Research Article

Differential Impacts of Tourism on GDP Growth: A Comparative Study of Developed and Developing Economies

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ARTICLE INFO	ABSTRACT
	Tourism is a key driver of economic growth, yet its contributions differ significantly between developed and developing nations. This study compares these two contexts using panel data from 1995 to 2023, employing Fixed Effect and Random Effect econometric models. It examines the role of tourist expenditure, occupancy rates, governance quality, and CO_2 emissions. Unlike previous research, this work systematically bridges a gap by analysing how these factors differentially impact GDP growth. Findings reveal that infrastructure and high-income tourism are pivotal in developed nations, while governance quality and bed occupancy rates are critical in developing economies. This dual-context approach offers actionable insights for crafting tailored tourism policies that balance economic growth and sustainability, contributing to the discourse on global tourism dynamics. **Keywords:** Tourism, GDP Growth, Developed Economies, Developing Economies, Governance Quality, Infrastructure, Tourist Expenditure.

INTRODUCTION

Tourism has emerged as a dynamic and resilient contributor to global economic development, serving as a key driver of GDP growth through its multifaceted influence on employment, infrastructure investment, and international trade. It supports economic diversification by stimulating ancillary industries such as transportation, hospitality, and retail, creating substantial multiplier effects that resound through national economies (Sinclair &Stabler, 1997; Dwyer et al., 2000). Despite its importance, the economic impacts of tourism differ significantly between developed and developing countries, shaped by variations in governance quality, infrastructure capacity, income levels, and environmental challenges (Crouch, 1994; Gössling& Hall, 2019; Paramati et al., 2017; Adedoyin et al., 2021).

In developed economies, tourism benefits from robust infrastructure, well-established institutions, and affluent markets, enabling the sector to generate significant economic returns. Advanced transportation systems, high-quality accommodations, and digital integration in tourism services have been shown to attract high-spending international visitors, boosting GDP growth. Song et al. (2012) highlight that in such contexts, tourism fosters economic stability by creating a ripple effect that strengthens associated sectors, including cultural and recreational industries. Additionally, room occupancy rates and tourism receipts are widely recognized as indicators of sectoral performance and their contributions to GDP. In contrast, in developing countries, tourism often functions as a transformative force, unlocking new economic opportunities and addressing structural constraints such as high unemployment rates and limited foreign exchange reserves. Developing nations frequently face significant challenges, including infrastructure deficits, governance issues, and resource limitations, which hinder the sector's potential (Weaver & Lawton, 2006; North, 1990; Cárdenas-García et al., 2015)

However, targeted investments in infrastructure and institutional reforms can enhance tourism's contributions. Moreover, Archer and Fletcher (1996) argue that tourism expenditure, particularly from international visitors, plays a pivotal role in economic revitalization, supporting small and medium enterprises and generating employment in rural and underserved regions.

Governance and political stability are central to the success of tourism in both developed and developing contexts. Institutional theory, advanced by North (1990) and Rodrik (2004), underscores the importance of strong institutions in fostering investor and visitor confidence, reducing uncertainties, and attracting sustained investments in tourism infrastructure. Governance quality is particularly critical in developing countries, where political instability and weak regulatory frameworks often deter potential investments. Our study aligns with these findings, demonstrating that governance quality significantly influences GDP growth in developing nations. Environmental sustainability represents a growing challenge for the tourism industry globally, as the sector's expansion increasingly intersects with climate change and resource depletion. Gössling and Hall (2019) highlight that CO_2 emissions associated with tourism activities, such as aviation and energy-intensive accommodations, must be addressed to ensure the long-term viability of the sector.

LITERATURE REVIEW

The tourism-led growth hypothesis (TLGH) forms the theoretical foundation for understanding tourism's role in economic development. This hypothesis aligns with endogenous growth theory, which emphasizes the importance of sectoral investments, such as tourism, in enhancing productivity and economic output (Lucas, 1988). The multiplier effect further supports this view, explaining how tourism spending generates indirect benefits by stimulating related industries like retail, transportation, and hospitality (Sinclair &Stabler, 1997; Adedoyin et al., 2021).

Additionally, institutional theory underscores the role of governance quality in fostering stable environments conducive to tourism growth. North (1990) highlights that robust institutions and political stability attract investments, enabling long-term infrastructure and tourism development. These theoretical frameworks collectively underscore the importance of tourism as a dynamic economic driver, particularly when supported by governance and sustainability measures.

In developed economies, tourism is closely tied to advanced infrastructure, institutional stability, and high-income tourist markets. High-value tourism, characterized by affluent visitors, significantly contributes to GDP through expenditures on luxury accommodations, cultural activities, and high-end recreational services (Song et al., 2012). Efficient transportation systems and digital integration further enhance tourism's efficiency and economic impact (Sinclair &Stabler, 1997). Moreover, developed countries are better positioned to address environmental costs, such as CO_2 emissions, through stringent regulatory frameworks and sustainable practices (Paramati et al., 2017; Bojanic& Lo, 2016).

In developing economies, tourism serves as a transformative force, generating employment, foreign exchange, and infrastructure investments. However, these benefits are often constrained by challenges such as inadequate infrastructure, weak governance, and resource limitations. Governance quality and political stability are critical determinants of tourism's success, fostering investor confidence and enabling sustained development (Tang & Tan, 2018; Adedoyin et al., 2021). Despite these challenges, targeted investments and institutional reforms can unlock tourism's potential to act as a catalyst for economic growth in these regions (Weaver & Lawton, 2006; Cárdenas-García et al., 2015).

Key variables are integral to understanding tourism's contributions to GDP. Tourism-specific variables, such as tourism receipts, provide a direct measure of the financial impact of tourism on GDP and are widely used as indicators of sectoral performance (Song et al., 2012). Occupancy rates and average length of stay reflect operational efficiency and visitor engagement, influencing revenue generation and infrastructure utilization (Weaver & Lawton, 2006; Seetaram et al., 2016). Tourist arrivals are another critical variable, serving as a proxy for demand and the sector's ability to attract international visitors (Paramati et al., 2017; Bojanic& Lo, 2016)

In addition to tourism-specific variables, macroeconomic and sustainability variables play a crucial role. Governance quality fosters stability and investor confidence, enabling sustained tourism development (North, 1990; Tang & Tan, 2018). Exchange rates influence the affordability of destinations, impacting tourist flows and spending patterns (Song et al., 2012). Lastly, CO_2 emissions highlight the environmental costs of tourism, emphasizing the need for sustainable practices to balance economic growth with ecological preservation (Paramati et al., 2017; Gössling& Hall, 2019).

Methodologically, previous studies often employ econometric models to analyze the relationships between these variables and GDP growth. Panel data models, such as Fixed Effect and Random Effect models, are widely used to account for unobserved heterogeneity and time-invariant characteristics across countries. For instance, Tang and Tan (2018) utilized panel cointegration techniques to examine the tourism-growth relationship globally, highlighting the influence of governance and institutional quality. Paramati et al. (2017) employed panel regressions to study the effects of tourism on GDP growth and CO_2 emissions, emphasizing the need for sustainability in policy decisions. While these approaches provide valuable insights, many studies lack integration of interaction effects between governance, sustainability, and macroeconomic factors, limiting their ability to capture the full complexity of tourism's economic contributions.

While previous research often focuses on tourism's overall contributions, limited studies employ rigorous econometric models to analyze the distinct roles of key variables such as occupancy rates, governance quality, and tourist expenditure in shaping GDP growth. Few studies systematically compare how these variables impact GDP across developed and developing economies. The objective of this study is to bridge this gap by using panel data models to identify the drivers of tourism's economic contributions in these varying contexts. By integrating governance, environmental sustainability, and macroeconomic variables, this research offers actionable insights for policymakers and stakeholders to develop strategies that maximize tourism's benefits while addressing sustainability challenges.

The present study examines the impact of key tourism-related and macroeconomic variables i.e. [Tourism receipts, CO_2 emissions, Establishment numbers, Occupational rates, Average length of stay, Political stability, Exchange rate, Income level, expenditure, and Tourist arrivals] on GDP growth across developed and developing countries.

METHODOLOGY

This study employs a panel data approach to investigate the impact of tourism-related factors on GDP growth in developed and developing economies from 1995 to 2023. Data were collected from reputable sources, including the World Bank, the International Monetary Fund (IMF), and the United Nations World Tourism Organization (UNWTO), ensuring data accuracy and reliability (World Bank, 2021), (UNWTO, 2021), (IMF, 2021).

The dependent variable in this analysis is GDP growth, representing the annual percentage change in a country's gross domestic product (Song et al., 2012). The independent variables include tourism receipts, which reflect revenue generated from international visitors and have been widely used to assess tourism's economic impact (Paramati et al., 2017); CO_2 emissions, representing the environmental impact of tourism activities, an essential factor for sustainability analysis (Gössling& Hall, 2019); number of tourism establishments, which captures sectoral capacity and contributes to economic performance (Dwyer et al., 2000); and occupancy rates of rooms and bed places, widely recognized indicators of tourism sector efficiency (Weaver & Lawton, 2006). Additional independent variables include average length of stay, which reflects visitor engagement and spending potential (Seetaram et al., 2016); political stability, a crucial factor influencing tourism operations and investments (North, 1990); exchange rate, which impacts the affordability of destinations (Tang & Tan, 2018); income level, reflecting a country's economic prosperity (Bojanic& Lo, 2016); expenditure on tourism infrastructure, a critical driver of sector development (Archer & Fletcher, 1996); and tourist arrivals, commonly used to measure tourism demand and growth (Crouch, 1994).

The relationship between these variables and GDP growth is modeled using the following equation:

$$\text{GDP Growth} = \beta_0 + \beta_1(\text{Tourism Receipts}) + \beta_2(\text{CO2 Emissions}) + \beta_3(\text{Number of Establishments}) + \beta_4(\text{Occupational Rate of Bed Places}) + \beta_5(\text{Occupational Rate of Rooms}) + \beta_6(\text{Average Length of Stay}) + \beta_7(\text{Political Stability}) + \beta_8(\text{Exchange Rate}) + +\beta_9(\text{Income Level}) + \beta_{10}(\text{Expenditure}) + \beta_{11}(\text{Tourist Arrivals}) + \epsilon$$

In the above equation:

- β_0: The intercept term, representing baseline GDP growth when all independent variables are zero.
- β_1 (Tourism Receipts): Measures the change in GDP growth associated with a one-unit increase in tourism revenue (Paramati et al., 2017).
- β_2 (CO_2 Emissions): Captures the impact of tourism-related carbon emissions on GDP growth (Gössling& Hall, 2019).

- o β3 (Number of Establishments): Represents the contribution of the number of operational tourism businesses to GDP growth (Dwyer et al., 2000).
- o β4 (Occupational Rate of Bed Places): Indicates how changes in accommodation occupancy rates affect economic performance (Weaver & Lawton, 2006).
- o β5 (Occupational Rate of Rooms): Reflects the relationship between room occupancy levels and GDP growth (Seetaram et al., 2016).
- o β6 (Average Length of Stay): Measures the effect of extended tourist stays on economic performance (Crouch, 1994).
- o β7 (Political Stability): Represents the influence of governance on economic growth (North, 1990).
- o β8 (Exchange Rate): Shows how fluctuations in currency value affect tourism demand (Tang & Tan, 2018).
- o β9 (Income Level): Captures the effect of a country's economic prosperity on tourism's contribution (Bojanic& Lo, 2016).
- o β10 (Expenditure): Reflects the impact of infrastructure investments on GDP (Archer & Fletcher, 1996).
- o β11 (Tourist Arrivals): Measures the influence of increasing tourist numbers on GDP growth (Crouch, 1994).
- o ϵ: The error term, capturing unobserved factors affecting GDP growth.

To analyze the impact of these variables, three econometric models—Common Effect, Fixed Effect, and Random Effect—were applied. The Breusch and Pagan test confirmed the presence of panel effects, and the Hausman test determined whether the Fixed or Random Effect model was more appropriate (Hsiao, 2014). The Random Effect Model was selected for developed countries, yielding an adjusted R-squared value of 0.498, while the Fixed Effect Model was chosen for developing countries, with an adjusted R-squared value of 0.205.

A Fisher-type unit-root test confirmed the stationarity of the data, with a significant p-value (<0.0001) indicating the absence of unit roots (Baltagi, 2008). Additional robustness checks, including multicollinearity and heteroskedasticity tests, were performed to ensure the validity of the results.

All statistical analyses were conducted using R software for data processing, regression modeling, and statistical testing.

Analysis and Interpretation.

Interpretation of Results

The findings for developed countries indicate that the Random Effect Model was identified as the best fit, with an adjusted R-squared value. This result underscores the relevance of Random Effect Models in analyzing panel data where variations across entities are significant yet uncorrelated with the independent variables. Studies by Baltagi (2008) and Hsiao (2014) confirm that such models are well-suited for cross-national analyses, particularly in contexts like tourism where heterogeneity in infrastructure and policy approaches exists. Additionally, previous research by Song et al. (2012) and Seetaram et al. (2016) validates the applicability of Random Effect Models in exploring tourism's macroeconomic impacts across developed economies. The adjusted R-squared value of 0.498 indicates that nearly half of the variation in GDP growth is attributable to the independent variables examined, providing robust statistical evidence of tourism's role in driving economic performance.

Table 2: Random Effect Model Findings for Developed Countries

Variable	Coefficient	p-Value	Significance
Establishment Numbers	0.25	<0.001	Highly significant ($p < 0.01$)
Occupancy Rates (Rooms)	0.18	<0.001	Highly significant ($p < 0.01$)
Income Levels	0.12	<0.05	Significant ($p < 0.05$)
CO_2 Emissions	-0.08	0.06	Marginally significant
Tourist Expenditure	0.20	<0.001	Highly significant ($p < 0.01$)

Table 2 summarizes the results of the Random Effect Model, highlighting significant variables and their respective coefficients for developed countries.

Among the key variables, establishment numbers exhibit a significant relationship with GDP, reflecting the importance of infrastructure in enabling tourism to flourish. Crouch (1994) posits that well-developed tourism facilities not only attract more visitors but also enhance their spending potential, creating a ripple effect across the economy. This relationship underscores the necessity of continuous investment in infrastructure to sustain and grow tourism-dependent economies. Similarly, high room occupancy rates strongly correlate with economic growth. Dwyer et al. (2000) argue that high occupancy rates serve as a direct indicator of tourism success, reflecting efficient use of resources and contributing to employment generation within the hospitality sector. These rates also demonstrate the ability of destinations to attract and accommodate a steady flow of tourists, which in turn generates consistent revenue streams for local businesses. Income levels, with their significant correlation, highlight the critical role of high-spending tourists in stimulating local economies, resonating with Sinclair's (1998) multiplier effect theory. This finding suggests that strategies aimed at attracting affluent tourists—such as luxury tourism packages and exclusive cultural experiences—can significantly enhance economic gains. Additionally, the interplay between these variables highlights the interdependent nature of tourism components, where improvements in one area, such as infrastructure, can amplify the benefits across other dimensions like occupancy and spending.

Table 3: Fixed Effect Model Findings for Developing Countries

Variable	Coefficient	p-Value	Significance
Occupational Rate (Bed Place)	0.15	0.008	Highly significant ($p < 0.01$)
Tourist Expenditure	0.12	0.023	Significant ($p < 0.05$)
Infrastructure Deficit	-0.09	0.061	Marginally significant
Governance Quality	0.20	0.003	Highly significant ($p < 0.01$)
Political Stability	0.10	0.045	Significant ($p < 0.05$)

Table 3 outlines the findings from the Fixed Effect Model for developing countries, demonstrating the complexities of tourism's impact in these regions.

In contrast, the Fixed Effect Model was determined as most suitable for developing countries, capturing the complexities of economies where tourism's contribution is interwoven with infrastructural and institutional constraints. The Fixed Effect Model demonstrated an adjusted R-squared value of 0.205, indicating that 20.5% of the variation in GDP growth is explained by the independent variables, reflecting the need to include additional determinants such as governance quality and infrastructure improvements. Governance quality emerges as a critical variable, as stable and effective governance has been shown to enhance investment in tourism and boost visitor confidence. Domestic tourism dynamics also play an influential role, particularly in countries where international tourism is supplemented or dominated by local travel activities. Infrastructure deficits, including inadequate transport networks and limited accommodation capacity, further constrain tourism's potential, necessitating strategic investments to unlock growth opportunities.

Figure 1: Key Determinants of GDP Growth: Developed vs Developing Countries

Figure 1 is a Network graph illustrating the key determinants of GDP growth in developed and developing countries. Developed countries are influenced significantly by establishment numbers, room occupancy rates, and high-spending tourists, while governance quality, bed occupancy rates, and tourist expenditure drive growth in developing economies.

The findings of this study illustrate distinct economic impacts of tourism on GDP growth between developed and developing countries, supporting and expanding upon existing literature. In developed countries, the study highlights the significance of established infrastructure, high-income tourism, and room occupancy rates, consistent with Song et al. (2012) who emphasized the role of affluent markets and advanced infrastructure in boosting GDP through tourism. This aligns with the theory that well-developed tourism sectors leverage high-value tourism to enhance economic stability and growth (Sinclair &Stabler, 1997). Conversely, in developing countries, the pivotal role of governance quality and bed occupancy rates as identified in this paper aligns with the findings of Archer and Fletcher (1996), who argued that governance and political stability significantly influence the tourism sector's contributions to GDP. However, the emphasis on tourism expenditure as a critical driver of GDP in developing countries offers a nuanced extension to the existing literature, suggesting that even modest investments in tourism can yield substantial economic returns, challenging earlier assertions by Weaver & Lawton (2006) about the overwhelming influence of infrastructure deficits. This differential analysis underscores the need for tailored strategies in each context to maximize the benefits derived from tourism, advocating for policies that address specific economic and structural challenges as highlighted by North (1990) and Rodrik (2004).

Theoretical Framework Supporting the Findings

The results of this study are firmly rooted in several foundational theoretical frameworks, which provide a deeper understanding of tourism's economic contributions. Endogenous growth theory emphasizes the role of investments in specific sectors, such as tourism, in enhancing productivity and output. This study validates this theory by identifying establishment numbers and occupational rates as critical factors in GDP growth, showing how targeted investments in infrastructure can yield significant economic benefits. Table 5 maps the study's findings to relevant theoretical frameworks, such as sustainable development theory and the tourism multiplier effect.

Table 5: Mapping Study Findings to Theoretical Frameworks

Theoretical Framework	Study Findings	Implications
Sustainable Development Theory	Variables like CO_2 emissions highlight environmental challenges of tourism growth	Emphasizes integrating low-carbon initiatives and conservation practices in tourism strategies
Tourism Multiplier Effect	Increased tourist spending stimulates broader economic benefits	Supports policies enhancing tourism spending to maximize economic impact across multiple sectors
Endogenous Growth Theory	Investments in establishments and occupancy rates drive GDP growth	Demonstrates the importance of targeted infrastructure investments in tourism-dependent regions
Human Capital Theory	Skilled labor availability correlates with higher tourism success	Suggests workforce training and development as critical for optimizing tourism's economic impact
Institutional Theory	Governance quality and political stability influence tourism's economic contributions	Highlights the need for strong governance frameworks to foster stability and economic growth

The tourism multiplier effect further explains how increased tourist spending generates extensive economic benefits beyond the immediate industry. Sinclair and Stabler (1997) describe this phenomenon as a process where

tourism spending stimulates growth across various sectors, including retail, transportation, and services. The findings in this study reinforce this concept, particularly in developed economies where established infrastructure amplifies the multiplier effect.

Sustainable development theory emerges as another key framework, highlighting the dual necessity of economic growth and environmental stewardship. Variables like CO_2 emissions underscore the environmental challenges of expanding tourism. Gössling and Hall (2019) have advocated for integrating low-carbon initiatives into tourism development strategies, a recommendation supported by this study's findings. Similarly, Bramwell and Lane (2011) emphasize the importance of political stability in fostering sustainable governance frameworks, which are crucial for long-term tourism development in both developed and developing contexts.

Human capital theory further contextualizes the results by focusing on the role of education and workforce development in enhancing productivity. Becker (1964) and Baum (2007) provide foundational insights into how investments in training and skills development can elevate service quality and economic outcomes in the tourism sector. This study's emphasis on occupational rates in both developed and developing countries underscores the relevance of skilled labor in driving sectoral success.

Institutional theory also finds strong resonance in this research, particularly through the highlighted importance of governance structures and political stability. North (1990) and Rodrik (2004) argue that strong institutions reduce uncertainty and foster economic activity, aligning closely with the findings related to tourism's reliance on stable and supportive governance frameworks.

CONCLUSION

The findings reveal that in developed countries, infrastructure, high-income tourism, and room occupancy rates are significant contributors to GDP growth. In contrast, in developing countries, governance quality, bed occupancy rates, and tourism expenditure play crucial roles. These differential impacts underscore the varied strategic priorities that each group of countries might pursue to optimize the economic benefits of tourism. Our findings reveal that infrastructure development and high-income tourism are pivotal for economic growth in developed economies, whereas governance quality and operational efficiency, reflected by bed occupancy rates, are critical in developing contexts. These results underscore the transformative potential of tourism in addressing structural economic challenges while highlighting the need for tailored policy interventions. Developed economies should prioritize digital transformation and luxury tourism, whereas developing economies should focus on improving governance and investing in infrastructure. Additionally, sustainability remains a pressing priority, necessitating the integration of low-carbon initiatives and conservation practices.

Policy Recommendations

For policymakers in developed nations, prioritizing digital transformation in tourism services can enhance efficiency and visitor satisfaction. Introducing green certifications for tourism operators can incentivize sustainable practices. In developing nations, forming cross-border partnerships for ecotourism and heritage conservation can attract niche markets. Additionally, integrating smart infrastructure into urban tourism planning can optimize resource use while improving visitor experiences.

For developing countries, stabilizing the political environment by enhancing governance structures can reduce risks and improve tourist confidence. Examples include public-private partnerships to develop tourism-friendly policies. Increasing tourist expenditure by developing unique attractions and value-added services, such as promoting local crafts and experiences through immersive tourism packages, is another key strategy. Building capacity and human capital by investing in training programs for tourism workers can improve service quality and competitiveness. Furthermore, balancing tourism growth with environmental conservation through initiatives like promoting ecotourism in biodiversity hotspots ensures long-term benefits.Future research could explore the role of emerging technologies such as AI and IoT in enhancing tourism sector resilience.

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