forms by including spatially lagged dependent and independent variables (Elhorst, 2014). LeSage and Pace (2009) developed the framework for interpreting SDM coefficients as direct and indirect effects, where direct effects include feedback through the spatial autoregressive structure and are generally larger than OLS

estimates. A tourism development should be evaluated by these approaches. Zeng and Wang (Zeng and Wang, 2021) provided the study examining spatial spillovers of domestic tourism on urban–rural income inequality across China’s 31 provinces using panel SDM, finding significant negative indirect effects. Kim (Kim *et al.*, 2021) estimated direct and indirect spillover effects of agglomeration on tourism productivity in the UK, identifying labour pooling, knowledge spillovers, and competitive effects as key spatial channels. These findings underscore those conventional methods assuming spatial independence risk misattributing regional processes to purely local drivers (LeSage & Pace, 2009; Elhorst, 2014; Baltagi, 2021). In the Vietnamese context, where provinces are embedded in regional tourism corridors and compete for capital within national development strategies, spatial spillovers are empirically relevant and theoretically expected.

2.3. Review of some studies on tourism developemnt, urbanization and income inequality in Vietnam

Existing studies in Vietnam suggest that urbanization may reduce income inequality when it is associated with labour-market absorption, structural transformation, and improved access to services (Ha, Le and Trung-Kien, 2019). Van and Pham (Van Dinh Tue and Pham, 2024), using random-effects panel estimation for 63 Vietnamese provinces during 2010–2020, find that average urban population and monthly income per capita increase inequality, while education and GRDP reduce it. Zhang (Zhang, 2025) using nighttime light data, further identifies spatial economic disparities across Vietnam. Tourism studies confirm that tourism is economically significant for Vietnam, but they tend to focus on tourism revenue, poverty, or regional growth (Nguyen and Luu, 2024; Hoang, 2025a; Thao, 2025). These studies establish the economic importance of tourism but leave the distributional and spatial channels through which tourism affects inequality under-specified.

Another studies focus on tourism-induced land conversion and urban spatial restructuring in Vietnam (T.T. Duong, Samsura and Van Der Krabben, 2020). This study used case evidence from FLC Sam Son and Quang Cu ward, show that more than 96% of land was converted to non-agricultural use for resort and golf development. A study documents a 5.6% decline in habitat quality in Phu Quoc under tourism mega-projects (Quyet and Sen, 2025). These studies suggest that tourism can

generate land-intensive urban expansion.

2.4. Research gaps and contributions

First, there is a theoretical gap. Existing studies tend to treat tourism development, urbanization, and income inequality as separate analytical domains. Tourism economics has largely focused on the Tourism-Led Growth hypothesis, emphasizing the contribution of tourism to economic expansion and regional development (Balaguer and Cantavella-Jordá, 2002; Brida, Cortes-Jimenez and Pulina, 2016). Meanwhile, development and urban economics have examined the relationship between urbanization and inequality through frameworks such as the Kuznets hypothesis and structural transformation (Kanbur and Zhuang, 2013). These two strands of literature rarely intersect in a systematic way. When urbanization appears in tourism development – income inequality studies, it is usually treated as a control variable representing demographic concentration rather than as a structural process that mediates distributional outcomes.

At the same time, critical tourism and urban studies have shown that tourism development can reshape cities through real estate development, infrastructure expansion, land-use conversion, and the restructuring of urban space, with important implications for social stratification (Britton, 1991b; Gotham, 2005). However, these insights have not been fully integrated into quantitative tourism–inequality research. Harvey’s concept of the spatial fix and spatio-temporal fix explains how capital is absorbed into the built environment and how this process produces uneven spatial development (Harvey, 1982, 2001). Jessop’s state-theoretical perspective further highlights how state strategies and institutional selectivity shape the spatial allocation of development resources (Jessop, 1990, 2006). Yet these critical spatial theories remain weakly connected to econometric studies of tourism development and income inequality, which often assume spatial neutrality, market efficiency, and homogeneous agents (Bianchi, 2009). Therefore, the literature still lacks a coherent “three-legged” analytical framework in which tourism acts as a development driver, urbanization functions as a transmission mechanism, and income inequality emerges as a distributive outcome (Hall and Page, 2009; Brouder, 2017).

Second, there is a gap in the research context. Much of the existing evidence is drawn either from advanced economies with relatively mature urban systems or from individual destination-based case studies. These contexts may not fully capture the dynamics of transitional economies, where tourism expansion, urbanization, land

conversion, infrastructure development, and institutional restructuring occur simultaneously. In transitional settings, urbanization is often characterized by rapid physical expansion, changing land-use patterns, and uneven spatial development across regions (Seto, Güneralp and Hutya, 2012). Tourism-related urban expansion may therefore generate different local outcomes, supporting employment diversification in some provinces while producing limited spillovers or exclusionary effects in others.

Moreover, many existing studies operate at either the national scale or the destination scale, which limits their capacity to examine how tourism-led development produces uneven outcomes across subnational units over time (Gant, 2016; Brouder, 2017). This limitation is important in the Vietnamese context. Vietnam studies have provided useful evidence on tourism-led growth, tourism and poverty reduction, tourism-induced land conversion, and the relationship between urbanization and inequality. However, these research strands remain largely disconnected. Few studies have examined the joint tourism development - urbanization - income inequality nexus at the provincial level, and fewer have done so for Vietnamese provinces while accounting for spatial dependence among provinces. This creates a clear empirical gap that this dissertation seeks to address.

Third, there is a methodological gap. Much of the empirical literature relies on static or conventional panel models that assume spatial independence and temporal stability. This assumption is problematic because tourism development is inherently spatial and place specific. Tourist flows, labour mobility, transport infrastructure, land-market dynamics, and investment corridors often extend beyond administrative boundaries. In addition, the effect of tourism on inequality is unlikely to be uniform across provinces because tourism development is shaped by local institutions, geographic endowments, infrastructure conditions, and historical development trajectories (Hall and Page, 2009, p. 2014). By assuming that the tourism development – income inequality relationship is spatially uniform and temporally stable, existing models risk overlooking important regional differences. The same tourism expansion may intensify income inequality in one province by concentrating land rents, real-estate gains, and high-value services among specific groups, while reducing income inequality in another province by expanding employment, small business opportunities, and local service income. Static models are less able to capture such spatio-temporal heterogeneity. As Fotheringham (Fotheringham, Crespo and Yao, 2015) argue, neglecting spatial and temporal nonstationarity can obscure how relationships vary

across both space and time. Therefore, there is a need for methods that can account for spatial dependence, spatial spillovers, and spatio-temporal heterogeneity in the tourism development – urbanization– income inequality relationship.

Fourth, existing studies have rarely treated urbanization as a mediating channel between tourism development and income inequality. While tourism studies often ask whether tourism promotes growth, reduces poverty, or transforms land use, and urban studies examine whether urbanization increases or reduces income inequality, limited research has investigated whether tourism development affects income inequality indirectly by changing the pace, structure, and inclusiveness of urbanization. This is an omission because tourism-led development may generate income opportunities through employment, services, infrastructure upgrading, and small business creation, but it may also intensify inequality through land conversion, real-estate speculation, uneven access to tourism rents, and spatially concentrated investment.

A related content gap concerns the way urbanization is operationalized. In quantitative studies, urbanization is commonly measured by the share of urban population in total population. This indicator captures demographic concentration and labour reallocation, but it provides limited insight into the physical expansion of urban space, land consumption, built-environment growth, and tourism-related spatial restructuring. This is important because tourism development often materializes through hotels, resorts, second homes, transport infrastructure, commercial facilities, and tourism-oriented real estate. Relying only on a population-based measure of urbanization may therefore overlook the physical process through which tourism capital is fixed into the built environment, which is central to Harvey's spatial fix framework (Harvey, 1982, 2001). Econometric models can identify statistical relationships, while spatial analysis can document land-use change, but few studies combine these approaches to connect statistical associations with observable physical transformations in urban space.

This dissertation addresses these four gaps by examining how tourism development affects provincial income inequality through urbanization channels across 63 Vietnamese provinces during 2018–2022. By positioning urbanization as an active mediating process, applying spatial econometric and spatio-temporal methods, in a Vietnam transitional economy, the study contributes to the literature by providing an explanation of how tourism development produces heterogeneous income inequality outcomes across provinces.

Table 2.1. Summary of empirical literature on tourism and income inequality

Author(s), Year	Country / Region	Data Period	Method	Key Finding	Self-acknowledged Limitation
Alam & Paramati (2016)	49 developing countries	1991–2012	Panel cointegration (FMOLS)	Tourism reduces income inequality in developing economies through employment creation and revenue distribution	Data unavailability for tourism competitiveness index prevented Kuznets curve testing; short robustness-check window (2007–2012); did not distinguish foreign vs. domestic tourism investment effects
Li et al. (2016)	China (provinces)	1999–2012	Panel regression with GWR	Tourism increases regional income inequality; benefits concentrate in developed coastal provinces	Growth theory assumes infinitesimal divisibility of production factors not given in reality; local estimation involves trade-off between sub-sample size and parameter variability; only first-order spatiotemporal models used; growth process path unexplored
Fang et al. (2021)	102 countries	1995–2015	FMOLS, Granger causality	Tourism increases inequality in developing economies but decreases it in developed economies	Panel data conclusions are general rather than country-specific; recommend future time-series studies for individual countries; sample end-date (2014) constrained by data availability

Author(s), Year	Country / Region	Data Period	Method	Key Finding	Self-acknowledged Limitation
Ghosh & Mitra (2021)	41 countries	1995–2016	Clustered panel regression	Inverted Kuznets curve in developing economies; classic Kuznets pattern in developed economies	A relatively small and selective country sample
Zeng & Wang (2021)	China (31 provinces)	1998–2018	Spatial Durbin Model (SDM)	Significant negative spatial spillovers: neighboring province tourism reduces local urban–rural inequality	Only considers total domestic tourism, does not distinguish urban vs. rural domestic tourism due to data limitations; uses only Chinese data, generalizability to other countries unknown
Seetanah et al. (2023)	83 countries	1990–2019	PVAR-EC	Tourism reduces inequality with long-run elasticity of approximately 0.05; bidirectional causality confirmed	Limited by aggregate data, endogeneity, and indicator choice.
Wang & Bai (2023)	204 Chinese cities	2008–2020	IV/2SLS, GMM	Tourism widens urban–rural income gap; significant regional heterogeneity across eastern, central,	The strong regional heterogeneity across eastern, central, and western China suggests that the results may be sensitive to how regions are defined and controlled for.

Author(s), Year	Country / Region	Data Period	Method	Key Finding	Self-acknowledged Limitation
				western China	
Bui Hoang (2024)	Singapore	1978–2022	NARDL	Asymmetric effects: positive tourism shocks reduce inequality more than negative shocks increase it	Omitted macro variables (FDI, institutional quality, national education system); does not examine lead-lag structure or heteroskedasticity via quantile analysis; recommends TVP-VAR and quantile-on-quantile for future work
Castilho & Fuinhas (2025)	24 EU countries	2006–2019	Panel Corrected Standard Errors (PCSE)	Tourism capital investment and tourist arrivals reduce both poverty and income inequality across EU	Restricted to EU developed economies only; recommend extending to middle- and low-income countries for broader applicability
Camacho & Ramos- Herrera (2025)	120 countries	1995–2020	Panel ARDL (Pooled Mean Group)	Tourism reduces inequality in the long run at aggregate level; short-run effects are heterogeneous	Could not include labor market institutions, political mechanisms, or tax systems due to lack of continuous data; linear specification only, no nonlinear relationships explored; policy and climate uncertainties excluded

Source: Author's compilation

THE SUMMARY OF CHAPTER 2

Chapter 2 synthesizes four intertwined literatures include: tourism development, urbanization, income inequality, and their linkages to build the dissertation's conceptual foundations and identify research gaps. The tourism development review traces a shift from early approaches that treated tourism as an unambiguously positive development tool, often relying on multiplier logic and case-based impact assessments, toward a critical political-economy tradition that situates tourism within capitalist accumulation and spatial restructuring. From this perspective, tourism development is not simply leisure activity, but a sector shaped by power relations, transnational capital, and the commodification of places, with growing attention to distributional outcomes, class, gender, and sustainability.

Urbanization reviews similarly move from modernization and demographic-transition accounts where urbanization is a linear byproduct of industrialization and migration (e.g., Kuznets and Lewis) to critical approaches emphasizing uneven development and the built environment as a site where capital is fixed and social conflict is negotiated. Contemporary debates highlight multidimensional urbanization (land, population, economic change) that may become misaligned, especially in the Global South and in Asian “desakota” or planetary urbanization dynamics. This reframes urbanization as a process that can generate both opportunity and exclusion rather than a guaranteed path to prosperity.

The income inequality review contrasts classic “growth-first” narratives, including the Kuznets inverted-U hypothesis, with modern evidence showing persistent or resurging inequality in advanced economies and the role of capital returns, prompting the rise of “inclusive growth” agendas. Bringing these strands together, the chapter reviews tourism–inequality studies that draw on neoclassical growth, Tourism-Led Growth, Kuznets-type dynamics, and pro-poor tourism, while noting their limited attention to structural power and the spatial distribution of benefits. It also reviews tourism–urbanization research on “tourism urbanization,” land-intensive resort development, and tourism-driven gentrification or “phantom” urbanization where built expansion can outpace permanent settlement. The urbanization–inequality literature is synthesized as conditional: inclusive structural

transformation can compress inequality, but fragmented, real-estate-led, or job-poor urban growth can intensify polarization.

In sum, the chapter defines urbanization as a key mediator linking tourism development to income inequality and outlines gaps: fragmented theorization across the three domains; a divide between critical theory (spatial/spatio-temporal fixes, state selectivity) and mainstream econometrics; overreliance on static, spatially stationary models; and narrow urbanization proxies that neglect land-use transformation. These gaps motivate a spatiotemporally sensitive, theory-informed empirical strategy.

CHAPTER 3: THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

3.1. Theoretical framework

3.1.1. *Spatio-temporal fix theory*

The theoretical backbone of this dissertation draws on David Harvey's concept of the spatio-temporal fix (Harvey, 1978, 1981, 1982, 2001, 2003). Harvey argues that capitalism is inherently prone to crises of overaccumulation situations in which surplus capital and surplus labor coexist without profitable avenues for reinvestment in productive activities. To defer such crises, capital "switches" from the primary circuit of commodity production into the secondary circuit of the built environment: real estate, infrastructure, and fixed capital formations (Harvey, 1978). This process of capital switching is mediated by the state and financial institutions, which channel credit into long-term investments in physical space highways, airports, resort complexes, and urban infrastructure that absorb surpluses and generate new rounds of accumulation.

The concept of the "spatial fix" has a dual meaning in Harvey's work: capital is literally fixed (immobilized) in physical space through investment in the built environment, and geographical expansion provides a temporary fix (resolution) for overaccumulation crises (Harvey, 1981, 2001). In *The Limits to Capital*, Harvey (1982) provides the most comprehensive theoretical elaboration: the tendency toward overaccumulation drives capital into the secondary circuit, where it becomes embedded in long-lived physical structures with slow turnover times. Once capital is fixed in place, it creates geographical inertia, a form of path dependence in which regions become locked into specific accumulation trajectories. When the spatial fix fails, when the built environment absorbs more capital than can be valorized through productive use devaluation crises ensue, manifested as property crashes, abandoned developments, or what contemporary observers call "ghost cities" (Sorace & Hurst, 2016).

In this dissertation, tourism development is conceptualized as a paradigmatic instance of Harvey's capital switching. When provinces attract tourism investment, surplus capital flows into resort complexes, condotels, theme parks, and supporting infrastructure all forms of fixed capital in the built environment. The state plays a

critical role in facilitating this switch through land allocation, tax incentives, and infrastructure provision. The temporal dimension of the fix operates through the promise of future tourism revenues: long-term investments in tourism infrastructure are justified by projected visitor demand, effectively deferring the realization of value into the future. When projected demand fails to materialize, the rigidity of the spatial fix is exposed: built-up land continues to expand even as tourism revenue collapses, producing negative land-use efficiency values that signal a failed fix.

3.1.2. State selectivity's theory

While Harvey's framework explains the logic of capital switching and spatial fixity, it has been criticized for under-theorizing the role of the state (Jessop, 2006). Bob Jessop fills this gap by conceptualizing the state not as a neutral instrument but as a terrain whose institutional structures systematically privilege certain strategies, actors, and spatial forms of capital accumulation over others (Jessop, 1990, 2002, 2007).

Jessop's concept of "strategic selectivity" posits that the state's organizational architecture including its legal frameworks, fiscal structures, land-use planning systems, and intergovernmental arrangements creates an uneven playing field that advantages some accumulation strategies while disadvantaging others (Jessop, 2007). This concept is explained to how provincial governments manage tourism development. Provinces that designate special tourism zones, streamline land-use conversion from agricultural to commercial purposes, offer tax holidays to resort developers, and invest public funds in tourism-oriented infrastructure are exercising strategic selectivity they are choosing to channel capital into specific spatial forms of accumulation.

Jessop (2006) also introduces the concept of "temporal sovereignty" the state's capacity to set the time horizons of economic activity through planning regulations, investment incentives, and infrastructure provision. In tourism-led development, temporal sovereignty is exercised through master plans that project future demand, allocate land for decades ahead, and commit public resources to infrastructure that will be amortized over long periods. When these projections prove overly optimistic as frequently occurs in tourism real estate the mismatch between temporal sovereignty and actual demand exposes the fragility of the spatio-temporal fix.

3.1.3. Analytical Framework

Depending on Harvey's concepts of spatial fix (Harvey, 1982, 2010), this dissertation translates the theoretical insight that capital is fixed in the built environment into an empirical framework linking tourism, urbanization, and income inequality. The analysis focuses on how tourism-induced urban restructuring operates as a mediating mechanism through which spatially and temporally uneven development produces divergent income distribution outcomes. Three methodological choices follow directly from these concerns:

(i) Geographically and Temporally Weighted Regression (GTWR) to capture spatial-temporal heterogeneity (Huang, Wu and Barry, 2010a) ;

(ii) Spatial Durbin Model (SDM) (LeSage and Pace, 2009b) to account for spatial dependence and spillovers ;

(iii) the use of SDG indicator 11.3.1 (UN-Habitat, 2018) to examine whether observed urban expansion keeps pace with overall population-related demand, including pressures associated with tourism activity.

Traditional regression models in econometrics typically assume that relationships between variables are uniform across space and stable over time (Barreto and Howland, 2005). In this setting, tourism's association with inequality would be treated as identical across all provinces and years. However, the theoretical framework foregrounds uneven development: provinces are embedded in different economic structures, spatial positions, and institutional capacities, so the same expansion of tourism can translate into very different distributional outcomes. Where tourism demand concentrates in capital-intensive real estate and land-based services, gains are more likely to accrue to landowners, large investors, and connected firms; where tourism is linked to labor-intensive local services and broader participation, benefits can be more widely shared. As a result, assuming one common coefficient risks masking the territorially specific pathways through which tourism interacts with inequality.

Spatial non-stationarity (Brunsdon, Fotheringham and Charlton, 1998) means that the tourism–inequality relationship is not invariant across space. The estimated association between tourism-related activity and income inequality can differ from one

province to another in magnitude and in direction because tourism is embedded in territorially specific socio-spatial conditions.

Temporal non-stationarity means that this relationship is also not invariant over time. Even within the same province, the strength of tourism - income inequality can vary across years as broader macro conditions and local development circumstances change. A pooled regression, by imposing a single average coefficient, risks smoothing over these spatial and temporal differences, thereby obscuring the uneven and contingent relationships that are central to a spatio-temporal fix perspective. GTWR (Huang, Wu and Barry, 2010a) is designed to address this problem, it extends Geographically Weighted Regression (GWR) by adding time into the weighting scheme, producing location-specific and time-specific coefficients rather than a single global estimate. GTWR performs a series of local regressions that weight observations by proximity in both space and time, allowing the estimated relationships to “move” across geography and across periods as contexts change. This makes GTWR suitable with the theoretical premise that development is heterogeneity. It allows the thesis to map where tourism is more strongly associated with distributional change and where it is not, and how these associations evolve across the study period evidence that is essential for policy interpretation in the context of territorial unevenness.

Yet identifying heterogeneity is not sufficient to explain how tourism relates to inequality. The thesis therefore advances a mechanism-based interpretation in which tourism is linked to inequality partly through urbanization as a mediating channel. To examine this channel in a setting where provinces may not be fully independent, the analysis employs the Spatial Durbin Model (SDM) as a complementary econometric framework. SDM allows the mediation links to be estimated while accounting for spatial interdependence through spatial lags of key variables. SDM enables the thesis to estimate: (i) the association between tourism and inequality, (ii) how tourism is associated with urbanization (the first-stage link in the mediation pathway), and (iii) how urbanization is associated with inequality conditional on tourism (the second-stage link), without implicitly treating each province as an isolated unit. Therefore, GTWR maps spatio-temporal heterogeneity in the tourism–inequality relationship, while SDM provides a spatially consistent way to assess the urbanization-mediated pathway and to reduce potential distortions that can arise when spatial interdependence is ignored.

To interpret the econometric patterns through the lens of spatio-temporal fix theory, the thesis complements the main regression results with an additional, place-based diagnostic inspired by SDG indicator 11.3.1 (UN-Habitat, 2018). In its standard form, SDG 11.3.1 is defined as the ratio of the land consumption growth rate to the population growth rate, providing a compact way to assess whether the physical expansion of built-up urban land is broadly aligned with changes in human presence. In this study this indicator is used as a separate, supporting lens to connect statistical associations to the form of urbanization that is most relevant to a spatio-temporal fix perspective namely, the possibility that tourism-led development materializes investment in the built environment in ways that may become more land-intensive than the contemporaneous growth in the people using that space. In tourism-oriented settings, this diagnostic is particularly useful because urban space can expand rapidly even when conventional demographic growth is limited; moreover, the intensity of space use may be influenced by both residents and visitors (Nunna and Banerjee, 2022). For this reason, the dissertation applies the 11.3.1 logic in a focused manner to three illustrative provinces, using built-up area information derived from remote sensing together with standard population and tourist statistics.

In combination, these methods allow the thesis to translate spatio-temporal fix theory into testable empirical patterns without collapsing complex dynamics into a single average coefficient. GTWR identifies spatial-temporal heterogeneity in the tourism - income inequality relationships, consistent with uneven development and shifting accumulation dynamics.

SDM captures inter-regional dependence and spillovers, recognizing that tourism-led restructuring can transmit distributional effects across space. SDG 11.3.1 provides an interpretable diagnostic of whether the accompanying urban change is coordinated with demographic growth or reflects land-intensive expansion that may signal a more speculative or enclave-oriented trajectory.

Together, they operationalize the central theoretical claim: tourism-led development can function as a spatial-temporal fix, but its effects are uneven, spatially interconnected, and contingent on how urbanization is materially produced relative to resident settlement.

Table 3.1: From STF concepts to empirical measures

STF Concept <i>(Harvey, 1982)</i>	Theoretical meaning	Empirical proxy in this study
Capital Switching	Surplus capital shifts from the primary circuit (commodity production) into the secondary circuit of the built environment: resorts, condotels, and tourism infrastructure.	Intourf <i>(accommodation & food service revenue)</i>
Spatial Temporal Fix <i>(capital lock-in)</i>	Capital becomes fixed in physical space with long turnover times, creating rigidity. Built-up land continues to expand even when tourism demand collapses - the defining symptom of spatial fix failure.	LCR <i>SDG 11.3.1 framework</i>
Demographic Absorption <i>(STF resolution capacity)</i>	The STF partly resolves overaccumulation by absorbing surplus labour into the modern urban sector - the inequality-reducing mechanism of Lewis (1954) and Kuznets. When tourism bypasses this channel, income inequality persists.	lnurban <i>(urban population rate)</i>
Spatial Transmission <i>(inter provincial spillover)</i>	STF effects are not contained within provincial borders. Distributional consequences spill over through land-price competition, labour mobility, and imitation of investment strategies across neighbouring provinces.	W·Intourf, W·lnurban <i>(spatial lags in SDM, queen contiguity W)</i>
STF Efficiency <i>(fix success or failure)</i>	Whether the STF resolves the overaccumulation crisis or merely defers and displaces it. Negative LUE signals that spatial investment has outrun its functional population base, the fix has failed to generate commensurate economic and social absorption.	LUE (Land Use Efficiency)

Source: Author's compilation based on Harvey (1982, 2001).

Table 3.1 also presents the theoretical pathway through which each STF mechanism is expected to shape income inequality. Capital switching into the built environment concentrates asset among landowners and large investors while confining much of the tourism workforce to low-wage, seasonal employment tends to widen the income distribution. Spatial fix rigidity amplifies this inequality by distributing risk:

when tourism demand contracts, capital holders can absorb losses through long-term asset holding, while workers with no financial buffer face immediate income disruption. When tourism-driven urbanization does not translate into sustained rural-to-urban labour transfer and productive employment, the wage-equalization process stalls and within-province income gaps persist. Finally, spatial transmission means that these distributional pressures are not contained within individual provinces: tourism-led restructuring in one locality can transmit inequality consequences to neighboring provinces through land-price competition, labour market spillovers, and the imitation of enclave-oriented investment strategies. Therefore, the four mechanisms suggest that tourism development shapes income inequality not through a single linear channel, but as a spatially differentiated, institutionally mediated process. The theoretical framework of this research is shown in Figure 3.1:

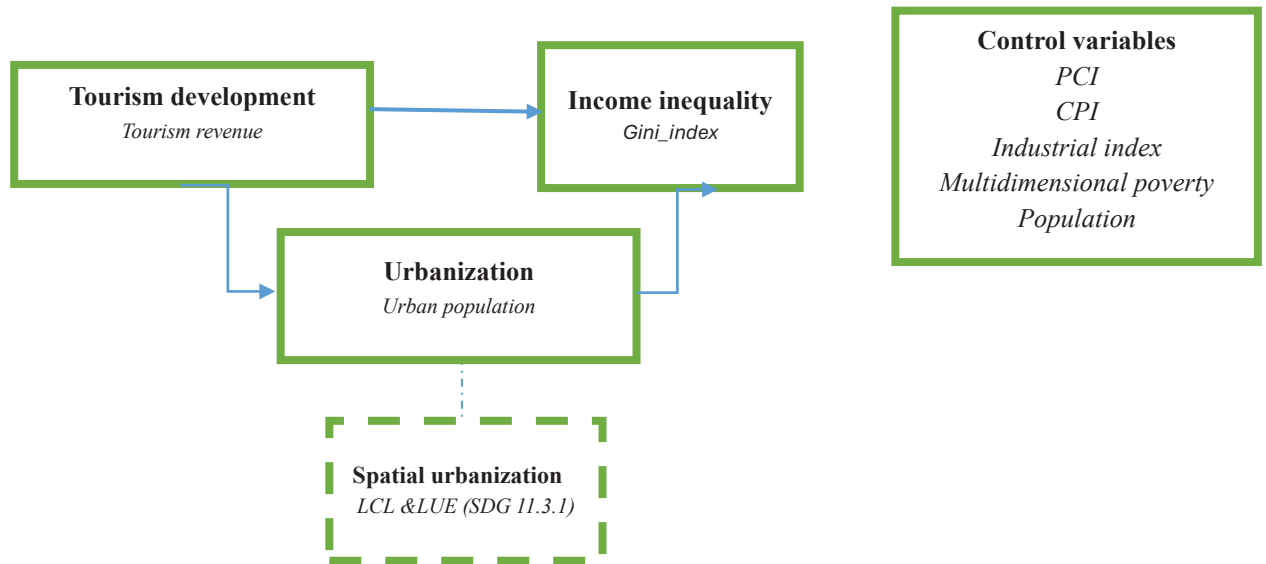


Figure 3.1. Analytical framework

Source: Author's computation

3.2. Model specification

First, the dissertation estimates pooled OLS, fixed-effects, and instrumental-variable models to establish the baseline relationship between tourism development and income inequality and to assess the robustness of the average non-spatial effect. Second, Global Moran's I is applied to the provincial Gini coefficient and to the residuals of the baseline models to examine whether a spatial econometric framework is warranted. Third, GTWR is used to estimate province-year specific coefficients,

thereby identifying the spatial and temporal heterogeneity in the tourism development–income inequality relationship. Fourth, the Spatial Durbin Model (SDM) is employed to estimate both direct and indirect spatial effects and to examine the mediation pathway through which tourism development affects income inequality via urbanization under interprovincial dependence.

3.2.1. Baseline model equation

To estimate the impact of provincial tourism development on income inequality, this dissertation based on theoretical model of Ngoc Hoang Bui (Bui Hoang, 2024) with the following baseline model:

$$Inequality_{it} = \alpha_0 + \theta_1 Tourism_{it} + \beta_1 X_{it} + v_{it} \quad (1)$$

$$Inequality_{it} = \alpha_0 + \theta_1 Tourism_{it} + \beta_1 X_{it} + \mu_i + v_{it} \quad (2)$$

Where, $Inequality_{it}$ is income inequality index in location i at time t ; proxied by the Gini coefficient (Gini). X_{it} is a set of control variables including:

- (i) PCI is Provincial Competitive Index (proxy for institutional quality)
- (ii) CPI is Consumer Price Index (proxy for economic quality)
- (iii) Industrial index (proxy for economic structure)
- (iv) Multidimension poverty (proxy for social vulnerability)
- (v) Population (a proxy for market size and labor supply)

Next, Instrumental Variables (IV) estimation addresses the endogeneity concern that tourism and income inequality may be simultaneously determined. The instrument is geographic distance from each province to Quang Binh (the 17th parallel) (Miguel and Roland, 2011).

3.2.2. Spatial autocorrelation test (Moran's I)

To investigate whether the distribution of income inequality follows a systematic geographic pattern or occurs randomly across the study area, this research employs the Global Moran's I statistic (Moran, 1950). Testing spatial autocorrelation in income inequality is essential to validate the uneven development premise; it determines if wealth disparities are localized issues or if they form regional clusters of income inequality influenced by broader spatial fixes. Therefore, this study uses ArGis Pro to calculates the Moran's I Index value. The Moran's I statistic of spatial association to check the cluster/dispersed of income inequality with the equation as:

$$I = \frac{n}{\sum_{i=1}^n \sum_{j=1}^n w_{ij}} \times \frac{\sum_{i=1}^n \sum_{j=1}^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sum_{i=1}^n (x_i - \bar{x})^2} \quad 1)$$

In which $I_i = \frac{x_i - \bar{X}}{S_i^2} \sum_{j=1, j \neq i}^n w_{i,j} (x_j - \bar{X})$. Where x_i is an attribute for feature i ; \bar{X} is the mean of the corresponding attribute; $w_{i,j}$ is the spatial weight between the feature i and j ; $S_i^2 = \frac{\sum_{j=1, j \neq i}^n (x_j - \bar{X})^2}{n-1}$ with n equating to the total of features. Then, the z_{I_i} -score for the statistics are measured as: $z_{I_i} = \frac{I_i - E[I_i]}{\sqrt{V[I_i]}}$. Where $E[I_i] = -\frac{\sum_{j=1, j \neq i}^n w_{i,j}}{n-1}$ and $V[I_i] = E[I_i^2] - E[I_i]^2$. (Shatkin, 2016; Mitchell, 2020).

The interpretation of Moran's I follows a scale from -1 to $+1$

- (i) Values near $+1$ indicate strong positive spatial autocorrelation (clustering of similar values);
- (ii) Values near -1 indicate strong negative spatial autocorrelation (clustering of dissimilar values);
- (iii) Values near 0 suggest spatial randomness.

3.2.3. Spatio-temporal heterogeneity models (GTWR)

The main estimated spatiotemporal heterogeneity model or Geographically and Temporally Weighted Regression (GTWR) model can be described as: $Y_i = \beta_0(u_i, v_i, t_i) + \sum_k \beta_k(u_i, v_i, t_i) X_{ik} + \varepsilon_i$. Where i represents the space-time location, which is the value of the province at a particular observing time; (u_i, v_i) are the coordinates and t_i is the observing time of the province i ; Y_i is the income inequality in the observing time i ; X_{ik} is a vector of explanatory variables; $\beta_k(u_i, v_i, t_i)$ is a vector of regression coefficients to be estimated from the data; and ε_i is the error term. The regression parameter of province i can be estimated by minimizing on the basis of the weighted least squares regression as follows: $\sum_{i=1}^n W_{iuvt} [y_i - \beta_0(u_i, v_i, t_i) - \sum_k \beta_k(u_i, v_i, t_i) X_{ik}]^2$. Where W_{iuvt} is the space-time weight of observation i . Then, the estimation of $\beta_k(u_i, v_i, t_i)$ can be expressed as: $\hat{\beta}(u_i, v_i, t_i) = [X^T W((u_i, v_i, t_i)) X]^{-1} X^T W(u_i, v_i, t_i) Y$ with $W_{iuvt} = \text{diag}(W_{1uvt}, W_{2uvt}, \dots, W_{nuvt})$ be the weighting matrix. The space-time distance can be described as: $d^{ST} = d^S \oplus d^T$ where \oplus can represent different functions and spatial distance as d^S and temporal distance as d^T . Hence, it can be rewritten as: $d^{ST} = \rho d^S + \mu d^T$ where ρ and μ are scale factors to balance the different effects to measure the spatial and temporal distance in the space and time systems. Moreover, the spatial distance is $(d^S)^2 =$

$((u_i - u_j)^2 - (v_i - v_j)^2)$ and temporal distance is $(d^T)^2 = (t_i - t_j)^2$. Consequently, the space-time distance between different observations can be expressed as a linear weighting combination between d^S and d^T as follows: $(d_{ij}^{ST})^2 = \rho \left[(u_i - u_j)^2 - (v_i - v_j)^2 \right] + \mu(t_i - t_j)^2$ with t_i and t_j are observed times at locations i and j . With this, the weighting functions can be built up after the distance between location i and all observations are calculated. The purpose of the spatiotemporal heterogeneity model is to explore how the relationship between tourism and income inequality varies across different geographic locations and over periods. Thereby, it enhances the accuracy of models, aids in identifying specific regional and temporal trends, and informs more effective, targeted policy-making and resource allocation decisions (Anselin, 1995).

3.2.4. *Spatial weight matrix*

The spatial weight matrix W in this study is constructed using Queen contiguity, whereby two provinces are defined as neighbors if they share any boundary point, including vertices (Anselin, 1988; LeSage and Pace, 2009a).

From a theoretical standpoint, Anselin (1988) argues that the weight matrix should reflect the actual channels through which spatial interaction occurs such as labor mobility, trade linkages, and policy diffusion rather than merely geographic distance.

From a context standpoint, Vietnam's 63 provinces are characterized by highly irregular shapes and vastly unequal land areas, ranging from compact urban municipalities such as Hanoi and Ho Chi Minh City to elongated provinces in the Central region. Queen contiguity matrix captures the institutional reality that the most intense economic spillovers in Vietnam including cross-border commuting, land-market linkages, tourism circuits, and provincial policy imitation operate predominantly between provinces that share administrative boundaries. This choice is also consistent with prior Vietnamese provincial spatial studies (Nguyen, 2024; Trinh, Choi and Lee, 2024), thereby facilitating comparability. The matrix is row-standardized so that each row sums to unity, ensuring that the spatial lag variable represents the weighted average of neighboring provinces' values. It is a square matrix with a dimension of $N \times N$ matrix encoding the spatial interaction structure among regions with N is the number of geographical areas/regions (Islam, 2018). The spatial contiguity weight matrix includes weight elements showing whether spatial units share

a boundary. If the set of boundary points of unit i is denoted by $bnd(i)$, then queen contiguity weights are defined by formula: $w_{ij} = \begin{cases} 1, & bnd(i) \cap bnd(j) \neq \emptyset \\ 0, & bnd(i) \cap bnd(j) = \emptyset \end{cases}$

3.2.5. Spatial Durbin Model (SDM)

The framework predicts that distributional outcomes in one province are shaped not only by local conditions but also by developments in neighboring provinces through two distinct channels: an endogenous interaction effect, whereby income inequality in province i depends on income inequality in adjacent provinces, and an exogenous interaction effect whereby tourism development in neighboring provinces directly influences income inequality in province i for instance, through cross-border labor mobility, competitive undercutting of wages, or tourism circuit spillovers. The Spatial Durbin Model (SDM) is suited to capture both channels simultaneously by including spatial lags of both the dependent variable (Wy) and the independent variables (Wx), thereby avoiding the omitted-variable bias that arises when only one type of spatial interaction is modeled (LeSage & Pace, 2009).

Beyond quantifying the direct and spillover effects of tourism on income inequality, this study further investigates the mechanism through which these effects operate. Drawing on framework proposed by Dang (Chinh Dang *et al.*, 2024), urbanization is treated as the intermediary variable to test whether tourism-induced structural transformation constitutes the primary channel through which distributional outcomes are altered. The mediation process is examined through the following three-step spatial econometric specification:

$$Inequality_{it} = \alpha_0 + \theta_1 Tourism_{it} + \beta_1 X_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (3)$$

$$Urbanization_{it} = \rho Wurbanization_{it} + \phi_1 Tourism + \phi_2 WTourism_{it} + \beta_2 X_{it} + \mu_i + \gamma_t + \varsigma_{it}, \quad (4)$$

$$Inequality_{it} = \rho Winequality_{it} + \alpha_1 Tourism + \alpha_2 WTourism_{it} + \alpha_3 Urbanization_{it} + \beta_3 X_{it} + \mu_i + \varepsilon_{it}, \quad (5)$$

Where, $Inequality_{it}$ is income inequality index in location i at time t ; $Winequality_{it}$ is the spatial lag term of income inequality; $Winequality_{it} = \sum_{j=1}^n w_{ij} inequality_{jt}$; $WTourism_{it}$ is the spatial lag term of tourism development; $WTourism_{it} = \sum_{j=1}^n w_{ij} Tourism_{jt}$; and $Urbanization_{it}$ is urbanization rate in location i at time t as intermediary variable. $Wurbanization_{it}$ is the spatial lag term of urbanization; $Wurbanization_{it} = \sum_{j=1}^n w_{ij} urbanization_{jt}$. In which, u is the

error terms. $\varepsilon = (\varepsilon_1, \dots, \varepsilon_N)$ is a vector of disturbance terms, and ε_i are independently and identically distributed error terms for all i with zero mean and variance σ^2 . ρ is called the spatial autoregressive coefficient measuring the dependent variable lagged in space. λ is the spatial autocorrelation coefficient; θ measures the exogenous interaction effects among the independent variables; β measures the impact of the independent explanatory variable.

3.3. Morphological spatial analysis

To verify that the population-based urbanization proxy captures only one dimension of a broader urban transformation process, this dissertation applies SDG indicator 11.3.1 as a morphological diagnostic to contextualize the empirical findings econometric models. The methodology for calculating Indicator SDG 11.3.1 is defined in the SDG Indicators Metadata Repository managed by UNSD (UN-Habitat, 2018). Currently categorized as a Tier 2 indicator, SDG 11.3.1 possesses a conceptually clear definition and an established calculation methodology. This indicator represents the ratio of the Land consumption growth rate (LCR) to the Population Growth Rate (PGR), serving as a primary metric for assessing urban land use efficiency in the context of rapid global urbanization (Cai *et al.*, 2020). SDG 11.3.1 is defined as the ratio of the land consumption growth rate to the population growth rate, providing a compact way to assess whether the physical expansion of built-up urban land is broadly aligned with changes in human presence. A LUE value equal to 1 indicates that land consumption and population growth are expanding at the same rate, urban expansion is proportional to demographic demand. Values than 1 indicate that land is being consumed faster than population is growing a signal of urban sprawl.

Population growth rate (PGR)

PGR refers to population growth in a given spatial unit over a period of time. It is mainly used to indicate the number of births and deaths during a period of time as well as the number of people migrating and immigrating. PGR can be expressed as:

$$PGR = \frac{\ln(\frac{Pop_{t+n}}{Pop_t})}{n} \quad (5)$$

where \ln is the natural logarithm, and n is the span between the two measurement periods. Pop_t and Pop_{t+n} is the total population within a city in the initial and final year, respectively.

Land consumption growth rate (LCR)

LCR is defined as a measure of the percentage of the current total urban land that was newly developed in a given spatial unit over a time span. The land consumption is the expansion of built-up areas that can be directly measured. LCR can be expressed as:

$$LCR = \frac{\ln(\frac{U_{t+n}}{U_t})}{n} \quad (6)$$

where U_t and U_{t+n} are the total areal of the urban agglomeration in km^2 for the initial and final year, respectively; where \ln is the natural logarithm, and n is the span between the two measurement periods the same in (5).

LCRPGR is entrusted to quantify the sustainable land use in the face of urban expansion pressures, both demographic and economic. The estimate of the LCRPGR is expressed as

$$LCRPGR (LUE) = LCR / PGR \quad (7)$$

According to the population data, this study employs the concept of “functional population”(Nelson and Nicholas, 1992). This study emphasized that population measurements should reflect the actual usage and demand placed upon urban infrastructure, rather than simply the number of registered residents within legal boundaries. Functional population refers to the effective number of people who regularly use and interact with urban space, including not only permanent residents but also commuters, temporary workers, tourists, and seasonal populations. This approach is particularly relevant in rapidly developing tourism destinations, where the transient presence of visitors can significantly affect land use patterns, service demand, and infrastructure pressure (Nunna and Banerjee, 2022). Therefore, this dissertation extends the standard SDG 11.3.1 framework by introducing a tourism-adjusted measure that incorporates tourist arrivals alongside resident population. The tourism-adjusted growth rate (TGR) is calculated as:

$$TGR = \frac{\ln(\frac{tour_{t+n}}{tour_t})}{n} \quad (8)$$

This extension is motivated by the spatio-temporal fix framework: if tourism investment is justified by projected visitor demand.

Table 3.2. Indicators are used for SDG 11.3.1

Indicators	Definition	Formula	Meaning
1. Measuring LCL			
Built-up land per resident (U_R)	is the area of construction land available for each resident in a defined area.	$U_Rt = \frac{U_t}{R_t}$	U_t is the construction land area in year t.
Built-up land per tourist (U_T)	is the area of construction land available for each visitor in a defined area.	$U_Tt = \frac{U_t}{T_t}$	R_t reflects the population size in year t.
Built-up land per capita (U_{RT})	is the area of construction land available for each person in a defined area.	$U_{RT}t = \frac{U_t}{R_t + T_t}$	T_t represents the tourism count in year t.
<div>- Resident LCL = $\frac{U_{Rt+n} - U_{Rt}}{U_{Rt}}$</div> <div>- Tourist LCL = $\frac{U_{Tt+n} - U_{Tt}}{U_{Tt}}$</div> <div>- Capita LCL = $\frac{U_{RTt+n} - U_{RTt}}{U_{RTt}}$</div>			
2. Measuring LUE			
Population growth rate	is the rate of change in the number of residents in a specific area over a certain period of time.	$PGR = \frac{\ln(\frac{Pop_{t+n}}{Pop_t})}{n}$	Pop_t is the population in an area in year t.
Land consumption growth rate	is the proportion of land used for a specific purpose.	$LCR = \frac{\ln(\frac{U_{t+n}}{U_t})}{n}$	Pop_{t+n} is the population in an area in year t+n.
Tourist growth rate	is the rate of change in the number of visitors visiting a particular location during a specified time period.	$TGR = \frac{\ln(\frac{T_{t+n}}{T_t})}{n}$	
<div>- LCRPGR = LCR/PGR</div> <div>- LCRTGR = LCR/TGR</div> <div>- LUE = $LCR/(PGR + TGR)$</div>			

Source: Compiled by the author from UN (2018)

According to the urban land use area data, this study adopts a remote sensing approach using the JAXA global dataset. This method allows for the visualization of

the physical manifestation of capital fixation in the built environment. This satellite-derived data serves as empirical evidence to capture the actual observed land cover changes. This provides a tangible morphological context to investigate the degree of alignment between physical urban expansion and the dual growth of resident population and tourist arrivals, thereby clarifying the structural characteristics of the urbanization process. The JAXA land cover data used in this study is derived from raster imagery with a resolution of 30×30 m, meaning each pixel in the satellite image represents a 900 m² on the Earth's surface. This resolution is consistent with global standards for medium-scale urban land use analysis and is sufficient for detecting built-up expansion. The research used QGIS software to process the raster layers, delineate administrative boundaries, and clip the satellite images accordingly. Figure 2 illustrates the calculating steps, which integrates a supplementary descriptive analysis based on satellite imagery.

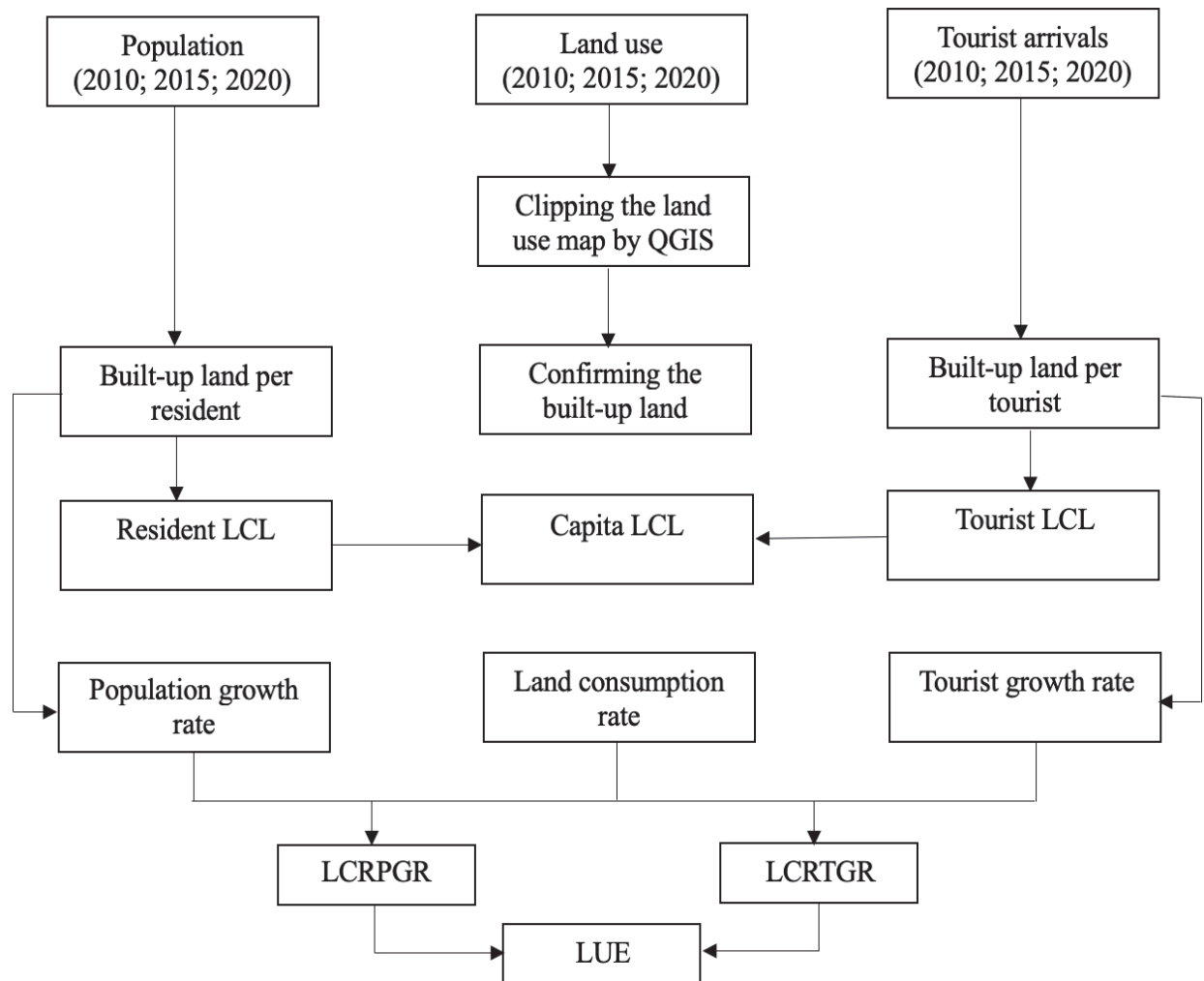


Figure 3.2. Calculating procedure of LCL and LUE

Source: author's compilation

3.4. Data description

This dissertation constructs a provincial panel to examine how tourism-led development reshapes urbanization and, through that channel, influences income inequality in Viet Nam. The core variables are compiled from two complementary, widely used data systems: the General Statistics Office of Viet Nam (GSO) and the Provincial Competitiveness Index (PCI). The GSO is Viet Nam's official statistical authority and provides the baseline socio-economic series used in much of the peer-reviewed literature on regional development, inequality, and structural change. For example, provincial Gini measures derived from GSO household survey/statistical systems are frequently employed in econometric studies of inequality dynamics and their determinants (Nguyen, Tarp, and UNU-WIDER, 2024a). In addition, GSO's statistical portal reports inequality indicators as official series, allowing transparent replication and cross-checking across years and provinces. While the GSO provides the official statistical backbone, the dissertation includes the PCI as a control variable capturing cross-provincial differences in economic governance and the business environment (Le, Quach and Tran, 2022). The PCI has been produced annually by the Viet Nam Chamber of Commerce and Industry (VCCI), with support from USAID, and is designed to benchmark governance and reform performance across provinces (Minh, 2019). PCI micro-foundations are based on large-scale firm surveys and administrative/published inputs, producing a standardized set of sub-indices that are commonly used as governance measures in applied research and policy evaluation (Malesky et al., 2021). Tourism scholarship in Viet Nam has already begun to incorporate PCI variables to explain spatial differences in tourism performance (Hoang, 2025b).

3.4.1. *Dependent variable - Income inequality*

This Gini index is considered a valid and reliable proxy for income inequality for several reasons. First, it is grounded in comprehensive household survey data that are carefully collected by GSO (VHLSS) and adjusted for household size, making it representative of the national population. Second, the Gini is an internationally recognized standard measure; its mathematical definition via the Lorenz curve is well-established and allows comparison over time and across regions. In Vietnam's case, analysts frequently use GSO's published Gini from the Statistical Yearbook, which has

been the basis for peer-reviewed studies of inequality (Huyen Dang, Viet Nguyen and Duc Phung, 2021; Le, Quach and Tran, 2022; Van Le and Tran, 2022). Thus, the Gini coefficient from GSO surveys is a standard, internally consistent index of income disparity. Because it reflects aggregate survey-based data and is computed by an official statistical agency, it is widely regarded as a credible indicator. Its interpretation and calculation methods are documented by the World Bank and others, ensuring transparency. Using GSO's Gini index as a proxy for income inequality is justified by its basis in representative data, its alignment with international methodology, and its common usage in academic and policy analyses of Vietnam. The Gini coefficient's formula from GSO:

$$G = 1 - \sum_{i=1}^n (F_i - F_{i-1})(Y_i + Y_{i-1})$$

Where the notation is defined as follows:

Table 3.3. Components of the Gini coefficient

Symbol	Definition
G	Gini coefficient, ranging from 0 (perfect equality) to 1 (perfect inequality)
n	Number of population groups ordered by income level (e.g., deciles or quintiles)
F _i	Cumulative proportion of total population up to group i (horizontal axis of the Lorenz curve)
F _{i-1}	Cumulative proportion of total population up to the preceding group (i – 1)
Y _i	Cumulative proportion of total income received by population up to group i (vertical axis of the Lorenz curve)
Y _{i-1}	Cumulative proportion of total income received by population up to the preceding group (i – 1)

Source: Author's compilation

This formula computes the Gini coefficient by estimating the area beneath the Lorenz curve using the trapezoidal rule. Each term (F_i – F_{i-1})(Y_i + Y_{i-1}) represents the area of one trapezoid beneath the Lorenz curve, where the base is the population increment and the two parallel sides are the cumulative income shares at the beginning and end of each group. The summation Σ yields the total area under the Lorenz curve.

Subtracting this area from 1 produces the ratio of Area A (the region between the line of perfect equality and the Lorenz curve) to the total triangle area ($A + B$), which is precisely the Gini coefficient.

When income is distributed perfectly equally, the Lorenz curve coincides with the 45-degree line, the area beneath the curve equals 1, and $G = 0$. As income becomes increasingly concentrated, the Lorenz curve bows further from the diagonal, reducing the area beneath it and pushing G toward 1. Thus, higher Gini values indicate greater income inequality.

In this dissertation, income inequality is proxied by the Gini coefficient because the spatio-temporal fix is ultimately a distributional claim. When surplus capital is spatially fixed in land and the built environment, the resulting returns such as land rents, location-based business profits, interest income, and other asset-related gains are not realized in isolation but are embedded in households' total income and consumption capacities. Even when household surveys do not separately identify "capital income" in a narrow sense, these asset-based returns materialize through higher mixed income from self-employment and household businesses, rental receipts, interest earnings, and, ultimately, greater command over consumption. Consequently, the relevant empirical question is whether these capital-linked gains translate into a more unequal distribution of realized living standards across households. This measurement choice is consistent with Branko Milanovic's work (Milanovic, 2016), capital income doesn't need to be observed at the micro level; what matters is whether non-labor income streams embedded in household production, property-related earnings, and savings accrue to better-off households and thereby raise overall income concentration. Therefore, using the Gini coefficient as income inequality proxy is appropriate.

3.4.2. Independent variable

Tourism development in empirical studies is proxied by the economic output of the hospitality sector, especially revenues from accommodation (hotels, lodgings) and food services (restaurants) (Hoang, 2025b). In Vietnam's context, this indicator is used as a proxy for tourism-related economic activity because accommodation and food-service services are core tourism-characteristic activities under the Tourism Satellite Account framework (Affairs, 2011). Vietnam has applied the Tourism Satellite Account (TSA) framework at the national level in Decision No. 5139/QĐ-BVHTTDL

in 2012 by MCST, according to the TSA methodology recommended by UNWTO. However, provincial-level TSA statistics remain in the process of implementation. This is reflected in the Prime Minister's Dispatch No. 06/CD-TTg in 2024, which calls for improving tourism statistics and accelerating the application of TSA methods, including their gradual implementation by local governments. In this data context, accommodation and food-service revenue from the GSO Statistical Yearbook is used as a comparable annual proxy for tourism-related service development at the provincial level. Therefore, this is one of the few tourism-related indicators published consistently by the GSO for all 63 provinces on an annual basis. It provides a comparable and policy-relevant measure of the local tourism-service economy across provinces and over time. As a proxy for tourism development, researchers take the natural logarithm of this revenue figure for each province or year. The logarithmic transformation maintains a consistent increasing relationship with revenue and preserves proportional differences across observations, thereby facilitating a more standardized and comparable interpretation of economic impacts.

3.4.3. Mediating variable

Urbanization is measured by the urban population rate, defined as the proportion of the total population residing in urban areas (GSO). This indicator captures the demographic dimension of urbanization, reflecting population concentration, labor reallocation, and the social absorption capacity of cities. In development and urban economics, population-based urbanization is widely used to proxy structural transformation, as it reflects the movement of labor from rural, low-productivity activities toward urban-based services and non-agricultural employment (UNESA, 2024).

The urban population rate related to tourism sector, in some contexts, tourism-related growth may coincide with expanding urban residency and broader access to urban labor markets and services. In others, tourism expansion may be associated with forms of urban development that do not translate proportionally into permanent population absorption. These differing demographic responses matter because the urban population rate shapes how tourism-generated economic activity is distributed across social groups. Variations in the capacity of urban areas to incorporate residents into employment, housing, and services can therefore condition whether tourism-led growth is associated with more inclusive outcomes

or with heightened income inequality. By modeling urban population as a mediating variable, the study captures this demographic channel through which tourism development may influence income distribution.

3.4.4. Set of control variables

Provincial Competitiveness Index

The Provincial Competitiveness Index (PCI) is an annual composite index produced by the Vietnam Chamber of Commerce and Industry (VCCI), originally under USAID support, to rate provinces on the quality of their economic governance and business environment. PCI was introduced in 2005 and is published each year to rank Vietnam's 63 provinces and municipalities. It aggregates multiple dimensions of subnational business climate into a single score (on a 0–100 scale), where a higher score reflects a more favorable, “competitive” environment for private enterprises. Specifically, PCI comprises ten sub-indices (such as entry costs, land access, transparency, informal charges, time requirements, policy bias, leadership proactivity, business support services, labor training, and legal institutions), each derived from survey questions and hard data. A brief description from the official PCI site explains: “the overall PCI comprises ten sub-indices, reflecting economic governance areas that affect private sector development”. VCCI conducts a random sample survey of thousands of domestic and foreign firms in each province; the firms rate and report on regulatory and administrative conditions they face. The answers are aggregated (with standard weights) into scores for each sub-index and then combined into a weighted average PCI, with a maximum of 100 points. As a proxy measure, the PCI score is justified by its strong relevance to economic outcomes. It has been widely cited in academic research and media as a benchmark of provincial reform efforts (Hoang and Le, 2024; Quoc, 2026). Studies have shown that higher PCI scores are associated with higher rates of investment and enterprise growth, reflecting its validity as a business friendliness indicator. In Jessop's (2007) framework, PCI proxies the degree of strategic selectivity exercised by provincial governments: provinces with higher PCI scores create institutional environments that more effectively channel tourism investment into productive activities.

Consumer Price Index (CPI)

The Consumer Price Index (CPI) is defined as “the average change in prices paid by consumers over time for a basket of goods and services”. Changes in the CPI indicate the rate of price inflation or deflation experienced by households. In Vietnam, the GSO compiles CPI monthly at the national and provincial level. It does so by surveying retail prices of hundreds of items in urban and rural areas and combining them using fixed expenditure weights. CPI is widely used by economists and policymakers worldwide (Easterly and Fischer, 2001; Steyn and Vuuren, 2016; Muhibbullah and Das, 2019; Suhendra *et al.*, 2020). Including CPI isolates the specific contribution of tourism to inequality from broader inflationary dynamics affecting real incomes and consumption structures.

Industrial Production Index growth

The Index of Industrial Production (IIP) measures changes in the volume of output in the industrial sector, including manufacturing, mining, electricity, and water supply. In Vietnam, the General Statistics Office (GSO) compiles the IIP using production data from enterprise surveys, expressed relative to a base year (e.g., 2015 = 100). As it is based on physical output rather than monetary values, the IIP provides a reliable indicator of real industrial activity and short-term economic dynamics (Mohanty, Singh and Jain, 2003).

As a control variable, the IIP captures the role of industrialization as a key driver of structural transformation. According to the Lewis model, the expansion of the industrial sector facilitates the absorption of surplus rural labor, thereby reshaping income distribution. In provinces with strong industrial growth, manufacturing may represent the dominant channel of economic restructuring, potentially overshadowing the effects of tourism. Including the IIP therefore allows the analysis to disentangle the impact of tourism on income inequality from broader industrial development processes.

Multidimensional Poverty Index

The multidimensional poverty index (MPI) identifies households experiencing simultaneous deprivations across key dimensions of well-being. In Vietnam, the MPI comprises five dimensions education, healthcare, housing, water and sanitation, and information access each represented by two indicators. A household is classified as multidimensionally poor if it is deprived in at least three out of these ten indicators. The GSO calculates and publishes MPI estimates using data from the Vietnam

Household Living Standards Survey (VHLSS), ensuring consistency with other national socioeconomic indicators. MPI captures structural deprivation rather than income shortfall (Alkire and Foster, 2011). For the 2016–2021 observations, the measure follows Decision No. 59/2015/QĐ-TTg, which established Vietnam’s multidimensional poverty standards for the 2016–2020 period. Although this standard was originally designed for 2016–2020, Article 2 of Decree No. 07/2021/NĐ-CP specifies that it continued to apply during 2021. Under this framework, poverty identification combines an income criterion with deprivation in access to basic social services. The standard covers five basic social services including health, education, housing, clean water and sanitation, and information and ten deprivation indicators. In general, households with income below the poverty line are classified as poor, while households whose income falls within the near-poor income range are classified as multidimensionally poor if they are deprived in at least three indicators. The income poverty thresholds are 700,000 VND per person per month in rural areas and 900,000 VND in urban areas, while the near-poverty thresholds are 1,000,000 VND and 1,300,000 VND, respectively.

For the 2022 observation, the multidimensional poverty variable follows Decree No. 07/2021/NĐ-CP, which introduced the poverty standard for the 2022 - 2025 period. This revised framework expands the measurement structure to six basic social services by adding employment to the existing dimensions of health, education, housing, water and sanitation, and information. It also increases the number of deprivation indicators from ten to twelve. Under the new standard, a household is classified as poor if its monthly per capita income does not exceed 1,500,000 VND in rural areas or 2,000,000 VND in urban areas and it is deprived in at least three social-service indicators.

To ensure transparency in variable construction, this study documents the legal basis, income thresholds, service dimensions, and deprivation indicators used to define the official multidimensional poverty rate in each subperiod (Do, 2026).

. Controlling for MPI therefore allows the analysis to isolate the effect of tourism from these deeper social constraints, improving the interpretability of estimated impacts on income distribution.

Population

Provincial population is measured as the total number of residents in each province and transformed into its natural logarithm, is included as a control variable to account for differences in demographic scale and agglomeration intensity across regions. Including population isolates the effect of tourism development on income inequality from broader scale effects associated with regional size and urban concentration (World Bank, 2009). Larger populations are typically associated with stronger agglomeration economies such as higher productivity, thicker labor markets, and more developed infrastructure which simultaneously attract tourism activity and shape income distribution outcomes. On the one hand, densely populated provinces tend to offer better amenities and connectivity, making them key tourism hubs. Furthermore, agglomeration can generate uneven distributional effects by increasing living costs, intensifying competition in labor markets, and reinforcing spatial sorting across income groups (Nguyen Thi Hoai, 2024). By controlling population size in logarithmic form, the model accounts for these structural differences across provinces, ensuring that the estimated impact of tourism reflects sector-specific dynamics rather than underlying demographic scale and urban concentration effects.

Table 3.2 describes variables sum up

Table 3.4. Description of variables

Variable	Role	Proxy indicator	Unit	Description	Mean	Std.	Min	Max
Income inequality	Dependent	Gini coefficient	Index (0–1)	Measures the degree of income concentration across the population distribution, derived from the Lorenz curve. Higher values indicate greater inequality.	0.36	0.06	0.20	0.53
Tourism development	Independent	Ln(revenue from accommodation & food services)	Ln(billion VND)	Natural logarithm of total provincial revenue from accommodation and food service activities, classified as tourism-characteristic industries under the TSA framework (OECD et al., 2017).	3.88	2.07	0.00	10.89
Urbanization	Mediating	Ln(urban population)	Ln(thousand persons)	Natural logarithm of the population residing in areas officially classified as urban by the State (wards, townships). Captures the demographic dimension of urbanization.	5.86	0.86	4.15	8.89
Institutional quality	Control	Provincial Competitiveness Index (PCI)	Score (0–100)	Composite index measuring provincial economic governance quality across 10 sub-indices (entry costs, land access, transparency, etc.). Produced annually by VCCI/USAID.	64.71	2.96	56.29	75.09

Variable	Role	Proxy indicator	Unit	Description	Mean	Std.	Min	Max
Inflationary pressure	Control	Consumer Price Index (CPI growth)	% (YoY, previous year = 100)	Year-on-year percentage change in the consumer price index, measuring the rate of price inflation experienced by households at the provincial level.	93.23	2.44	86.83	101.47
Industrial activity	Control	Industrial Production Index (IIP growth)	% (base year 2015 = 100)	Index measuring the volume change of industrial output (manufacturing, mining, utilities) relative to the base year. Captures structural economic activity beyond tourism.	109.14	10.09	73.10	188.50
Structural deprivation	Control	Multidimensional Poverty Index (MPI)	% of households	Percentage of households deprived in ≥ 3 of 10 indicators across 5 dimensions (education, health, housing, water/sanitation, information). Proxies baseline non-income vulnerability.	7.95	8.71	0.00	44.50
Agglomeration / market size	Control	Ln(population)	Ln(thousand persons)	Natural logarithm of average provincial population. Controls for agglomeration effects and labor supply scale.	7.14	0.58	5.75	9.15

Note: All descriptions adapted from either the Provincial Competitiveness Index or General Statistics Office of Vietnam.

Source: Author's compilation

THE SUMMARY OF CHAPTER 3

Chapter 3 develops a political-economy framework and an empirical strategy to explain how tourism-led development can reshape urbanization and through that channel, influence income inequality in Viet Nam. The theoretical section starts with the Marxist ideology of overaccumulation, where surplus capital and labor coexist but cannot find profitable outlets in the primary circuit of production. From Harvey's perspective, the chapter argues that capitalism responds by capital switching: redirecting investment from commodity production into the secondary circuit of the built environment (infrastructure, housing, real estate, and leisure facilities) and, at times, the tertiary circuit of social expenditures. Because built assets are spatially fixed and have long turnover times, they can absorb surplus capital and temporarily stabilize accumulation, yet they also create rigidity, lock-in, and future vulnerability when revenue flows falter.

The chapter then elaborates Harvey's spatio-temporal fix as a broader crisis-displacement logic: capital manages contradictions by embedding surplus value in long-term spatial configurations and deferring pressures into the future. Tourism mega projects resorts, airports, convention centers, destination districts are treated as emblematic fixes that rely on expectations about future demand and supportive governance. This shift can reorganize social relations of accumulation toward land rents and asset-based returns, raising distributional concerns. Drawing on Lefebvre, tourism space is conceptualized as socially produced through investment, planning, branding, and regulation, often privileging exchange value over use value and enabling displacement and land-use reconfiguration. Jessop's distinction between territorial and capitalist logics clarifies how state strategies filter where tourism capital "lands" and who captures resulting rents.

Methodologically, This chapter presents the empirical analysis in three sequential tiers, each addressing a distinct analytical question.

Tier 1 establishes the empirical context and spatial overview, answering: *Is there a baseline association between tourism and income inequality, and is inequality spatially structured across Vietnamese provinces?* Traditional modes establish the average association, while Global Moran's I tests confirm the presence of spatial clustering that motivates moving beyond conventional regression (Anselin, 1995; Cliff & Ord, 1981).

Tier 2 maps spatio-temporal heterogeneity using GTWR, answering: *Where and when does tourism intensify or attenuate inequality?* By allowing coefficients to vary continuously across space and time, GTWR reveals the territorially specific pathways through which tourism development interacts with distributional outcomes (Fotheringham et al., 2015; Huang et al., 2010).

Tier 3 shifts from mapping heterogeneity to estimating the transmission mechanism, answering: *Through what spatial channel does tourism transmit inequality, and is there physical morphological evidence of the underlying urban process?* The SDM estimates how urbanization mediates the tourism–inequality nexus under inter-provincial dependence (LeSage & Pace, 2009; Elhorst, 2014). The SDG 11.3.1 case study then provides a complementary morphological diagnostic, furnishing physical evidence of the phantom urbanization process that the econometric models imply but cannot directly observe (UN-Habitat, 2018; Nunna & Banerjee, 2022). Each tier thus builds directly on the one before it.

CHAPTER 4: IMPACTS OF TOURISM ON URBANIZATION AND INCOME INEQUALITY: EVIDENCE OF SPATIAL-TEMPORAL HETEROGENEITY IN VIETNAM

4.1. Overview of research context

Vietnam is a prototypical developing and transitional country for analyzing the relationship between tourism and income inequality. In the subsidy period (1975–1986), Viet Nam aimed to eliminate income gaps - “no distinction between rich and poor” under common ownership. Its objective was to construct a socialist society grounded in the principles of Marxist ideology: free from oppression, exploitation, social classes, and economic inequality, where individual and collective interests are unified, all property is commonly held, and material conditions are fully met. The state sought to exert control over every domain of economic, political, cultural, and social life, ensuring that all activities conformed to the socialist path, but Vietnam’s economy remained underdeveloped and poverty. Doi Moi revolution from 1986 marked a decisive shift toward market-oriented policies, opening Viet Nam to global capital flows and private enterprise. This transition laid the foundation for the emergence of capital accumulation processes, particularly through the marketization of land, labor, and investment regimes. Following these profound transformations, Gini coefficient increased by 7 percent from 1993 to 1998, from 0.329 to 0.352 (World Bank, 2004) and peaking around 0.393 in 2010, before moderating thereafter to 0.368 in 2020 (World Bank, 2022). Since *Doi Moi*, the state has retained centralized control over land and strategic resources even as it mobilizes private and foreign investment in sectors such as industry, tourism, and infrastructure through decentralization and flexible land-use policies (McPherson, 2012). Within this special institutional framework, the state's role is not to retreat but to facilitate market-based capital accumulation while maintaining authority over resource allocation, legitimized through planning mechanisms. Although local governments represent the state, they are under constant pressure to boost fiscal revenues, secure investments, and demonstrate economic pressures that frequently result in patronage-based ties with private developers (Beeson and Pham, 2012; Duong, Samsura and Van Der Krabben, 2025a). Therefore, tourism development emerges as an arena for spatialized capital accumulation, urban transformation, and fluctuation of income inequality. Figure 3.3

below presents situation of tourism development, urbanization and income inequality in VietNam in 2018 and 2022.

Current status of tourism development

As illustrated in the heatmaps for 2018 and 2022, tourism development in Vietnam exhibits regional concentration. Before COVID-19, international arrivals reached 15.5 million in 2018 and 18.1 million in 2019, contributing approximately 9.2% of GDP (Vu *et al.*, 2022). The 2018 heatmap reveals that tourism revenue (*Intour*) concentrated heavily in Hanoi, Ho Chi Minh City, Da Nang, Quang Ninh, Khanh Hoa, and Quang Nam, displaying values ranging from 6.48 to 10.79, while Northern Mountainous provinces and Central Highlands showed considerably lower levels (0.02 to 2.17). A study using spatial panel regression across 63 provinces from 2015 to 2019 identified a significant negative spatial spillover effect: when tourism revenue in one province increased by 1%, surrounding provinces experienced a 2.3% decrease (Thao, 2025). This competitive dynamic suggests that prominent destinations attract visitors at the expense of neighboring areas.

Comparing the 2018 and 2022 heatmap reveals COVID-19's asymmetric impact and subsequent partial recovery. International arrivals collapsed to fewer than 200,000 in 2021 before recovering to approximately 3.7 million in 2022 (Kumar, Stauvermann and Dau, 2025). The 2022 tourism heatmap shows relatively similar spatial patterns to 2018, with major destinations maintaining their dominant positions, while peripheral regions particularly Cao Bang, Ha Giang, Lai Chau in the Northern Mountains and Kon Tum, Gia Lai, Dak Nong in the Central Highlands remained at the lowest tier. There are significant variations in how tourism affects economic growth and social well-being across Vietnam (Fan and Van Trung, 2026).

The spatial dimension of Vietnam's tourism expansion is particularly pronounced. Tourism investment has been heavily concentrated in specific "tourism corridors" the northern heritage circuit (Hanoi–Ha Long Bay–Sapa), the central beach-culture corridor (Hue–Da Nang–Hoi An), and the southern commercial-resort axis (Ho Chi Minh City–Phu Quoc–Nha Trang). These corridors create regional interdependencies: tourism development in one province generates labor demand, land-price effects, and infrastructure spillovers that affect neighboring provinces.

Current status of urbanization

The urbanization heatmaps for 2018 and 2022 display regional contrasts that closely mirror tourism concentration. Vietnam's urbanization rate increased from approximately 34.7% in 2018 to 37.55% in 2022, with 37.4 million people residing in urban areas (Do and Le, 2024). The heatmaps show that Ho Chi Minh City maintains approximately 83% urbanization, Da Nang reaches roughly 87%, and Binh Duong sits near 79%. In contrast, Northern Mountain provinces and Central Highland provinces remain below 20% urban population. The Southeast region and Red River Delta form two dominant urban poles that together account for approximately 80% of industrial and service employment (Zhou *et al.*, 2022).

Table 4.1. Socio-economic regional urbanization in 2018 and 2022

Region	Year	Urban rate (%)
Red River Delta	2018	35.5
	2022	38.2
N. Central & Coast	2018	28.2
	2022	30.8
Southeast	2018	63.5
	2022	66.1
Mekong Delta	2018	25.4
	2022	27.0
National	2018	35.9
	2022	38.6

Source: Author's compilation from GSO 2018, 2022

Current status of income inequality

The Gini coefficient heatmaps for 2018 and 2022 reveal a complex spatial pattern. Vietnam's Gini remained relatively stable between 0.357 in 2018 and 0.361 in 2022 (Nguyen, Tarp, and UNU-WIDER, 2024b). However, the provincial level heatmaps display substantial variation. In 2018, the Gini ranged from 0.315 to 0.487, with the highest inequality (dark red) concentrated in Northern Mountainous provinces

and parts of the Central Highlands. By 2022, the range shifted to 0.236 - 0.493, with persistent high inequality in the Northern Mountains. This pattern reflects the ethnic dimension: ethnic minorities constitute 14.7% of Vietnam's population but face a poverty rate of 27.2% compared to just 1.2% for the Kinh majority (Dang *et al.*, 2025).

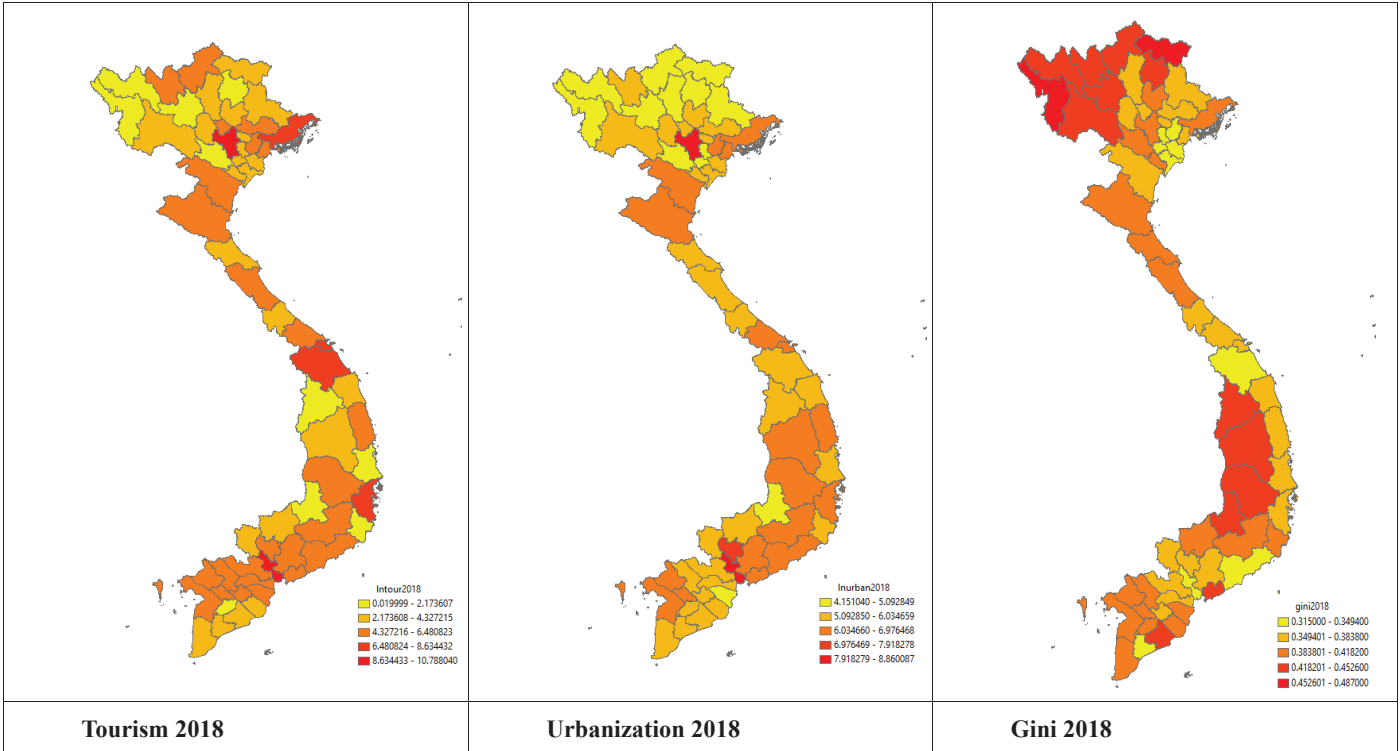
Table 4.2. Regional income inequality in 2018 and 2022

Region	Year	Gini (income)
Northern Mountains	2018	0.42
	2022	0.39
Red River Delta	2018	0.35
	2022	0.33
Central Coast	2018	0.38
	2022	0.36
Central Highlands	2018	0.41
	2022	0.38
Southeast	2018	0.34
	2022	0.32
Mekong Delta	2018	0.36
	2022	0.34
National	2018	0.424
	2022	0.361

Source: Author's compilation from GSO 2018, 2022

These spatial patterns provide the empirical foundation for analyzing spatial spillover effects in the tourism–urbanization–inequality nexus. An examining 63 provinces from 2006 to 2016 found an inverted U-shaped relationship between urbanization and income inequality: urbanization initially increases inequality but decreases it in the long term, with the optimal threshold estimated between 47.3% and 78.7% (Ha, Le and Trung-Kien, 2019). Since Vietnam's current urbanization rate of 37.55% remains below this threshold, continued urbanization may contribute to inequality reduction over time. However, substantial differences in tourism

development also exist across regions, driven by variations in geography, historical trajectories, political arrangements, and socio-cultural factors (Huong T. Bui, 2022). Within the same region, localities often exhibit both competition and collaboration in developing their tourism industries and addressing income inequality (Thao, 2023). While they compete for resources, investment, and tourist inflows, they also engage in coordinated strategies to enhance regional appeal and share economic benefits (MCST, 2024). Such dynamics reflect broader processes of spatial governance and economic balancing, where tourism has become a vehicle for capital accumulation, drawing in both domestic and foreign investors through preferential land access, investment incentives, and local growth coalitions. Previous studies have frequently overlooked the interdependencies among localities when examining the tourism–income inequality nexus, often assuming spatial independence or failing to consider cross-regional spillover effects (Li *et al.*, 2016a).



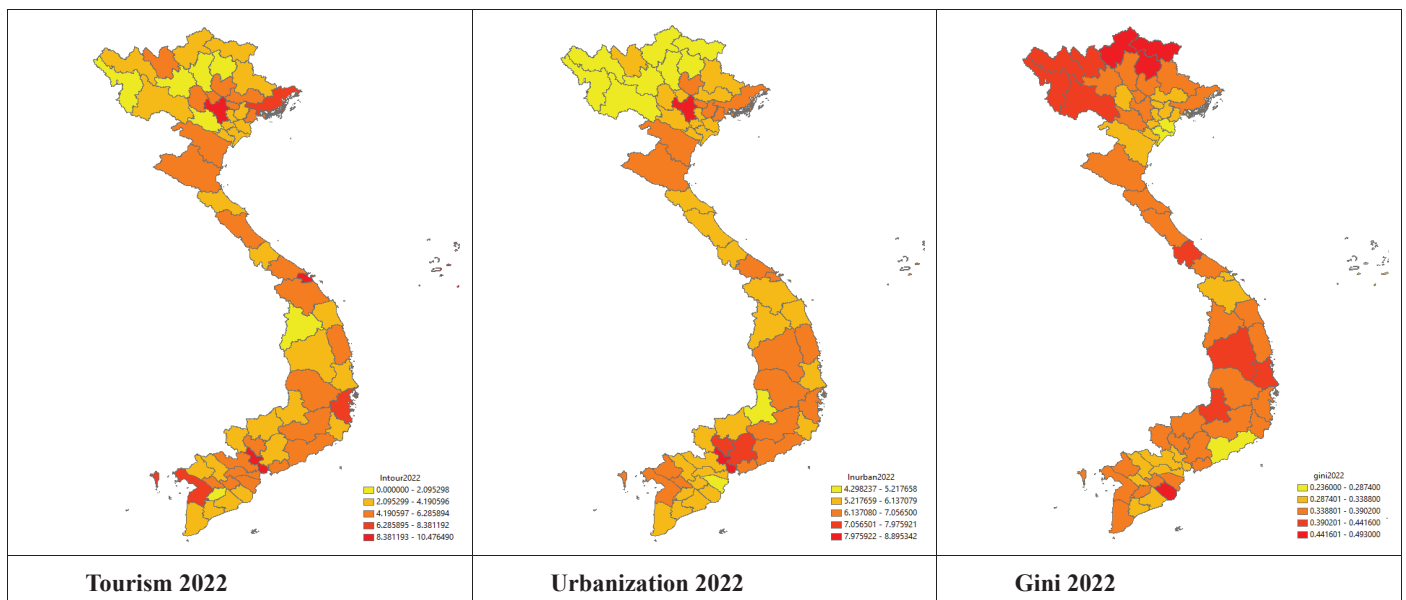


Figure 4.1: Tourism development, urbanization and income inequality in Viet Nam in 2018 and 2022
Note: This is a summary land map, not including the Hoang Sa (Paracel) and Truong Sa (Spratly) areas of Vietnam

Source: Author's compilation .

4.2. Baseline findings

First, a multicollinearity test on the data is performed to ensure that the choice of variables is appropriate and does not affect the model results. The results (table 4.3) show that all variables have low VIF values. VIF values below 5 indicate acceptable multicollinearity levels, while values below 2 suggest minimal collinearity concerns. The average VIF of 1.77 in this study confirms that the estimated coefficients are not inflated by multicollinearity, ensuring reliable inference for subsequent spatial analyses. This means that the data are suitable for analyzing the relationship between tourism and income inequality (Hair, 2019)

Table 4.3. Description of variables

Variables	VIF	1/VIF
Ln(tourism development)	2.73	0.366247
PCI score	1.48	0.677100
Consumer price index	1.55	0.644463
Industrial index	1.01	0.993461
Multidimensional poverty	1.73	0.576382
Ln(population)	2.09	0.478192
Mean VIF	1.77	

Source: Author's computation

Then, table 4.4 shows that the impacts of tourism on income inequality are positive and statistically significant in both OLS and FE models. In addition, when considering the endogeneity by using “the distance from province to Quang Binh” as the instrumental variable, the coefficients are statistically significant. These results confirm the causal relationship between tourism on income inequality. The tourism coefficient of 0.008 is statistically significant at the 1% level, implies that a one-unit increase in log tourism revenue is associated with a 0.008 increase in the Gini coefficient. Statistical significance alone is insufficient for drawing substantive or policy-relevant conclusions; what ultimately matters is the economic significance of the estimated effect. In this case, the coefficient of 0.008 implies a relatively small direct impact of tourism on income inequality at the provincial level, suggesting that tourism does not function as a primary driver of inequality through immediate local

redistribution mechanisms (Krämer, 2011; Wasserstein, Schirm and Lazar, 2019). Over the sample period, average provincial tourism revenue grew by approximately 40-60%, which would translate to a Gini increase of roughly 0.003-0.005 points, a modest but non-trivial effect when accumulated across provinces and years. In the Vietnamese context, where tourism is positioned as a strategic growth sector with sustained expansion over time, even small marginal effects can accumulate and generate non-trivial distributional consequences when aggregated across provinces and years. This finding aligns with the meta-analysis by Zhang (2021), Alam and Paramati (2016), examining 49 developing economies, reported a comparable coefficient of 0.017% increase in Gini per 1% increase in tourism revenue.

However, these results do not demonstrate a heterogeneity relationship between tourism and income inequality, nor the causal mechanism to explain this relationship. Therefore, the policy implications from many similar studies often fall short of expectations. So, rather than diminishing the role of tourism, the direct coefficient reinforces the argument that tourism-induced inequality should be understood as a spatially mediated and cumulative process, consistent with the broader theoretical framework of uneven development and spatial restructuring.

Table 4.4. Traditional models results

	OLS	FE	FE	IV
Ln(tourism)	0.008***	0.007***	0.007***	0.007*
	(0.002)	(0.002)	(0.002)	(0.004)
PCI	-0.003***	-0.002*	-0.001	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Multi_poverty	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
ind_index	-0.000**	-0.001**	-0.000*	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
CPI	-0.002	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
lnpopulation	-0.027***	-0.027***	-0.027***	-0.027***
	(0.005)	(0.005)	(0.005)	(0.007)

	OLS	FE	FE	IV
Year fixed effects	No	Yes	Yes	Yes
Regional fixed effects	No	No	Yes	No
Control variables	Yes	Yes	Yes	Yes
Constant	0.869***	0.783***	0.671***	
	(0.125)	(0.126)	(0.137)	
R-squared	0.556	0.587	0.625	
Weak identification test (Cragg-Donald Wald F statistic)				19.421
[Stock-Yogo weak ID test critical value at 10%]				16.38

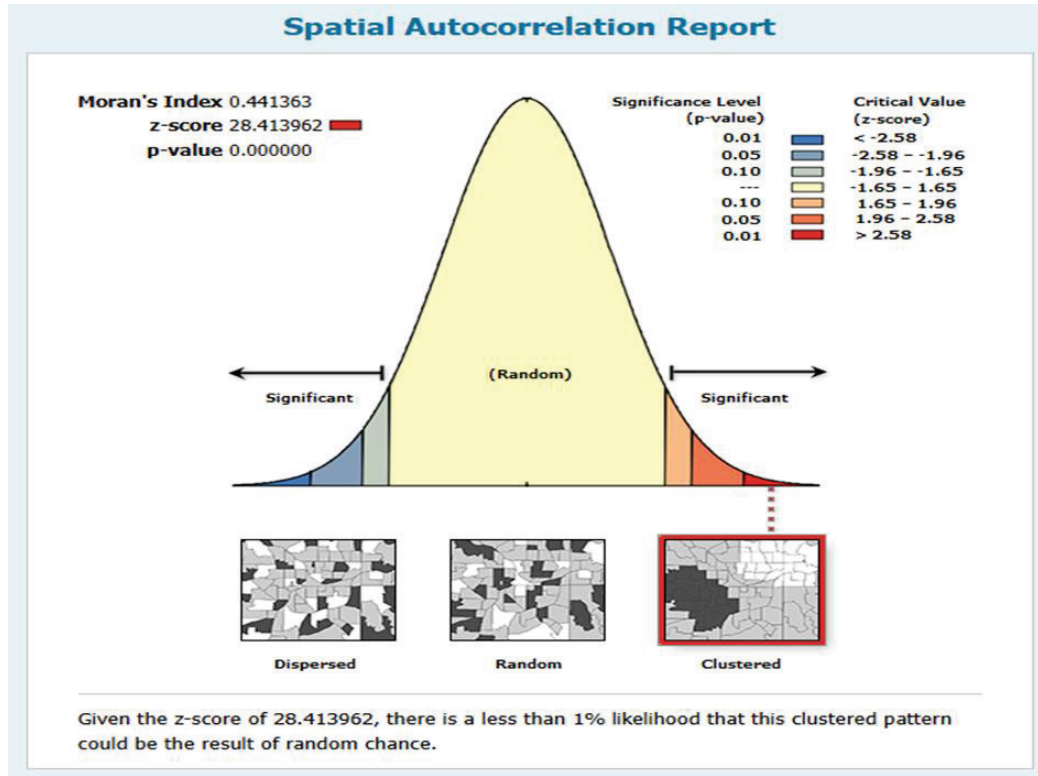
*Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

Source: Author's computation

4.3. Spatio-temporal autocorrelation results

Descriptive analysis suggests that income inequality in Vietnam exhibits clear geographical variation across provinces. To formally assess whether this variation reflects systematic spatial dependence rather than random dispersion, this dissertation applies to the global Moran's I test. The results in Table 4.5 reveal that the Global Moran's I values for the Gini coefficient are positive and statistically significant at the 1% level across all years from 2018 to 2022. Specifically, the Moran's Index increased significantly from 0.278 in 2018 to a peak of 0.477 in 2019, before stabilizing between 0.43 and 0.47 in the subsequent years. The z-scores for the entire period are substantially higher than the critical value of 2.58, ranging from 3.38 to 5.67. Correspondingly, the p-values are all approximately 0.000, indicating that there is a less than 1% likelihood that this clustered pattern could be the result of random chance. This implies that the Gini coefficient is not randomly distributed; instead, provinces with high income inequality tend to be geographically clustered near other high-inequality provinces, while provinces with low inequality are situated near similar neighbors. These Moran's I values are consistent with findings from other national-level studies (Mastronardi and Cavallo, 2020; Zhang, 2023). This spatial clustering pattern provides strong empirical

justification for adopting spatial econometric models (GWR, GTWR, SDM) rather than conventional OLS or fixed effects approaches that assume spatial independence (Anselin and Bera, 1998).



Source: Author's computation

Figure 4.2. Global Moran's I index

Table 4.5: Global Moran's I result for Gini coefficient from 2018 to 2022

Year	2018	2019	2020	2021	2022
<i>Gini</i>	0.278***	0.477***	0.473***	0.433***	0.447***
<i>z - score</i>	3.3828	5.6729	5.6109	5.1877	5.3759

Standard errors in parentheses: *** $p < 0.01$

Source: Author's computation

Results from the spatio-temporal nonstationarity test (Fotheringham et al., 2015; Ma et al., 2018) provide clear evidence that the key explanatory variables in framework exhibit significant spatio-temporal heterogeneity. As reported in Table 4.6, for all variables including tourism, PCI, CPI, IIP, MPI, and population size, the interquartile range of the local coefficients estimated by the GTWR model exceeds

twice the standard errors obtained from the corresponding OLS estimates. This pattern indicates the presence of substantial “extra local variation”, meaning that the dispersion of GTWR coefficients cannot be attributed solely to sampling variability. Instead, the magnitude of coefficient variation is systematically larger than what would be expected under a spatially and temporally stationary data-generating process revealing evidence of spatio-temporal nonstationarity in the relationships under investigation. The explanatory power of the model increases substantially once spatial and temporal information are incorporated through the GTWR framework. This improvement indicates that accounting for spatial–temporal heterogeneity enhances the model’s ability to capture localized and time-varying relationships. Accordingly, the GTWR model is well suited for analyzing the uneven spatial and temporal of tourism development and income inequality across Vietnam.

Table 4.6: Spatial nonstationary tests

Variables	Interquartile (GTWR)	2 × SE (OLS)	Extra local variation
Ln(tourism development)	0.006443	0.003493	Yes
PCI_score	0.002671	0.001794	Yes
Consumer_price_index	0.003855	0.002230	Yes
Industrial_index	0.001537	0.000435	Yes
Multidimensional_poverty	0.001742	0.000661	Yes
Ln(population)	0.020964	0.010954	Yes

Source: Author’s computation

Table 4.7. Model selection for spatiotemporal heterogeneity models

	TWR	GWR	GTWR
R ²	0.633348	0.664243	0.760984

Source: Author’s computation

With the evidence of spatial heterogeneity above, spatially modeling approaches are required. However, spatial nonstationarity alone does not fully capture the dynamics of the relationship under investigation, particularly in a context where tourism development and urban processes evolve over time. Therefore, the analysis

proceeds to compare models that allow for heterogeneity along different dimensions, namely the Temporal Weighted Regression (TWR), Geographically Weighted Regression (GWR), and Geographically and Temporally Weighted Regression (GTWR) models. As shown in Table 4.7, the GTWR model outperforms both TWR and GWR in terms of explanatory power, reflected by the higher R^2 value (0.760984) (Gujarati and Porter, 2009). It suggests that the underlying relationship exhibits not only spatial nonstationarity but also temporal variation, and that these two dimensions interact in shaping local outcomes. These corroborates similar model selection procedures employed by Peng (Peng *et al.*, 2024), who achieved adjusted $R^2 = 0.71$ using GTWR for tourism eco-efficiency analysis across 63 cities in China's Yellow River Basin. A similarly study demonstrated that in areas of better tourism development, spatiotemporal lag factors promote growth, while in less-developed areas they restrain it , a pattern that can only be captured through GTWR's locally varying coefficients (Jin, Xu and Huang, 2019).

To address potential concerns regarding model complexity and overfitting (Stone, 1974), an additional robustness check is conducted by re-estimating the GTWR model using different proportions of the sample. The results presented in Table 4.8 show that the R^2 values remain relatively stable even when the sample size is reduced. This stability indicates that the superior performance of the GTWR model is not driven by sample-specific noise, but rather by its ability to capture systematic spatiotemporal heterogeneity. The spatial nonstationary tests and model comparison and robustness checks provide a coherent empirical justification for adopting the GTWR framework as the primary analytical tool in this study.

Table 4.8. Test for overfitting problems in spatiotemporal heterogeneity models

Data proportion	100%	80%	60%
R^2	0.760984	0.761874	0.723512

Source: Author's computation

4.4. Estimated spatio-temporal autocorrelation models

This study analyzes the spatio-temporal heterogeneity relationship of tourism and income inequality in 63 provinces over 5 years. Given the large number of local coefficients generated by the GTWR model, the results are summarized using descriptive statistics rather than individual estimates. For each year, six characteristic values of the estimated coefficients are reported, including the minimum, lower

quartile, median, mean, upper quartile, and maximum values (Table 4.9). These summary statistics provide a concise overview of the distribution and variability of the tourism-related coefficients across space and time, facilitating interpretation of the spatio-temporal heterogeneity captured by the GTWR model (Huang, Wu and Barry, 2010b).

Table 4.9. The summary estimated GTWR results

	Average	Min	Lower Q	Median	Upper Q	Max
Lntour_2018	0.007025	-0.005359	0.005137	0.009045	0.010484	0.015630
Lntour_2019	0.007513	-0.004845	0.004090	0.008486	0.011608	0.015444
Lntour_2020	0.007315	-0.006765	0.004314	0.006619	0.011986	0.020718
Lntour_2021	0.007437	-0.006139	0.005852	0.008947	0.009788	0.019605
Lntour_2022	0.006787	-0.006722	0.002811	0.009602	0.010956	0.015616

Source: Author's computation

4.5. Spatial variation of the coefficients of income inequality

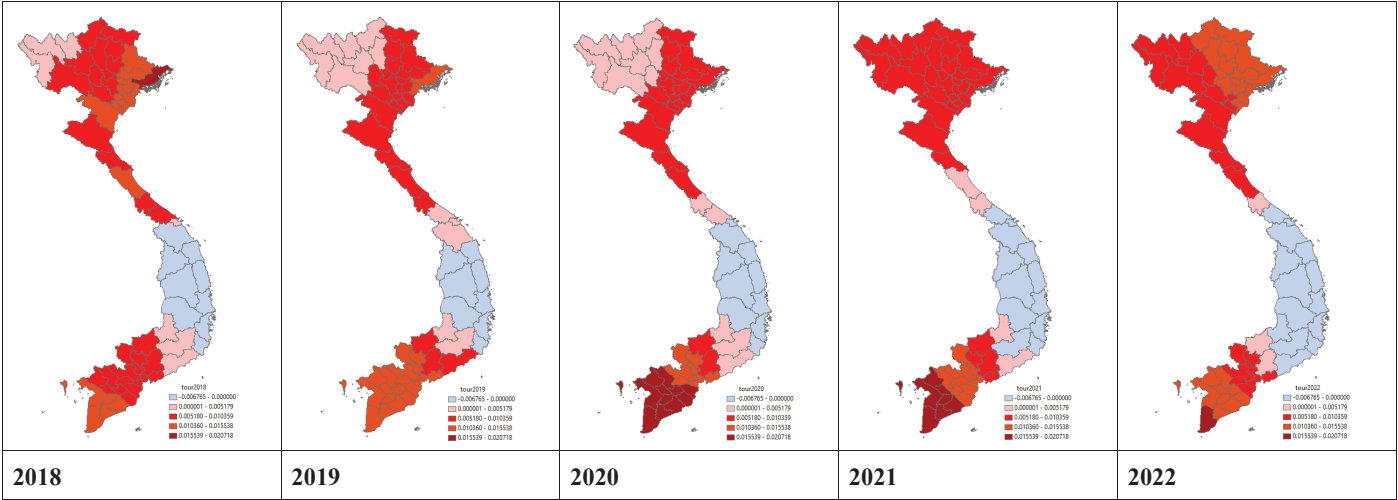


Figure 4.3. Variation of coefficients over time and space from Spatiotemporal heterogeneity results.

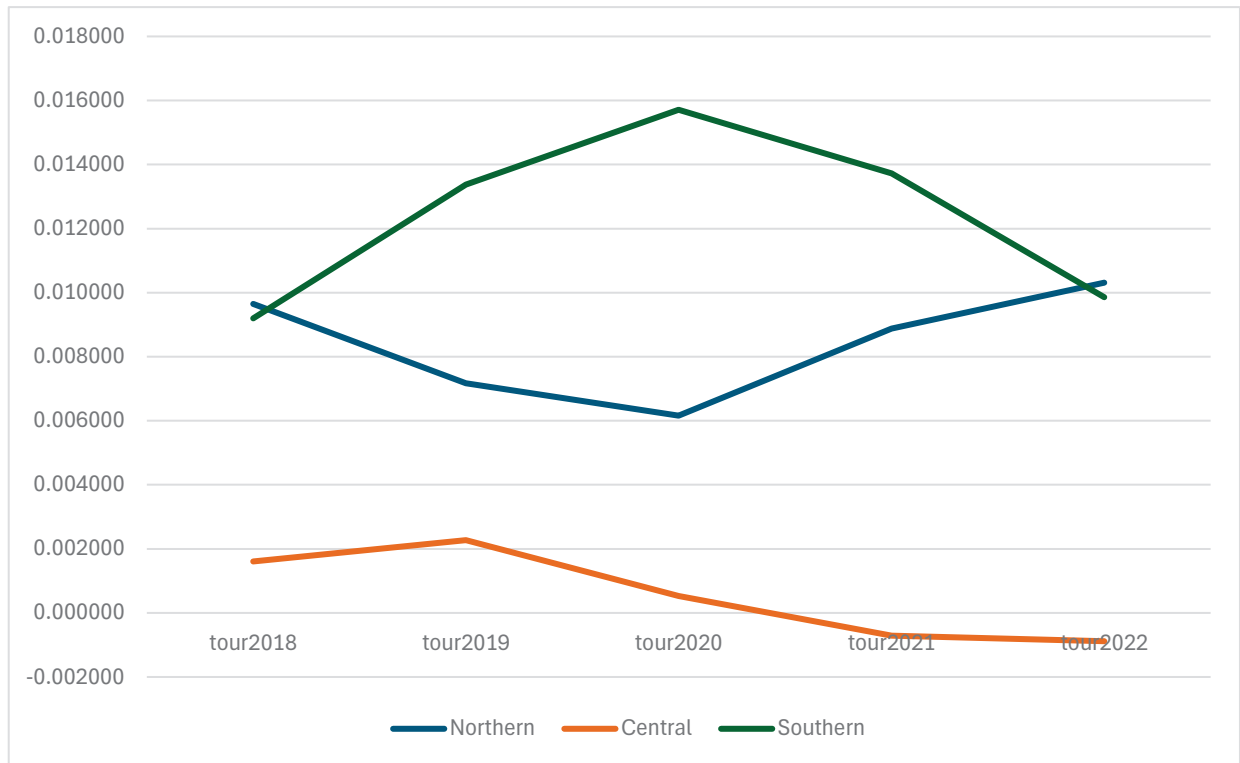
**This is a summary land map, not including the Hoang Sa (Paracel) and Truong Sa (Spratly) areas of Vietnam*

Source: Author's computation

The GTWR model highlights considerable heterogeneity in the tourism development–income inequality nexus across space and time. Overall, the empirical results (Figure 4) reveal an apparent spatiotemporal divergence in the impact of tourism development on income inequality between 2018 and 2022. Regionally disaggregated trends (Figure 3) show that the Northern region and the Southern region saw increasingly dark red tones positive coefficients, implying that tourism development in these areas disproportionately benefits higher-income groups and may exacerbate income inequality. This pattern is consistent with the concentration of capital-intensive tourism infrastructure that primarily benefits asset owners, large corporations, and high-skilled professionals while generating predominantly low-wage, seasonal employment for the broader population. The finding resonates with evidence showing that property-led tourism development tends to amplify rent extraction and income polarization, particularly in transitional economies where institutional safeguards for redistribution remain underdeveloped. A similar post-crisis capital concentration dynamic has been documented in Spain's hotel sector, where financial corporations acquired hotel assets from indebted companies following the 2008 recession (Yrigoy, 2023), and in Lisbon, where tourism was explicitly deployed as a “spatial fix to the recession” (Estevens *et al.*, 2023).

Conversely, the Central region remains a "blue" cluster where tourism effectively narrows the wealth gap. This divergence persisted during the pandemic recovery in 2022; maintained negative coefficients (reaching approximately -0.4485). This suggests that tourism development in the Central region is associated with declining income inequality a pro-poor effect. Central Vietnam's tourism economy is anchored in heritage-based and culturally embedded activities the imperial citadel of Hue, the ancient town of Hoi An, the Phong Nha cave system, that generate broader employment participation and stronger backward linkages to local supply chains. Small and medium enterprises, family-run accommodation, artisanal production, and community-guided tours create multiple entry points for low-income households to capture tourism revenues. Demonstrating a pro-poor effect where community-based tourism and SME integration allow benefits to trickle down to low-income groups.

4.6. Temporal variation of the coefficients of variables



Source: Author's computation

Figure 4.4. Temporal variation trend of tourism development on income inequality by region

Temporal variation in the estimated coefficients captures the heterogeneity of each variable's impact over time and is calculated by averaging the local impact coefficients of each variable across provinces for each period. Regarding temporal variation, the estimated tourism–inequality coefficients exhibit clearly differentiated regional trends over the 2018–2022 period (Figure 5). The divergent temporal patterns across regions represent interesting findings. The U-shaped pattern in the Northern region where the tourism-inequality coefficient declines from 2018 to 2020 before rising again suggests that tourism initially generated relatively inclusive growth, possibly through employment creation in community-based and cultural tourism, before shifting toward more concentrated investment patterns. In contrast, the Southern region's inverted-U pattern, peaking around 2020, may reflect the greater integration of southern provinces into global tourism circuits and real estate-oriented development, where land-intensive investment generated inequality-increasing effects. The Central region presents the most distinctive pattern: tourism coefficients are

predominantly negative throughout the study period, indicating that tourism development in central provinces is associated with declining inequality. This finding is consistent with the “inclusive tourism” literature (Ashley & Mitchell, 2010) and reflects the Central region’s specific tourism structure - heritage-based and culturally embedded tourism (Hue, Hoi An) that generates broader employment participation and stronger backward linkages to local supply chains than the property-led tourism development characteristic of the North and South.

The coexistence of these distinct regional coefficient trajectories within a single country indicates that the relationship between tourism development and income inequality is spatially contingent, consistent with the possibility that the tourism development – income inequality nexus depends on local accumulation pathways and institutional contexts. Prior international research has established the general principle of a nonlinear tourism-inequality relationship (Alam & Paramati, 2016), and some scholars have identified N-shaped rather than inverted-U patterns in developing countries (Chi, 2021). Zhang (Zhang, 2023) found that inbound tourism widens inequality in eastern Chinese provinces but narrows it in western regions, a subnational divergence broadly analogous to the North–South–Central split documented here. However, the simultaneous presence of a U-shaped curve in the North and an inverted-U in the South within the same national policy regime has not been previously documented. This finding implies that different regions can occupy different positions on the tourism-inequality curve at the same time, depending on whether local tourism investment is embedded in community-oriented service ecosystems or tied to land-intensive, property-led development coalitions.

4.7. Estimated spatio autocorrelation model

While the GTWR analysis reveals where and when tourism’s income inequality effects vary, the Spatial Durbin Model (SDM) addresses a question: through what mechanisms do these effects operate, and how do they transmit across provincial borders? The SDM decomposes tourism’s impact into direct local effects and indirect spillover effects and introduces urbanization as a potential mediation channel linking tourism development to inequality. Table 4.10 below presents the estimated results from the spatio dependence model, research is interested in coefficients Rho (ρ) and Sigma (δ), Both the mediation (2) and extended mediation (3) models report the spatial autoregressive coefficient (ρ) and the spatio-temporal dependence parameter (δ) to account for spatial clustering and temporal persistence in provincial development outcomes.

Table 4.10. The estimation results of the SDM model with the contiguity weight matrix

	(1)	(2)					(3)				
Variables		Main	W _x	LR_Direct	LR_Indirect	LR_Total	Main	W _x	LR_Direct	LR_Indirect	LR_Total
lnurban							0.004	-0.068**	-0.003**	-0.102**	-0.105**
							(0.018)	(0.031)	(0.019)	(0.042)	(0.050)
lntourf	0.008***	0.008	-0.031**	-0.008**	-0.034**	-0.042**	-0.002	0.008*	-0.001	0.011**	0.011**
	(0.002)	(0.010)	(0.013)	-0.01	(0.014)	(0.013)	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)
pci	-0.003***	-0.002	0.005	-0.002	0.005	0.003	-0.000	-0.005***	-0.001	-0.008***	-0.008***
	(0.001)	(0.003)	(0.005)	(0.003)	(0.005)	(0.005)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
mul_poverty	0.004***	0.001	-0.010**	0.001	-0.011**	-0.010**	0.001	-0.001	0.000	-0.002	-0.002
	(0.000)	(0.003)	(0.005)	(0.003)	(0.005)	(0.004)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
industrial_index	-0.000**	-0.000	0.001	-0.000	0.001	0.000	-0.000*	0.000	-0.000*	0.000	-0.000
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
cpi	-0.002	-0.003	-0.013*	-0.004	0.016**	0.019***	0.001	-0.004**	0.000	-0.007**	-0.007*
	(0.001)	(0.005)	(0.007)	(0.004)	(0.007)	(0.007)	(0.001)	(0.002)	(0.001)	(0.003)	(0.004)
lnpopulation	-0.027***	-0.159	2.051** *	-0.078	2.296***	2.218***	0.030	-0.027	0.029	-0.024	0.004

	(0.005)	(0.228)	(0.350)	(0.220)	(0.370)	(0.344)	(0.074)	(0.119)	(0.074)	(0.160)	(0.165)
Constant	0.869***	0.008	-0.031**	-0.008	-0.034**	-0.026**	-0.002	0.008*	-0.001	0.011**	0.011**
	(0.125)	(0.010)	(0.013)	-0.01	(0.014)	(0.013)	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)
Rho (spatial)		0.138*					0.384***				
		(0.070)					(0.063)				
sigma2_e (Variance)		0.005***					0.001***				
		(0.000)					(0.000)				
Observations	315	315					315				
R-squared	0.556	0.153					0.204				
Number of province	63	63					63				

*Note: ***, ** and * are significant at 1%, 5% and 10%, respectively.*

Source: Author's computation

First, Model (1) provides a benchmark association between tourism development and income inequality in a two-way fixed effects setting, tourism is positively associated with inequality (*tourism coefficient* = 0.008, $p < 0.01$).

Second, Model (2) estimates tourism development - urbanization relationship. The results show that tourism development does not translate into stronger urban population absorption: tourism development's direct and indirect effects on urbanization are negative (-0.008 , $p < 0.05$), (*Indirect* = -0.034 ($p < 0.05$), and total effect = -0.042 ($p < 0.05$) indicating that tourism expansion is associated with lower urbanization both locally and through cross-provincial spillovers. This spillover dominance has been documented in China, where domestic tourism's indirect effects dominated the total inequality relationship (Li *et al.*, 2016b; Zeng and Wang, 2021), and where neighboring inbound tourism was found to increase local disparity (Shi *et al.*, 2020). Nugroho (Nugroho *et al.*, 2025) reported a similar pattern in Indonesia, where tourism reduces inter-regional inequality but increases within-region inequality. The consistency of these findings across Vietnam, China, and Indonesia suggests that spillover dominance may represent a generalizable feature of tourism-inequality dynamics in transitional Asian economies.

Third, Model (3) estimates the inequality equation by adding urbanization to the tourism development – income inequality relationship. Urbanization exhibits an income inequality-reducing association in the long run, again dominated by spillovers: (*LR_Indirect* = -0.102 ($p < 0.05$)). At the same time, tourism development's long-run effect on income inequality is driven primarily by the spatial channel: (*LR_Indirect* = 0.011 ($p < 0.05$) and *LR_Total* = 0.011 ($p < 0.05$)). Urbanization itself is associated with lower inequality in the long run, primarily through inter-provincial spillovers, a finding consistent with Ha *et al.* (2019), who confirmed an inverted-U relationship between urbanization and inequality across all 63 Vietnamese provinces, and with Wan *et al.* (2022), who argued that well-managed urbanization can reduce inequality by narrowing the urban-rural gap. This result of model 3 means that tourism weakens an equalizing channel the demographic absorption pathway while simultaneously generating inequality pressures through spatial restructuring.

To sum up, first, the GTWR establishes that tourism's income inequality effects are spatially heterogeneous: positive in the North and South, negative in the Central region. Second, the SDM identifies the mechanism: tourism generates income inequality not through direct local effects but through spatial spillovers that weaken the demographic-absorption channel of urbanization. Third, if this mechanism is

operative, it should leave a physical imprint rising land consumption without proportional population growth, declining land-use efficiency, and built environments that continue expanding even when tourism demand collapses.

4.8. Case study analysis

The case study analysis SDG 11.3.1 (Land use efficiency - LUE) indicators to examine whether the statistical mediation identified in the SDM corresponds to measurable morphological changes on the ground. The SDG 11.3.1 framework is well-suited because it measures the ratio of land consumption rate to population growth rate, the physical manifestation of the “spatial expansion without demographic absorption” that the SDM identifies. The applications of SDG 11.3.1 to tourism contexts have confirmed that standard land-use metrics fail to capture tourism-driven expansion (Nunna & Banerjee, 2022).

While the econometric models estimate the relationship between tourism development, urbanization, and income inequality, the LUE indicators help clarify the spatial form through which this association materializes. In particular, the positive coefficients of tourism development - income inequality observed may also reflect a broader spatial mechanism in which tourism stimulates land conversion, resort construction, hotel development, and tourism-related real-estate expansion without generating proportional demographic absorption or broad-based local employment. Thus, SDG 11.3.1 are used as a qualitative method to interpret the estimated tourism development coefficients by linking economic outcomes with spatial morphology. The regression results show whether and where tourism development is associated with income inequality; the LUE analysis helps explain how this association is produced through the physical restructuring of urban and tourism space. This connection is consistent with the study’s theoretical framework of the spatio-temporal fix: tourism development can absorb capital into fixed spatial forms, but when this process is dominated by land and real-estate investment rather than inclusive employment and local enterprise development, it may reinforce rather than reduce income inequality.

4.8.1. Case study contexts

Vietnam’s tourism development plan (2021-2030) explicitly identifies Hanoi, Danang, and Ho Chi Minh City as the country’s three primary tourism development poles. These metropolises are designated “national growth poles” for the Northern, Central and Southern regions, respectively, serving as gateways and distribution hubs for tourism. Each city has received extensive investment in tourism-oriented

infrastructure, including international airports, luxury hotels, convention centers, and urban beautification projects. These developments not only reshape the physical form of the cities but also reflect strategic attempts to absorb capital into place-based, consumption-oriented assets.

Importantly, Vietnam's official tourism strategy further reinforces the relevance of Harvey's framework by explicitly positioning the private sector as the main source of capital for tourism development. According to the Ministry of Culture, Sports and Tourism (2023), the government encourages private investors to lead in developing tourism infrastructure, products, branding, and functional facilities within key destinations. In practice, this means that large-scale private capital both domestic and foreign is being directed into tourism zones, with state planning facilitating the spatial concentration of investment. As such, case studies provide valuable insights into how tourism operates as a mechanism of spatial restructuring under contemporary capitalism, particularly in rapidly urbanizing economies like Vietnam's.

The three case studies: Hanoi, Da Nang, and Ho Chi Minh City are selected to represent Vietnam's three major tourism-urbanization types: the capital-city political economy (Ha Noi), the emerging tourism hub (Da Nang), and the diversified metropolis (Ho Chi Minh City).

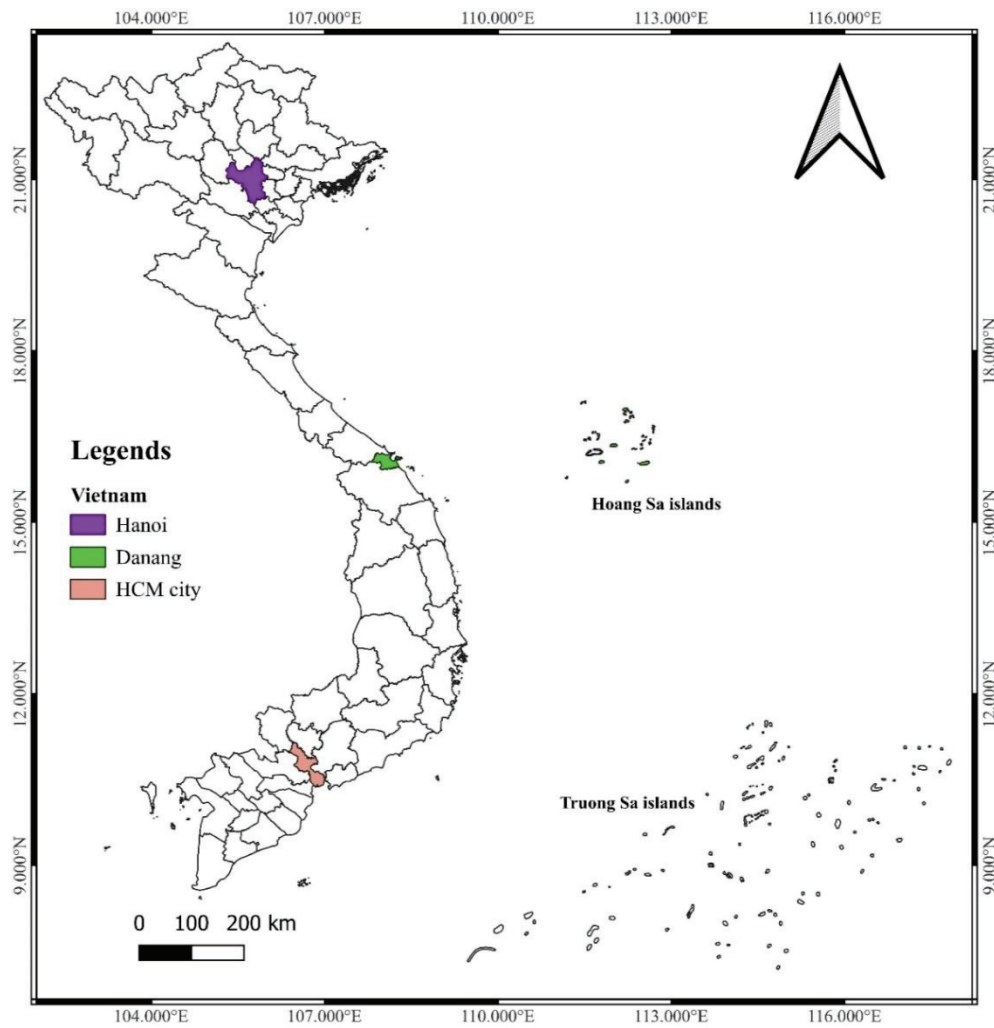


Figure 4.5. The geographical location of research studies.

Source: author's compilation

4.8.2. Measuring LCL result

Figure 4.7 illustrates the evolution of urban space intensity per resident (U_R), per tourist (U_T), and per functional population unit (U_{RT}), thereby capturing how urban space expands relative to different population bases. The steady increase in U_R , particularly in Hanoi and Da Nang, indicates that residential urban space has expanded faster than resident population growth. This pattern suggests a continuous fixation of capital into residential land and housing, consistent with Harvey's concept of spatial fix, whereby surplus capital is absorbed through long-term investments in the built environment (Harvey, 2001). By contrast, the U_T index exhibits substantial volatility, declining in the 2010–2015 period before rising sharply in 2015–2020. This fluctuation reveals that tourism-related urban space is highly sensitive to external shocks and demand instability, yet remains subject to rigid investment commitments. Ho Chi Minh City displays a different trajectory in U_R and U_T ; however, the similar

evolution of U_RT across all three cities points to a shared underlying mechanism of spatial expansion detached from functional population dynamics. The decline in U_RT during 2010–2015, followed by a pronounced increase in 2015–2020, signals a growing divergence between urban space and effective population. This divergence points to a spatial contradiction in which urban space keeps expanding, while the population base that should support and utilize this space fails to grow accordingly.

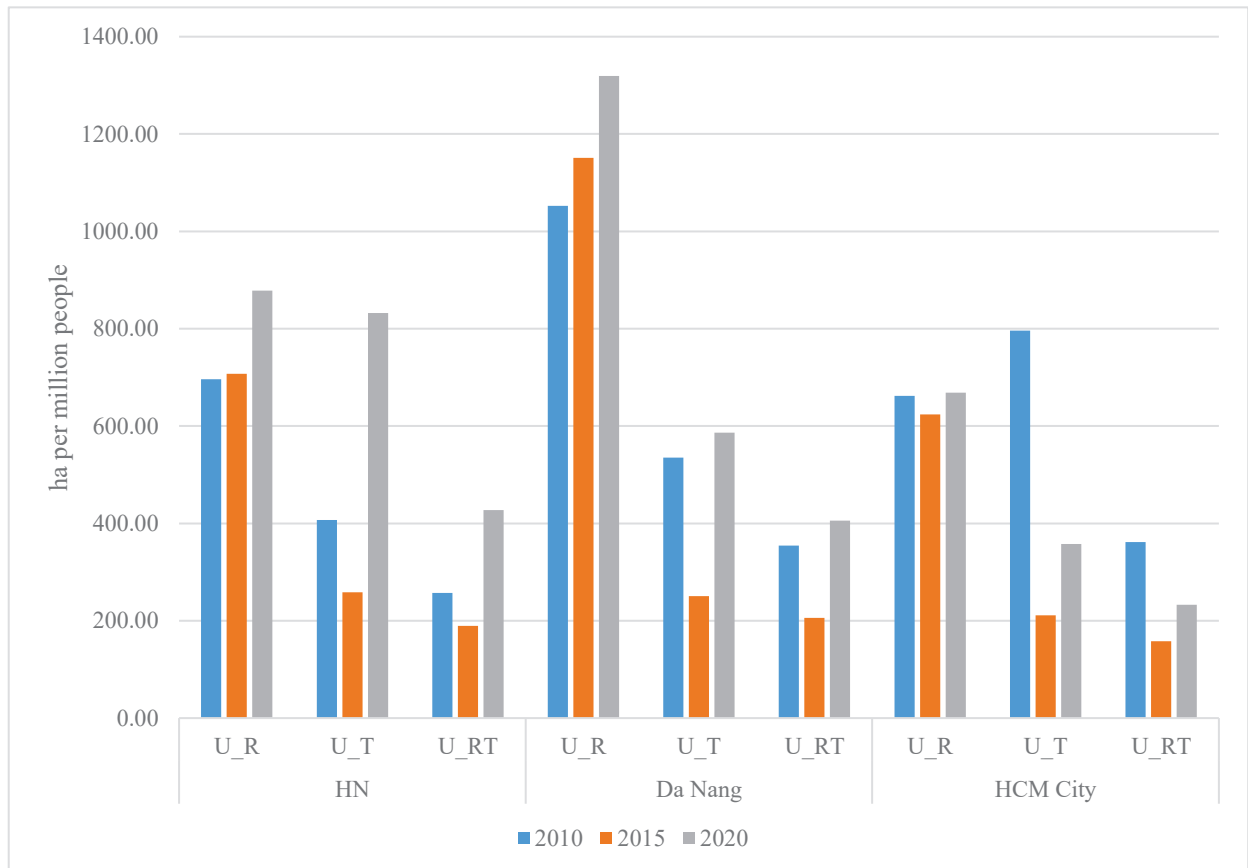


Figure 4.6. Results of indices: U_R; U_T; U_RT

Source: author's calculations

Table 4.11 reveals this analysis by examining land consumption levels (LCL) relative to residents, tourists, and the combined functional population. Because LCL captures the relative change in urban space per population unit, it directly reflects whether spatial expansion is becoming more or less intensive. During the 2010–2015 period, most LCL values are negative, indicating that urban space expanded more slowly than population growth. This suggests a temporary phase of relative spatial compactness, during which the spatial fix remained aligned with demographic dynamics. In contrast, the 2015–2020 period is characterized by strongly positive LCL values across all three cities and all indicators, implying that urban space expanded

faster than both resident and tourist populations. This pattern signals spatial overaccumulation, where capital continues to flow into land and construction despite weakening population-based demand. The particularly sharp increase in Tourist LCL does not indicate improved efficiency. Rather, because U_T rises mechanically as tourist numbers decline, it exposes the rigidity of tourism-led spatial investments. Urban space continues to expand while tourism demand contracts, highlighting a growing mismatch between long-term spatial investment and short-term fluctuations in tourism activity. Overall, land consumption patterns in all three localities show more favorable outcomes during the 2015-2020 period compared with 2010-2015.

In the first period, most indicators record negative values, implying a general trend toward reduced per capita land consumption. The only notable exception is the Resident LCL index in Hanoi, which remains slightly positive, in contrast to Ho Chi Minh City, where resident land consumption declines during the same period. By contrast, all three indicators in all localities turn positive during the 2015-2020 period, indicating a renewed increase in per capita land consumption. This shift suggests that urban expansion during this later period outpaced both population growth and tourist inflows, leading to a less compact urban form. The change is particularly pronounced in the Tourist LCL index, which records substantial positive values across the three cities. The strong increase in Tourist LCL during 2015-2020 should be interpreted in light of the COVID-19 shock in 2020, which led to a sharp decline in tourist numbers. As built-up land expansion continued despite reduced tourist inflows, land consumption per tourist appears to increase significantly, giving the impression of higher land-use efficiency from a per-tourist perspective. At the same time, Resident LCL values are positive in all three localities across both periods, except for Ho Chi Minh City in 2010-2015. This indicates that, overall, the expansion of construction land remains broadly aligned with population growth, although the increasing Capita LCL values in 2015-2020 suggest that urban land expansion has accelerated relative to demographic growth. These results imply a growing tendency toward more spatially extensive urban development in the later period, particularly in the context of tourism-oriented urban expansion.

Table 4.11. Results of measuring land consumption level

Research areas	Indicators	2010-2015	2015-2020
Hanoi	Resident LCL	1.52	24.18
	Tourist LCL	-36.55	222.10
	Capita LCL	-26.36	125.78
Da Nang	Resident LCL	9.39	14.61
	Tourist LCL	-53.23	134.31
	Capita LCL	-42.05	97.47
HCM City	Resident LCL	-5.78	7.14
	Tourist LCL	-73.44	69.28
	Capita LCL	-56.31	47.61

Source: author's calculations

4.8.3. Measuring LUE

Figure 4.7 compares the growth of urban land with changes in population and tourism, highlighting differences in adjustment speed across these dimensions. While LCR remains positive in both periods, indicating continued spatial expansion, TGR turns negative in 2015–2020 across all three cities, reflecting a sudden contraction in tourism demand. This divergence suggests that urban space adjusts much more slowly to demand shocks than population or tourism activity. Built-up land continues to expand, even when tourism demand declines sharply. Because urban land development is based on long-term fixed investment, spatial expansion adjusts more slowly than tourism or population dynamics and therefore does not necessarily coincide with growth in urban population or tourist inflows.

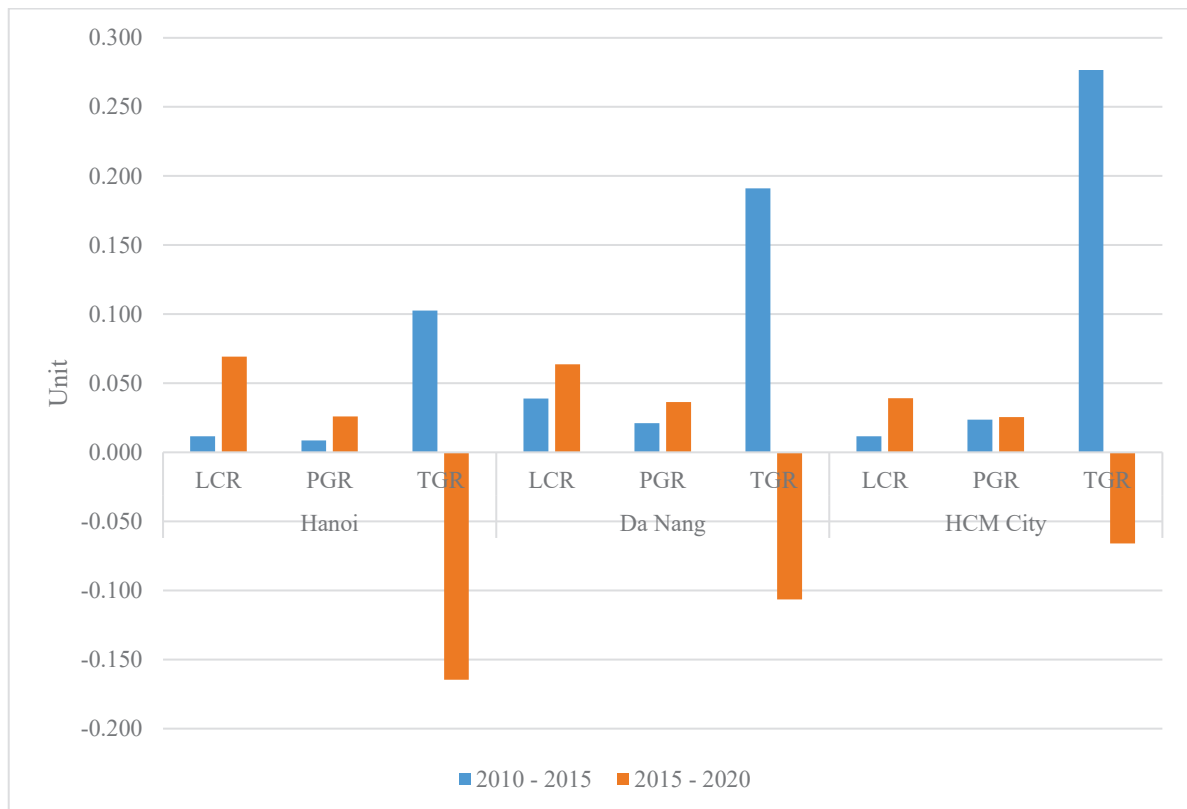


Figure 4.7. Results of the indices: LCR; PGR; TGR

Source: author's calculations

Table 4.12 synthesizes the implications of these dynamics through land use efficiency (LUE). In the 2010–2015 period, positive LCRPGR and LCRTGR values, combined with LUE values between 0 and 1, indicate that land expansion remained broadly proportional to growth in both resident and tourist populations. During this phase, the spatial fix functioned relatively effectively. In contrast, the 2015–2020 period marks a clear breakdown of land use efficiency. Although LCRPGR remains positive-reflecting continued alignment between land expansion and resident population growth-LCRTGR becomes negative across all cities, driven by the collapse of tourism development. As a result, LUE turns negative, signaling that urban land expansion is no longer supported by overall functional population dynamics. LUE values do not represent improved efficiency but rather the exposure of the limits of the spatial fix. Capital remains fixed in urban space even as the social and economic conditions that justified this expansion deteriorate. The COVID-19 shock thus acts as a revealing moment, making visible the latent inefficiencies and contradictions embedded in tourism-led urban development. These findings align with a study documented similar patterns in Mallorca, where dispersed urban land driven by real estate tourism reached 80.6% in Calvià municipality (Hof and Blázquez-Salom, 2013).

Table 4.12. Results of measuring LUE

Research areas	Indicators	2010-2015	2015-2020
Hanoi	LCRPGR	1.354	2.665
	LCRTGR	0.112	-0.421
	LUE	0.104	-0.5
Da Nang	LCRPGR	1.852	1.748
	LCRTGR	0.204	-0.598
	LUE	0.184	-0.909
HCM City	LCRPGR	0.494	1.541
	LCRTGR	0.042	-0.595
	LUE	0.039	-0.968

Source: author's calculations

Hanoi exhibits the most dramatic divergence between land consumption and population growth among the three cases. Built-up area expanded by approximately 18% over the first period, driven primarily by the Hanoi Master Plan expansion that incorporated surrounding districts (formerly Ha Tay province) and triggered massive new-town construction on the western and southern periphery. Tourism-specific developments including golf courses, resort hotels, and peri-urban entertainment complexes along the Thang Long highway corridor contributed to this expansion, but the dominant driver is speculative real estate investment that treats land as a financial asset rather than a productive input (Jacques et al., 2017). Hanoi's case illustrates how tourism operates within a broader capital-switching dynamic where the boundaries between tourism investment and real estate speculation blur: projects branded as “eco-tourism resorts” or “cultural tourism zones” often function primarily as mechanisms for converting agricultural land to higher-value urban uses, with tourism serving as the justification for land conversion rather than the primary source of operational revenue.

Da Nang - the Central region's primary tourism hub, exhibits the characteristic temporal mismatch that spatial fix theory predicts (Harvey, 1981; Yrigoy, 2014). The city experienced rapid built-up expansion during 2010–2015 (approximately 22%), driven by resort and beachfront development along the My Khe–Non Nuoc corridor, airport expansion, and the Marble Mountains tourism zone. This wave of investment

was heavily oriented toward condotel (condominium-hotel) development, which experienced a speculative boom during 2016–2018 as investors anticipated rapid appreciation in tourism property values. The subsequent wave of widespread defaults, construction suspensions, and legal disputes over condotel ownership rights represents the most visible manifestation of a failed spatial fix in Vietnam’s tourism sector, a case where capital fixed in tourism real estate could not generate the returns that justified its allocation, leaving investors stranded and partially completed developments dotting the coastline. Despite these setbacks, land expansion continued, producing the positive LCL and negative LUE values documented above. Da Nang’s trajectory demonstrates a critical insight: the spatial fix dynamic does not self-correct when tourism demand disappoints. Capital already committed to construction continues to be deployed because the sunk costs of abandoning partially built projects exceed the marginal costs of completion, even when market conditions no longer justify the investment.

Ho Chi Minh City exhibits the most balanced land-use efficiency among the three cases only in the first period (2010–2015), reflecting its diversified economic base. During this phase, built-up expansion was accompanied by relatively strong population growth driven by manufacturing, services, and commercial activities, allowing LUE values to remain closer to the sustainable benchmark (UN-Habitat, 2020). However, this balance does not persist into the 2015–2020 period. Although urban expansion continued at a significant pace, it was no longer matched by proportional population growth, indicating a weakening of the earlier production-based urbanization dynamic. In this later phase, the city begins to exhibit characteristics more aligned with land-intensive expansion, where the coordination between spatial growth and demographic absorption becomes less effective.

THE SUMMARY OF CHAPTER 4

Chapter 4 examines how tourism development in Viet Nam is linked to urbanization dynamics and income inequality, combining traditional panel models, spatio-temporal heterogeneity analysis, spatial dependence models, and an illustrative SDG 11.3.1-based case study. The chapter first situates Viet Nam as a transitional economy where market reforms since Đổi Mới (1986) opened the country to global capital while the state retained strong authority over land and strategic resource allocation. In this institutional setting, local governments face incentives to attract investment and expand fiscal revenues, making tourism a key arena for place-based capital accumulation, urban transformation, and shifting inequality. Regional tourism development is uneven, and provinces both compete and coordinate within broader growth-pole strategies, conditions that make spatial spillovers empirically relevant.

Baseline estimates show that tourism is positively and significantly associated with income inequality in OLS and fixed-effects models. Diagnostic tests indicate acceptable multicollinearity, supporting the variable set. However, these global regressions provide limited insight into heterogeneity or mechanisms. The chapter then demonstrates that inequality is strongly spatially clustered (Global Moran's $I \approx 0.441$, highly significant), motivating spatial econometric modeling. Spatio-temporal nonstationarity tests confirm that key coefficients vary substantially across provinces and years, and model comparisons show GTWR outperforms TWR and GWR indicating that both geography and time jointly shape the tourism development-income inequality nexus. GTWR results reveal widening regional divergence between 2018–2022: the Central region exhibits negative or near-zero tourism-inequality effects, while Northern and Southern regions show positive effects, implying that tourism gains are more likely to accrue to higher-income groups in those areas.

Turning to mechanisms, the Spatial Durbin model shows that tourism expansion is not accompanied by stronger urban population absorption, whereas urbanization itself lowers inequality, chiefly through interprovincial spillovers. In the mediated inequality equation, tourism's long-run effect is driven primarily by the spatial (indirect) channel, consistent with interprovincial transmission.

The Hanoi - Da Nang - Ho Chi Minh City case study then adapts SDG 11.3.1 through a “functional population” lens. It shows that built-up land continued expanding causing land-use efficiency to deteriorate and highlighting rigid, tourism-oriented spatial investment that can coexist with exclusionary distributional outcomes.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1. Discussion

5.1.1. The tourism development - income inequality nexus: Evidence of spatial heterogeneity

The GTWR results reveal that tourism development's relationship with income inequality is not uniform across Vietnam but varies by region and over time. The Central region maintains predominantly negative coefficients throughout 2018–2022, indicating a pro-poor association, while the Northern and Southern regions display positive and rising coefficients, signaling inequality-increasing effects. This regional divergence is not an artifact of modeling choice; it reflects genuine differences in how tourism development is organized across Vietnam's three regions.

In the Central region, tourism is anchored in heritage-based and culturally embedded activities the imperial citadel of Hue, the ancient town of Hoi An, the Phong Nha cave system. These destinations generate broad employment participation through small and medium enterprises, family-run accommodation, artisanal production, and community-guided tours, creating multiple entry points for lower-income households to capture tourism revenues (Tam *et al.*, 2008). The structure of tourism in central provinces resembles what the inclusive tourism literature describes as a model where backward linkages to local supply chains ensure that revenues circulate within the local economy rather than being extracted by external investors (Ashley and Mitchell, 2009; Pang *et al.*, 2024). By contrast, the Northern and Southern regions are increasingly dominated by capital-intensive resort development, FDI projects, MICE (meetings, incentives, conferences, exhibitions) tourism, and speculative real-estate investment. These forms of tourism channel return predominantly toward asset owners, large corporations, and internationally connected service providers, while generating employment that is largely seasonal, informal, and low wage.

This interpretation consists of broader international evidence. Meta-analytic work synthesizing over 160 estimates has confirmed that tourism's inequality-increasing effect is more pronounced in developing countries where institutional safeguards for redistribution are weak (Zhang, 2021). Panel studies across 49 developing economies reported comparable positive coefficients (Alam and Paramati, 2016), and recent evidence across 120 countries found that tourism consistently increases inequality in developing economies in both the short and long run (Camacho

and Ramos-Herrera, 2025). Other scholars have found inequality-reducing effects where institutional quality supports redistribution (Fang *et al.*, 2021; Seetanah, Gopy-Ramdhany and Bhattu-Babajee, 2023). The thesis's evidence reconciles these seemingly contradictory findings by demonstrating that both outcomes can coexist within a single country: the direction depends on the local growth model.

The coexistence of distinct temporal trajectories, a U-shaped pattern in the North and an inverted-U in the South further supports this interpretation. The Northern trajectory suggests an initial phase of relatively inclusive tourism shift toward more concentrated, capital-intensive recovery patterns. The Southern trajectory reflects earlier and deeper integration into global tourism circuits, where real estate-oriented development generated strong inequality-increasing effects before moderating as the sector contracted. These patterns align with international evidence showing that developing economies exhibit heterogeneous Kuznets curve shapes depending on institutional quality and the dominant accumulation model (Chi, 2021; Ghosh and Mitra, 2021), and that inbound tourism can widen inequality in more commercially developed regions while narrowing it in less developed ones within the same country (Zhang, 2023).

5.1.2. Spatial spillovers

The SDM results show that tourism development's effect on income inequality operates primarily through inter-provincial spillovers rather than direct local effects. Tourism development in one province affects inequality predominantly in neighboring provinces through labor reallocation, investment competition, land price transmission, and the formation of regional tourism circuits rather than within the originating province itself. This spillover dominance is the second key finding requiring contextual explanation.

In Vietnam's governance architecture, tourism policy operates largely at the provincial level. Each province makes independent decisions about tourism investment promotion, land conversion approvals, infrastructure prioritization, and destination marketing. There is no formal mechanism for coordinating tourism planning across provincial borders (Hoang *et al.*, 2018), nor for compensating neighboring provinces that absorb the negative externalities labor market pressures, housing cost inflation, environmental degradation generated by a neighbor's tourism boom (Hoa, 2026). This institutional fragmentation creates the conditions for spillover dominance: the benefits of tourism concentrate in core destination provinces (through tourism revenues, tax receipts,

and employment), while the distributional pressures radiate outward through market mechanisms that provincial governments neither monitor nor manage.

An evaluation of Vietnam's 2017 Tourism Policy using difference-in-differences methods found that uniform national tourism promotion had no significant effect on revenue while widening disparities between designated and non-designated tourism provinces (Bui Hoang, 2024). This evaluation corroborates the SDM's spillover finding: the current governance framework concentrates tourism's benefits in core provinces without addressing the inter-provincial transmission of distributional pressures. Comparable spatial studies in China have documented that domestic tourism's indirect spillover effects dominated the total inequality (Li *et al.*, 2016c; Zeng and Wang, 2021), and that neighboring inbound tourism can actually increase local disparity (Shi *et al.*, 2020). The consistency of these findings across transitional Asian economies suggests that spillover dominance is a structural feature of tourism development – income inequality dynamics in state-led development contexts. The common thread is a governance architecture that promotes tourism within administrative units but lacks the institutional machinery to manage its distributional consequences across them.

Vietnam's provincial governance quality amplifies this coordination gap. Research using the Provincial Competitiveness Index (PCI) and Provincial Governance and Public Administration Performance Index (PAPI) has shown that improving government quality promotes both growth and reduces inequality, but that growth alone may widen inter-provincial gaps when governance capacity is uneven (Hung *et al.*, 2020)

5.1.3. The decoupling of spatial expansion and demographic absorption

The third finding is negatively associated with population-based urbanization, while urbanization itself reduces inequality through spatial spillovers. This mediation pathway in which tourism weakens an equalizing demographic-absorption channel is given physical substance by the case study analysis of Hanoi, Da Nang, and Ho Chi Minh City using the SDG 11.3.1 framework.

In the SDM, urbanization is measured as the share of provincial population living in urban areas a demographic indicator, not a spatial one. A province can experience rapid expansion of built-up land (hotels, resorts, roads) without a corresponding increase in permanent urban residents, and it is precisely this disconnect that the model detects. Tourism creates physical infrastructure without proportionally

absorbing permanent residents because the employment it generates is often seasonal, informal, and insufficient to sustain permanent urban settlement. Workers commute from peri-urban areas rather than permanently resettling, and the spatial expansion of tourism investment outpaces the demographic consolidation that conventional urbanization theory expects.

The case study analysis further examines whether the statistical findings have a physical-spatial counterpart. The SDG 11.3.1 indicator, measured as the ratio of land consumption rate to population growth rate, captures whether built-up land is expanding faster than the population that occupies it. Across the three case-study cities, the results show a decline in land-use efficiency during 2010 - 2020, indicating that physical urban expansion was no longer matched by corresponding demographic growth. This pattern is consistent with the broader argument of “spatial urbanization without demographic urbanization”, whereby tourism-led urban development materializes through the expansion of built-up land, infrastructure, and real-estate projects, even when urban population growth does not increase at the same pace. This finding should be read alongside signs in tourism-led real-estate development that had already emerged before the pandemic. The late-2019 Coco bay Da Nang condotel crisis, in which promised returns to condotel investors were halted before the outbreak of COVID-19, illustrates that vulnerabilities in the condotel and tourism real-estate model had begun to surface prior to the pandemic. This case study is used as contextual evidence that land-intensive tourism development had already contained financial and operational vulnerabilities before COVID-19 (*VietnamNet*, 2017). In this sense, the pandemic functioned as a revealing event: it exposed the mismatch between fixed spatial investment and volatile tourism demand. When tourism demand collapsed in 2020, built-up land continued expanding because spatial investment is temporally rigid; capital already committed to construction cannot be easily redeployed. The resulting mismatch exposed latent inefficiencies embedded in tourism-led development during the preceding boom period.

Accordingly, the observed decline in LUE is better understood as the combined outcome of two interacting forces: pre-existing land-intensive tourism development trends associated with real estate and infrastructure expansion, and the collapse in tourism demand caused by the pandemic. This interpretation is consistent with recent tourism studies that view the pandemic not only as an external shock, but also as an event that revealed pre-existing vulnerabilities within tourism-dependent development models. OECD (OECD, 2022) argues that although tourism is vulnerable to exogenous

shocks, COVID-19 also exposed underlying endogenous weaknesses in the tourism ecosystem. Similarly, some studies show that tourism vulnerability during COVID-19 was shaped by pre-existing destination characteristics, including tourism dependency and accommodation supply (Duro *et al.*, 2021), the pandemic highlighted the inherent vulnerability of destinations and communities dependent on transnational tourist flows (Lamers and Student, 2021). These studies support the interpretation that the decline in LUE should be read as the interaction between structural exposure and pandemic-induced demand disruption, rather than as a purely short-term COVID effect.

The Vietnamese evidence also resonates with comparative cases from other tourism-dependent regions. Similar patterns have been documented in Mediterranean coastal destinations, where dispersed tourism-driven urban land expansion reached extreme levels (Hof and Blázquez-Salom, 2013; Lagarias and Stratigea, 2022). In post-crisis Lisbon, tourism has been interpreted as a spatial fix to recession, even as the resident population declined substantially over the same period (Estevens *et al.*, 2023). Croatia provides another relevant example, where rapid tourism growth coincided with demographic decline, suggesting that tourism-led urbanization can proceed without proportional population growth (Mikulić *et al.*, 2021). These cases reinforce the interpretation that tourism-driven urbanization may produce built-environment expansion without corresponding demographic absorption.

In Vietnam, this decoupling is further shaped by the state-ownership land regime. The state controls land allocation defines the public interest basis for land conversion and sets compensation levels for affected communities. Research on tourism land governance in Vietnam shows that local people's rights are often insufficiently protected during tourism-related land conversion (T.T. Duong, Samsura and Van Der Krabben, 2020), that tourism land acquisition may generate displacement, livelihood loss, and social conflict (Duong, Samsura and Van Der Krabben, 2023), and that no formal land value capture mechanism exists to ensure equitable redistribution of tourism-generated land appreciation (Duong, Samsura and Van Der Krabben, 2025b). These institutional conditions create a channel through which tourism-driven spatial expansion may transfer land-related value away from affected communities toward developers and investors.

Thus, the decline in LUE should be interpreted not merely as a technical indicator of inefficient land use, but as a spatial expression of uneven tourism-led urbanization. Built environments expanded beyond what demographic growth could justify, while the institutional framework governing land conversion did not

necessarily ensure that the benefits of land appreciation were redistributed to affected communities. This provides a physical-spatial explanation for how tourism-led development may contribute to inequality: not only through income flows generated by tourism activity, but also through the unequal production, allocation, and appropriation of urban land value.

5.2. Theoretical contributions

5.2.1. Tourism as a physical “Spatio-temporal fix”

This dissertation extends Harvey’s (1981; 2001) spatio-temporal fix framework to tourism in a transitional economy. Prior applications of the framework have focused on manufacturing (Harvey, 1978), financial real estate in advanced economies (Yrigoy, 2014; 2021), and post-crisis capital switching in semi-peripheral European cities (Estevens et al., 2023; Jover & Cocola-Gant, 2023). In China, the framework has been applied to tourism-induced land acquisition around heritage sites (Li et al., 2024), and in Beirut to cycles of creative destruction in tourism spaces (El Alam *et al.*, 2025). However, none of these studies has applied the spatio-temporal fix to a transitional economy where the state simultaneously owns all land.

The Vietnamese case reveals a distinctive form of the spatial fix in which the state’s dual role as land owner and tourism promoter creates accumulation dynamics not captured by existing theoretical applications. In market economies, the spatial fix operates through capital switching from primary-circuit production to secondary-circuit built environment, mediated by financial institutions and real estate markets. In Vietnam, this switching is mediated by the state itself: the government defines “public interest” for land conversion, sets compensation levels through administrative pricing mechanisms, allocates development rights to private investors, and captures a portion of value increments through auction fees and build-transfer obligations. The result is a form of spatial fix that is simultaneously more politically directed and more distributionally opaque than its market-economy counterparts. The case study evidence – particularly Hanoi’s master-plan-driven peripheral expansion and Da Nang’s condotel boom-bust cycle – provides concrete morphological illustrations of this state-mediated spatial fix in operation.

5.2.2. Challenging tourism-led urbanization

The dissertation’s second theoretical contribution is the identification and empirical documentation of “dual urbanization” a pattern in which tourism accelerates land-oriented urban growth while producing negative outcomes for demographic absorption. This finding challenges a widely held implicit assumption in the tourism-

development literature: that tourism-led development automatically urbanizes and therefore equalizes, because urbanization draws rural populations into higher-productivity employment and narrows the urban-rural income gap. The SDM mediation results show that this causal chain breaks down when tourism produces spatial expansion without proportional population settlement. Tourism creates the physical markers of urbanization—buildings, roads, infrastructure—without the social substance that makes urbanization equalizing: permanent residents, stable employment, community networks, and demand for local services.

This concept of “phantom urbanization” identified in Indian tourist destinations, where standard SDG 11.3.1 metrics fail because tourism creates infrastructure demand without proportional population growth (Nunna & Banerjee, 2022), describes the phenomenon from a measurement perspective. The “coastalization” documented in Mediterranean destinations, where low-density spatial development proceeds independent of permanent population dynamics (Lagarias and Stratigea, 2022), captures its geographic expression. The evidence of built-environment expansion alongside population decline (Mikulić et al., 2024) provides its most extreme manifestation. The dissertation’s contribution is to integrate these observations into a coherent theoretical framework, grounded in spatial econometric evidence, that explains why tourism can produce urbanization-like spatial outcomes while bypassing urbanization’s equalizing social mechanisms.

5.2.3. Multi-scale methodological framework

The third contribution is methodological. The dissertation combines macro-level spatial econometrics (GTWR and SDM operating at the provincial scale across 63 provinces) with micro-level urban morphology diagnostics. This multi-scale design is not merely a triangulation exercise; each scale addresses a specific analytical limitation of the other. The GTWR captures spatial heterogeneity in tourism’s inequality effects but cannot identify the physical mechanisms through which these effects operate. The SDM identifies the mediation pathway (tourism weakening the demographic-absorption channel of urbanization) but produces this finding as a statistical coefficient, not as observable physical evidence. The SDG 11.3.1 case studies ground both findings in measurable land-use dynamics, testing whether the statistical mediation corresponds to real morphological changes in Vietnam’s major tourism cities. Recent GTWR applications in tourism eco-efficiency analysis across Chinese cities (Peng *et al.*, 2024), urban-rural coordination in the Beijing-Tianjin-Hebei agglomeration (Cong *et al.*, 2024), and digital economy-tourism coordination

across 30 provinces (Liu, Lu and Li, 2024) have validated GTWR's superiority for capturing spatiotemporal heterogeneity, while comparative SDM studies have confirmed the methodological importance of decomposing direct and spillover effects in tourism-economy research (Vizek, Stojčić and Mikulić, 2023).

5.3. Policy implications

5.3.1. Strengthening regional governance and fiscal spillovers

The finding that the effects of tourism development on income inequality are mainly driven by spatial spillovers suggests that tourism policy should not be designed only within individual provincial boundaries. When tourism development in one province affects income inequality in nearby provinces, province-level planning may fail to address the actual scale of the problem. This supports the need for stronger regional coordination between core tourism provinces and neighboring provinces that are affected by spillover pressures. Recent spatial studies in China and Indonesia also show that tourism development should be coordinated across regions when spillover effects are important (Zeng and Wang, 2021; Nugroho *et al.*, 2025). In Vietnam current tourism planning according to Decision No.374/2026/QĐ-BTHTTDL, which already emphasizes regional linkages, tourism corridors, and inter-provincial cooperation. However, these linkages need clearer fiscal support to become effective. The Law on State Budget No. 89/2025/QH15 provides a legal basis for this. Article 9.5(d) allows a province to use its development investment budget to support infrastructure projects in another province, especially projects related to regional linkages and spillover effects. This means that high-revenue tourism provinces could voluntarily co-finance shared tourism infrastructure, transport connections, or supporting facilities in neighboring provinces. In addition, Article 43 allows the central government to provide targeted grants for important inter-provincial projects. Therefore, Vietnam could combine tourism corridor coordination mechanisms with these fiscal tools, so that the benefits of tourism development are shared more fairly across connected provinces. Early implementation guidelines are needed to help provinces apply the existing cross-provincial fiscal mechanism in practice to encourage voluntary cross-provincial investment, targeted central support, and formal coordination among provinces within the same tourism corridor. This would help ensure that provinces benefiting most from tourism development also contribute to reducing income inequality pressures in surrounding areas.

5.3.2. Regionally differentiated tourism strategies

This implication is linked to the mediation results of this thesis. Tourism-driven spatial expansion can weaken the equalizing effect of urbanization when it produces built environments without sufficient demographic absorption. In these cases, tourism development may generate infrastructure, resorts, real estate projects, and service-sector expansion, but fail to create stable livelihoods, affordable housing, and long-term settlement opportunities for local workers. The result is an exclusionary pathway in which physical urban expansion proceeds faster than socially inclusive urbanization. Therefore, tourism-driven spatial expansion must be deliberately coupled with social integration measures if it is to generate inclusive outcomes. These measures include formal employment, worker housing, vocational training, and stronger local participation in tourism value chains.

In the North, where the GTWR results show tourism development increasing income inequality, policy should focus on controlling the exclusionary consequences of tourism-led urban expansion. This is especially relevant for major urban–tourism corridors such as Hanoi–Hai Phong–Quang Ninh and highland tourism destinations, where tourism growth is closely connected to infrastructure upgrading, land conversion, and real estate-oriented investment. In this region, tourism policy should move beyond the objective of attracting visitors and investment. The priority should be to regulate those who benefit from tourism-induced land appreciation, infrastructure expansion, and service-sector growth. More specifically, policy should require major tourism projects to generate stable local employment, provide affordable worker housing, and strengthen the participation of local residents and ethnic-minority communities in formal tourism value chains.

In the Central region, where the GTWR results show tourism development reducing income inequality. Central Vietnam’s tourism economy is more strongly associated with heritage tourism, small and medium-sized enterprises, community-based services, and locally embedded cultural assets. This regional structure allows tourism income to circulate more directly through local households, small businesses, and community-based service providers. Evidence from community-based tourism in Nhon Ly, Binh Dinh, shows that tourism can improve local income and livelihoods when residents are directly involved in tourism activities, although benefits may still be unevenly distributed among villages (Quang *et al.*, 2023). Therefore, the policy priority in Central Vietnam should be to protect the SME-based and heritage-oriented tourism model from being displaced by large-scale enclave resorts and speculative

tourism real estate. Implementation should prioritize local supplier linkages, community enterprise support, vocational training, and mechanisms that allow tourism income to remain within local economies rather than being captured primarily by external investors.

In the South, where the GTWR results show tourism development increasing income inequality, policy should address the land-intensive and enclave-oriented character of tourism growth. Tourism development in this region should not be limited to expanding high-end destinations, resort infrastructure, and tourism real estate. Instead, tourism-generated fiscal revenues, infrastructure improvements, and employment opportunities should be explicitly linked to inequality reduction in surrounding communities. For large-scale tourism projects, approval and monitoring mechanisms should include requirements on permanent worker housing, social infrastructure, formal employment pathways, and local procurement. These measures would help convert seasonal and informal tourism jobs into more stable livelihoods and transform tourism-driven spatial expansion into genuine urbanization with demographic absorption, thereby activating the equalizing channel identified by the SDM results.

Vietnam's tourism system planning for 2021–2030, with a vision to 2045, already organizes tourism development through regional spaces, growth poles, tourism corridors, and regional product orientations. However, these frameworks should be translated into income inequality-sensitive implementation mechanisms rather than treated only as destination-development strategies. In other words, regional tourism planning should not only ask what type of tourism each region should develop, but also who benefits from tourism growth, how tourism income is distributed, and whether tourism-led urban expansion produces stable demographic and social absorption.

This policy direction is also supported by evidence from all 63 Vietnamese provinces, which shows that sustained urbanization reduces inequality only when accompanied by investments in education, healthcare, and formal employment (Nguyen Thi Hoai, 2024). Tourism-driven spatial expansion that produces built environments without these social investments does not trigger the same equalizing mechanism. Vietnam's strategic pivot toward service-based and experience-driven tourism, reflected in the National Community Tourism Development Project under Decision No. 3222/2024/QĐ-BVHTTDL, new vocational training initiatives, and product diversification toward wellness and cultural tourism, therefore represents a

promising start toward redirecting investment from property development to human capital.

Finally, community-based and experience-driven tourism should be promoted carefully rather than assumed to be automatically inclusive. International evidence cautions that community tourism may still generate elite capture and unequal benefit distribution if governance safeguards are weak. Village tourism programs in Indonesia that were nationally recognized as best practice still produced income ratios of six-to-one between elites and non-elites (Harahap, 2025), while nature-based tourism in Lao PDR reduced poverty but simultaneously widened the gap between the wealthiest quintile and the rest (Thomas, 2025). Therefore, Vietnam's community tourism initiatives should incorporate transparent benefit-sharing mechanisms, rotation systems, local participation rules, and independent monitoring. These safeguards are necessary to ensure that tourism development, especially in regions where it is expected to reduce inequality, does not reproduce new forms of exclusion at the community level.

5.3.3. Enhancing land use efficiency and Land value capture mechanisms

The case study evidence provides the most concrete policy foundation. The positive LCL values and negative LUE values during 2015–2020 demonstrate that tourism-driven urban expansion in Hanoi, Da Nang, and Ho Chi Minh City has become decoupled from functional population needs. Capital continues flowing into built environments even as the populations that should justify this expansion fail to keep pace and even as tourism demand collapsed during COVID-19. This pattern points directly to speculative dynamics that land policy must address.

The 2024 Land Law's shift to market-based pricing is a critical enabler, removing the old administrative price cap and paving the way for more accurate valuation of tourism-oriented land. However, market-based pricing alone is insufficient without complementary instruments to capture and redistribute the value increments that tourism infrastructure generates. Three specific interventions are supported by the evidence.

First, the establishment of formal Land Value Capture instruments such as betterment levies on tourism-driven land appreciation would redirect a portion of value increments toward public infrastructure, affordable housing, and community development in affected areas. Experience from Portugal's Algarve region, where a purpose-built betterment instrument captures tourism-driven property value increases

to fund tourism-necessitated infrastructure (Valente and Medeiros, 2022), offers a directly applicable framework.

Second, the declining LUE values suggest that tourism development zones should be subject to land-use efficiency standards, requiring developers to demonstrate adequate population absorption and employment generation as conditions for continued land allocation.

Third, the sharp contrast between the 2010–2015 period (compact growth) and the 2015–2020 period (dispersed, speculative expansion) suggests that regulatory oversight was more effective before the rapid tourism investment acceleration, pointing to a need to restore and strengthen rather than further deregulate land governance. Vietnam’s informal LVC mechanisms voluntary land conversion, auctioning land-use rights, and Build-Transfer models (Duong et al., 2025) could be formalized to ensure that tourism-generated land value increments are distributed more equitably between developers, the state, and affected communities.

For three case studies, Hanoi, Da Nang, and Ho Chi Minh City all display signs of tourism-related land expansion, yet the mechanisms linking tourism development, urbanization, and income inequality are different. Therefore, the general land-governance recommendations above should be translated into city-specific interventions.

In Hanoi, the main policy implication is to prevent cultural and heritage tourism from becoming a mechanism of land-value concentration. According to Tourism National Master Plan in Decision No.509/2024/QĐ-TTg, as well as Law in Capital No.02/2026/QH16 provide a legal basis for developing commercial, cultural, innovation, and urban-development spaces in Hanoi. However, the dissertation’s findings suggest that heritage tourism will not automatically generate inclusive outcomes. If the valorization of the Old Quarter and other central heritage spaces mainly leads to high-end accommodation, commercial upgrading, and tourism real estate, tourism may reinforce the inequality-increasing pattern observed in the Northern region. Therefore, Hanoi should use cultural-tourism development as a redistributive instrument by extending visitor flows toward the Red River corridor and other peri-urban craft-village spaces.

In Da Nang, the Central region’s inequality-reducing tourism effect suggests that tourism in this region has been more closely connected to heritage, SMEs, household businesses, craft production, and community-based services. This makes Da

Nang the most suitable case for scaling an inclusive tourism model. After the 2025 administrative restructuring under Resolution No. 202/2025/QH15, the expanded Da Nang has a broader territorial basis to connect coastal tourism, Hoi An heritage tourism, rural tourism, ecological tourism, and mountain-community tourism. This direction is consistent with the emerging planning orientation of Da Nang, which emphasizes a wider tourism space linked to inter-regional connectivity, heritage, coastal development, MICE, ecology, and community-based experiences. However, the dissertation's findings imply that Da Nang should not allow coastal resort and tourism-real-estate development to dominate the entire tourism strategy. In heritage, rural, and ecological zones, tourism investment should be assessed according to local employment, SME procurement, community participation, and cultural conservation. In coastal resort zones, large-scale projects should be subject to land-value capture and developer contributions, with revenues reinvested in coastal protection, public beach access, worker housing, and heritage conservation as known in Decision No.3222/QĐ-BVHTTDL, which prioritizes community-based tourism as a channel for linking tourism growth with local livelihoods.

In Ho Chi Minh City, following the 2025 administrative restructuring under Resolution No. 202/2025/QH15, Ho Chi Minh City has become a larger metropolitan entity that combines the former urban core with major industrial and coastal-tourism spaces. This creates opportunities for diversified tourism development, but it also increases the risk that tourism benefits will be concentrated in central business districts, waterfront redevelopment areas, coastal mega-projects, and high-value real-estate corridors. The city's MICE-support policy under Resolution No. 62/2025/NQ-HĐND further strengthens the role of high-spending business tourism, with financial support for eligible MICE delegations during 2026–2030. From the perspective of this dissertation, such policies should be accompanied by redistributive safeguards. Land-value capture should be applied in major tourism-growth zones such as the central business regions with revenues directed toward social housing, public transport, ecological conservation, and livelihood transition.

5.4. Conclusion, limitations, and future research

5.4.1. Conclusion

This dissertation has charted the spatial contours of the tourism development–urbanization – income inequality nexus in Vietnam and delivered clear answers to the research questions posed. Tourism development is positively associated with

provincial income inequality at the aggregate level, but this finding conceals substantial spatial and temporal heterogeneity that only becomes visible through spatially sensitive methods. The GTWR reveals that tourism's distributional effect changes sign and magnitude across provinces and over time, confirming that the relationship is fundamentally place dependent. The SDM mediation analysis identifies a specific mechanism: tourism weakens an equalizing demographic-absorption channel by producing spatial expansion without proportional population settlement, transmitting inequality pressures through inter-provincial spillovers rather than direct local effects. The case study diagnostics for Hanoi, Da Nang, and Ho Chi Minh City ground these statistical findings in physical reality, demonstrating that built-up land continues expanding even when tourism demand contracts exposing the rigidity and distributional consequences of capital fixed in the built environment.

The dissertation makes three principal contributions. Theoretically, it extends the spatio-temporal fix framework to tourism in a transitional economy where the state's dual role as landowner and tourism promoter creates distinctive accumulation dynamics. Empirically, it documents "dual urbanization" a pattern in which tourism accelerates land-oriented urban growth while producing negative outcomes for demographic absorption challenging the implicit assumption that tourism-led development automatically urbanizes and therefore equalizes. Methodologically, the multi-scale design integrating spatial econometrics with urban morphology diagnostics provides a replicable framework for assessing tourism's distributional effects at scales appropriate to the mechanisms involved. Tourism in Vietnam is neither inherently equalizing nor inherently inequality-enhancing; its distributional impact depends on the development model, institutional quality, spatial planning, and land governance. The transition from growth maximization toward equity-sensitive spatial governance is both empirically justified and practically achievable.

5.4.2. *Limitations*

Several limitations warrant careful consideration. Firstly, this dissertation uses the natural logarithm of provincial accommodation and food-service revenue as a proxy for tourism development. This choice reflects the current data availability in Vietnam. However, accommodation and food-service revenue may also reflect part of local residents' consumption, particularly in provinces with larger urban populations, higher income levels, and more developed service economies. For this reason, the estimated coefficient is best understood as capturing the association between tourism-

related service-sector expansion and income inequality, rather than the effect of tourist flows alone.

Secondly, the Gini data for odd years are interpolated from the available even-year observations. Although interpolation may smooth short-term fluctuations in provincial inequality, this approach reflects a practical data constraint, as no alternative province-level annual Gini dataset for Vietnam has been identified that can fully overcome this limitation.

Third, the study uses the MPI data published by the GSO as a proxy for provincial poverty conditions. However, the official measurement standard for multidimensional poverty changed during the study period, which may affect the consistency of the MPI variable over time. Due to limitations in accessing alternative, this study retains the official MPI series and acknowledges this issue as a measurement limitation (Tromme, 2016).

Fourth, the study period (2018–2022) overlaps with the COVID-19 pandemic, an exogenous shock that may have temporarily distorted the empirical signals of the spatial fix mechanism examined in this dissertation. While this disruption revealed how rigid tourism-linked capital investments can be, it also makes causal interpretation less straightforward, especially for the LUE indicators where built-up area kept expanding even as tourist arrivals collapsed. Further data limitation arises from the temporal coverage of the satellite-based land-use data. the JAXA dataset used to construct the SDG 11.3.1 indicator is available for Vietnam only up to 2020 in the accessible product series. Consequently, the LUE analysis is temporally constrained by the coverage of JAXA's satellite-derived land-use/land-cover data (Hoang et al., 2020).

The morphological findings therefore capture medium-term urbanization trends rather than a year-by-year match with the full panel, and the estimates for 2020–2022 mix structural relationships with pandemic-related distortions. Methodologically, the GTWR captures spatial heterogeneity but relies on local linear relationships; complex non-linearities or threshold effects may be missed. The SDG 11.3.1 measure is restricted to two-dimensional built-up area expansion and does not account for vertical density a significant limitation in cities like Ho Chi Minh City where high-rise development is increasingly prevalent.

Fifth, while the SDM partially addresses spatial endogeneity and the instrumental variable approach using distance to Quang Binh provides additional causal identification, temporal reverse causality remains a concern. The dissertation

also does not systematically address the gender and care dimensions of tourism-induced inequality. Tourism work is disproportionately feminized, with women particularly migrant women concentrated in the most precarious positions (Alarcón and Mullor, 2018). Finally, the dissertation approaches the tourism development – income inequality relationship through the spatial footprint of development land consumption, built-up area expansion, and urban efficiency metrics rather than through micro-level data on land prices, property transactions, or project-level financial flows. This spatial footprint approach is appropriate given available data and captures the physical manifestation of the mechanisms the SDM identifies, but it cannot quantify the precise magnitude of asset-based inequality channels. Future research with access to cadastral data, property transaction records, and household-level wealth surveys could complement the spatial footprint with direct measurement of the asset-based inequality pathway.

5.4.3. Future research directions

Several paths for future research emerge from these findings. Firstly, according to the tourism development proxy, future research could further refine this measurement as provincial-level TSA become developed and published. Such data would allow future studies to distinguish more clearly among domestic tourism, inbound tourism, visitor expenditure, length of stay, occupancy rates, and tourism direct value added at the provincial level.

Secondly, future research could extend this study by using alternative or complementary measures of income inequality. For example, income shares by quintile or decile, the income gap between the richest and poorest groups, or inequality measures such as the Theil index could help identify more precisely whether inequality is driven by changes at the top, middle, or bottom of the income distribution. In addition, future studies could distinguish inequality by income sources, such as wages, agricultural income, non-farm business income, tourism-related income, or property income. This would allow a clearer assessment of how tourism development - led urbanization affects different population groups and through which income channels inequality is produced.

Third, for controls variables, later studies may use harmonized PCI sub-indices, if comparable series can be constructed over time, to identify more clearly which institutional channels shape the relationship between tourism development and income inequality. For example, land access, transparency, informal charges, administrative

procedures, or local government proactivity may affect how tourism investment is distributed across firms, households. For MPI, future research could use a harmonized multidimensional poverty measure or more detailed deprivation-level indicators to address the change in Vietnam's official poverty measurement standard in 2022. This would allow future studies to examine whether specific dimensions of deprivation, such as employment, education, housing, health care, water and sanitation, or information access, condition the impact of tourism-led urbanization on income inequality.

Fourth, high-resolution remote sensing imagery and machine learning could automate SDG 11.3.1 calculations for all urban centers across Vietnam, enabling nationwide rather than three-city coverage. Intra-urban analysis using detailed cadastral or census data would reveal how tourism-led development affects different neighborhoods within cities, addressing the limitation that provincial aggregation masks within-province dynamics.

Fifth, qualitative institutional analysis interviews with local officials, planners, and community leaders would illuminate the governance dynamics that quantitative models suggest but cannot directly observe, particularly the political motivations behind land conversion decisions and the implementation gap between national tourism policy and provincial practice.

Sixth, gender-disaggregated analysis of tourism employment and its distributional effects would address a significant gap in both this dissertation and the broader tourism development - income inequality literature. Finally, extending the analysis to post-2022 data would test whether the spatial patterns identified here represent durable structural features of Vietnam's tourism-inequality relationship or were influenced by COVID-19's unique disruption.

In conclusion, this dissertation has charted the spatial contours of tourism development, urbanization, and income inequality in Vietnam and offered both broad theoretical insights and practical analytical tools. It confirmed that development is uneven and place-sensitive, supported key spatial theories with new evidence from a transitional economy, and introduced a multi-scale methodological design that enables locally calibrated rather than nationally averaged analysis. The research opens avenues from remote-sensing SDG monitoring to intra-city equity studies to qualitative governance analysis that can deepen understanding of how tourism development reshapes the distributional landscape in Vietnam and comparable developing contexts.

SUMMARY OF CHAPTER 5

Chapter 5 interprets the empirical findings, draws out their theoretical and policy significance, and closes the dissertation with conclusions, limitations, and directions for future research. Its central argument is that the link between tourism development, urbanization, and income inequality in Viet Nam cannot be understood through a one-size-fits-all lens: tourism's distributive effects are spatially and temporally uneven, shaped by distinct regional development trajectories, institutional arrangements, and land-use dynamics. Inequality is spatially clustered, as indicated by Moran's I, while the GTWR results confirm strong spatio-temporal nonstationarity: the magnitude, and in some cases even the sign, of tourism's effect on inequality varies across provinces and over time. Tourism development is not a uniform growth engine but a process routed through different local accumulation pathways, ranging from heritage-based development to capital-intensive real-estate and infrastructure-led models.

The findings are interpreted through Harvey's concept of the spatio-temporal fix, showing how tourism-led investment absorbs surplus capital into hotels, resorts, and destination infrastructure, thereby locking value into the built environment. Yet in Viet Nam's transitional political economy, this process is not purely market-driven; it is mediated by provincial governance, land conversion, and uneven state coordination. The Spatial Durbin mediation results clarify the mechanism further: tourism is negatively associated with population-based urbanization, while urbanization itself tends to reduce inequality. This reveals an indirect pathway in which tourism weakens the demographic absorption channel that might otherwise spread growth more inclusively, thereby intensifying inequality pressures. The case study evidence from Hanoi, Da Nang, and Ho Chi Minh City provides morphological grounding for this interpretation. The SDG 11.3.1-inspired analysis shows that built-up land can continue expanding even when tourism demand contracts, highlighting a pattern of declining land-use efficiency and a decoupling between spatial expansion and demographic absorption. This supports the dissertation's concept of dual urbanization, in which physical urban growth and population-based urban integration do not necessarily move together.

On this basis, Chapter 5 advances three theoretical contributions. The first extends the spatio-temporal fix framework to a state-led transitional economy, where land conversion and tourism urbanization are filtered through political-administrative institutions rather than left solely to market allocation. The second formalizes the

notion of dual urbanization to explain why tourism can stimulate physical expansion without generating corresponding demographic inclusion. The third develops a multi-scale methodological framework that links spatial econometric models with urban-morphology diagnostics, showing how macro-level income inequality patterns can be read alongside land-based urban transformation on the ground.

The policy implications follow directly from these findings. Rather than treating provinces as isolated units competing for tourism investment, policy should strengthen regional coordination to manage spillovers across administrative borders. Tourism development should also be coupled more deliberately with demographic integration, affordable housing, labor absorption, and social infrastructure so that urban growth becomes more inclusive rather than merely land extensive. In planning terms, this means shifting away from low-density, land-intensive tourism real estate toward more compact, mixed-use forms of development. It also requires formalizing land value capture and benefit-sharing mechanisms through tourism development funds, planning obligations, and community-based redistribution tools, especially in light of the opportunities opened by Viet Nam's 2024 Land Law. More broadly, investment priorities should move beyond physical construction alone and toward skills, services, and institutions that can broaden the social returns to tourism growth.

At the same time, the chapter recognizes several limitations. The analysis relies on relatively coarse spatial data, is affected by the volatility of the COVID-19 period, and cannot fully capture micro-level price dynamics, vertical density, or gendered labor-market effects. These constraints mean the findings should be interpreted as a strong meso-level explanation rather than a complete account of all distributive mechanisms. Future research should therefore extend remote-sensing diagnostics nationwide, investigate intra-urban inequality in more detail, incorporate qualitative governance analysis, and add gender-disaggregated employment and income data to better understand who benefits from tourism urbanization and who is left behind.

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