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ECON-ESG FACTORS FOR MANAGING TOURISM: THE MODERATING ROLE OF SUSTAINABLE DEVELOPMENT GOALS (SDGS) FOR EAST ASIA PACIFIC AND SOUTH ASIAN COUNTRIES

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ABSTRACT

The UNWTO approaches sustainable tourism in three dimensions: economic, social, and environmental impacts and defines tourism as meeting the needs of visitors, industry, the environment, and host communities. In this direction, many scholars in the related literature examined sustainable tourism through Environmental, Social, and Governance (ESG) factors. This study differs from previous studies by using a new context of sustainability called ECON-ESG, developed by Işık et al. (2024a, 2024b). The ECON-ESG framework extends the traditional ESG model by incorporating economic variables. To investigate the

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complex relationships between ECON-ESG factors and tourism demand, focusing on the moderating role of Sustainable Development Goals (SDGs) for 30 countries, state-of-the-art econometric techniques are applied. Empirical findings revealed that economic, social, and governance factors significantly and positively influence tourism demand. However, environmental factors show no significant effect, suggesting a potential disconnect between environmental quality and tourist behavior in these regions. This highlights the need for stronger integration of environmental considerations into tourism strategies to enhance long-term sustainability. Additionally, the study underscores the critical role of SDGs in reinforcing the link between sustainability dimensions and tourism development.

INTRODUCTION

Tourism is a multifaceted and dynamic industry encompassing many experiences, destinations, and activities. At its core, tourism revolves around the interaction between travelers and the destinations they visit. The concept of tourism demand encapsulates the diverse needs, preferences, and behaviors of individuals who seek out and engage with various tourism offerings. Understanding the determinants of tourism demand is essential for stakeholders within the tourism industry, including destination managers, policymakers, and businesses, as it provides insights into the factors driving visitor behavior and destination choice (Dogru et al., 2019; 2023; 2025; Işık et al., 2021; Işık & Radulescu, 2017; Işık, 2015; Sengoz et al., 2025).

The ESG framework provides an important reference point, especially in understanding the determinants of sustainability-based tourism demand (Işık et al., 2025a). However, these analyses may be incomplete since traditional ESG approaches do not systematically consider economic components. Our study proposes a new framework, ECON-ESG, which also includes the economic dimension, to address this deficiency.

Tourism demand encompasses consuming a broad spectrum of goods and services, from transportation and accommodation to dining, entertainment, and cultural experiences (Kalmár-Rimóczi, 2019; Song et al., 2010). Travelers play a pivotal role as consumers within the tourism market, shaping their journeys based on personal interests, motivations, and expectations. Moreover, the destinations themselves serve as significant influencers of tourism demand, as travelers are drawn to unique attractions, cultural heritage, natural beauty, and authentic experiences offered by different locales. Tourism demand in EAP and SA countries represents a dynamic and rapidly evolving landscape influenced by myriad factors

unique to each region. With a rich tapestry of cultural heritage, natural wonders, and vibrant urban centers, these regions have emerged as prominent destinations for both domestic and international travelers (Richards, 2022).

In recent years, EAP has experienced a surge in tourism demand, propelled by growing affluence, enhanced infrastructure, and improved connectivity. Countries like China, Japan, Thailand, and Indonesia have witnessed substantial growth in visitor arrivals, buoyed by increasing incomes, expanding middle-class populations, and government-led initiatives to bolster tourism development. The region's diverse attractions, spanning ancient landmarks, bustling metropolises, pristine beaches, and scenic landscapes, have positioned it as a magnet for travelers seeking immersive cultural experiences and memorable adventures.

However, the EAP tourism sector faced a significant setback due to COVID-19, resulting in a sharp decline in international tourist arrivals and subsequent reductions in tourist receipts (Chaudhry et al., 2021). Research has highlighted the influence of macroeconomic factors such as exchange rates, GDP, inflation, and political stability on tourism revenue in the region's top ten most visited countries (Çiftçioğlu & Sokhanvar, 2021). Despite these challenges, the growth prospects for the region remain optimistic. Strategies to maintain fiscal sustainability, implement policy reforms, and explore alternative revenue streams are crucial for supporting the tourism sector's resilience and recovery. Additionally, efforts to tap into emerging markets, enhance infrastructure, and facilitate labor mobility are emphasized as key strategies to stimulate tourism and foster economic growth in the EAP region.

Similarly, South Asian countries, including India, Sri Lanka, Nepal, and the Maldives, have seen a significant uptick in tourism demand in recent years. These nations boast a wealth of cultural treasures, spiritual landmarks, and breathtaking natural beauty, drawing visitors from around the globe. India, in particular, stands out as a top destination for cultural tourism, with its rich history, architectural wonders, and vibrant festivals captivating travelers' imaginations (Kumar, 2009). Meanwhile, the Maldives has established itself as a premier luxury travel destination, renowned for its idyllic beaches, crystal-clear waters, and exclusive resorts. Despite the region's immense tourism potential, infrastructure limitations, environmental concerns, and socio-political instability remain pertinent issues that require careful management and strategic planning. Nevertheless, with concerted efforts to address these challenges and

capitalize on their unique assets, EAP and SA countries are poised to continue attracting travelers and contributing to the growth and development of the global tourism industry.

Many factors influence the dynamics of tourism demand, yet the existing literature on the interplay between economic, ESG factors considerations, and SDGs, specifically on tourism demand in EAP and SA countries, remains notably limited. Although the literature intensively examines the environmental, social, and governance dimensions of ESG, economic factors are not considered a separate axis in this framework. This makes it challenging to conduct a holistic analysis for sectors directly dependent on the economic environment, such as tourism.

While some studies have explored the effect of ESG risks on tourism demand (Hassan & Meyer, 2022), highlighting the significance of international tourists' perceptions of ESG risks alongside economic factors, there exists a gap in research regarding the effect of ECON-ESG and SDGs on tourism within these regions. Similarly, although research has examined the influence of ESG factors on the market value of companies in the travel and tourism industry (Ionescu et al., 2019), investigations into the direct impact of individual environmental (E), social (S), and governance (G) factors, as well as SDGs, on tourism demand in EAP and SA countries are notably lacking.

Despite the growing recognition of ESG criteria in investment and the emphasis on SDGs, studies examining their impact on tourism demand remain scarce. Filling this knowledge gap is imperative for several reasons. Firstly, gaining insight into the intricate relationships among ECON-ESG factors, SDGs, and tourism demand in EAP and SA countries is essential for informed decision-making and policy formulation for tourism prospects. Secondly, as the world transitions towards cleaner and more sustainable growth, assessing the implications of ECON-ESG factors on tourism sources within these regions becomes increasingly crucial. Understanding is vital for identifying potential challenges and opportunities, optimizing resource allocation, and promoting effective governance frameworks. Moreover, addressing this research gap would provide valuable insights into achieving sustainable tourism aligned with sustainable development. This study explores the relationship between ECON-ESG factors and tourism demand within EAP and SA countries, including the moderating effect of SDGs. It aims to enhance the understanding of the intricate dynamics influencing tourism in these regions.

In this context, developing the ECON-ESG form is a conceptual innovation and allows for systematically examining economic impacts overlooked in tourism demand models.

This study seeks answers to the following research questions:

RQ1: How do ECON-ESG and SDGs influence tourism demand in East Asia Pacific (EAP) and South Asian (SA) countries?

RQ2: What are the SDGs' moderating effects on the relationship between ECON-ESG factors and tourism demand in the EAP and SA countries?

Based on a comprehensive review of prior studies, this study states that numerous factors influence tourism demand (TD), encompassing E, S, G, and economic (ECON) dimensions. The study uses a two-part approach to introduce a new dimension to the existing literature. In the initial phase, the development of the environmental index (ENV), social index (SOC), governance index (GOV), and economic index (ECON) for EAP and SA countries over the observed period is scrutinized through principal component analysis. Subsequently, the second phase investigates the impact of ENV, SOC, GOV, and ECON on TD within these regions from 2003 to 2020. To provide a novel perspective, this study proposes and introduces the concept of the ECON-ESG form, an alternative to the traditional ESG framework. While the conventional ESG framework comprises ESG factors, it overlooks the influence of economic factors (ECON) on sustainability. The ECON-ESG form aims to rectify this by incorporating ECON as the fourth leg, offering a more comprehensive understanding of sustainability considerations.

Previous ESG studies focus on investment and environmental risk analysis but are insufficient in explaining the specific contribution of economic indicators to sustainable tourism demand. This study aims to fill this gap and clarify the role of economic variables within the sustainability-related ESG construct. This study leverages state-of-the-art panel data techniques for the estimation methodology, with the IV-GMM model as the primary choice.

Additionally, panel quantile regression examines asymmetric nexus or nonlinear relationships. These advanced econometric approaches are selected to address heterogeneity within the dataset, ensuring robust and meaningful results. By utilizing these advanced techniques, the study improves the accuracy and reliability of its findings, providing a

comprehensive understanding of the relationships among TD, environmental, social, governance, and economic indices across EAP and SA countries.

LITERATURE REVIEW

Various studies have individually investigated the effects of ESG factors on tourism and the impact of tourism development on other variables. However, a notable gap in the literature exists concerning a comprehensive examination of these variables collectively. Therefore, we aim to highlight this gap by exploring both the linear and nonlinear influences of Economic and ESG factors and a freshly introduced form termed the ECON-ESG impact on tourism development (TD), which remains novel to the research community. Focusing specifically on EAP and SA counties, this study examines the intricate relationships among these factors, providing important insights for scholars, policymakers, and stakeholders interested in promoting sustainable tourism development.

Empirical Investigations

Environmental considerations are pivotal in both the development and maintenance of sustainable tourism. Various studies have emphasized the impact of tourism on the environment, highlighting the necessity of responsible waste management (Steinke, 2023), the importance of achieving equilibrium among ecological, economic, and social dimensions (Počuča & Matijašević, 2022), and the promotion of environmentally friendly behaviors among tourists (Tang et al., 2022). Tourists' environmental knowledge, motivation to participate, and available opportunities significantly shape their pro-environmental actions, underscoring the imperative of fostering eco-conscious practices within the tourism sector. Moreover, the progression of tourism should consider the optimal human-induced pressure on natural resources, the diversification of tourism offerings, and the safeguarding of recreational areas to ensure both ecological sustainability and economic growth. Addressing environmental factors is critical for enduring prosperity and preservation of tourism destinations. Climate factors are crucial in environmental considerations and significantly influence tourism demand (Goh, 2012).

Tourism shapes gender equality, population dynamics, and life expectancy. Studies suggest that the tourism sector can both exacerbate existing gender disparities and provide avenues for addressing them. While some argue that tourism may increase burdens on women, others contend

that it presents opportunities for women's empowerment and can contribute to reducing gender inequalities (Je & Yang, 2023). Research also indicates a significant correlation between tourism and gender equality, with tourism having a positive long-term impact on gender equality across various regions (Boyer, 2019). Moreover, women working in the tourism industry often encounter discrimination, limiting their access to leadership roles and decision-making positions and leading to their concentration in low-skilled jobs. Addressing gender equality within the tourism sector is crucial for sustainable development, as insufficient reporting on gender equality initiatives can impede progress (Zhang et al., 2022). Borhan and Arsad (2019) demonstrated that exchange rates, income levels, relative prices, and substitute relative prices exhibit the expected signs according to economic theory. Additionally, contrary to expectations, they found that political stability and corruption levels positively influence the number of tourist arrivals to the ASEAN-4 countries.

Governance has a crucial role in shaping tourism demand across diverse regions. Insights from various studies underscore the significance of governance aspects such as political stability, government effectiveness, and institutional quality in driving tourism demand (Al-Tal & Elheddad, 2023; Osinubi et al., 2022; Topcu et al., 2023). These studies highlight that good governance fosters a conducive environment for travel and tourism activities, thus positively impacting international tourist arrivals. Topcu et al. (2023) demonstrated that dimensions like political stability, absence of violence, and government effectiveness significantly influence US tourism demand. Similarly, Al-Tal & Elheddad (2023) found direct impacts of political stability, government effectiveness, and corruption on the tourism sector. Osinubi et al. (2022) conducted a similar analysis of the effects of governance on tourism and discovered significant relationships. Furthermore, research suggests that governance quality and economic factors shape tourists' perceptions of risk concerning ESG factors, consequently affecting international tourism demand (Hassan & Meyer, 2022). Additionally, the efficacy of information and communication technology (ICT), infrastructure development, and exchange rates, when combined with governance quality, emerge as critical determinants of inbound tourism demand, highlighting the pivotal role of governance in shaping tourism patterns (Osinubi et al., 2022).

Economic factors wield substantial influence over tourism demand. Studies, including those by Takele (2019) and Borhan and Arsad (2019), underscore the importance of factors GDP per capita, exchange rates, income levels, relative prices, and trade openness as pivotal determinants

of tourism demand. Utilizing the gravity framework, Khoshnevis Yazdi and Khanalizadeh (2016) examined the factors influencing the demand for foreign travel to the USA from 1995 to 2014. Their findings suggest that demand is significantly affected by real GDP, the CPI, exchange rates, and specific events. Contrary to expectations based on income elasticity, travel is not considered a luxury good, and arrivals are negatively influenced by prices and currency rates. The study also highlights the importance of tourism transportation infrastructure in attracting foreign visitors. These results carry implications for both public and private tourism agencies. Martins et al. (2017) employed three econometric models to explore the connection between macroeconomic variables and the demand for tourism. Using data from 218 nations from 1995 to 2012, their analysis revealed that travel demand tends to rise alongside increases in GDP per capita, depreciation of the national currency, and decreases in relative local prices. They found that while comparable prices become increasingly influential for tourism spending, GDP per capita holds greater significance for tourist arrivals. Additionally, the study segmented the data according to continent and income level, confirming the primary findings and offering policy recommendations based on the results.

Theoretical Framework

The rationale behind selecting the determinants defined in equations (1 & 2) is grounded in both existing research and strong theoretical foundations. However, in traditional ESG approaches, the economic dimension is not systematically addressed as a separate axis. This deficiency makes analyses inadequate, especially in sectors directly linked to the economic environment, such as tourism. The ECON-ESG framework proposed in this study offers the opportunity to address sustainable tourism demand more comprehensively by integrating economic factors into the ESG structure. As noted by Set et al. (2017), in the rapidly advancing landscape of globalization, tourism emerges as a dynamic and ever-expanding sector, evolving at an unprecedented pace across the globe. As this growth continues, understanding and effectively managing tourism demand become increasingly vital for sustaining and propelling the tourism industry's progress on a global scale.

The 2030 tourism agenda highlights the substantial role of tourism in achieving the SDGs. The UNWTO is dedicated to facilitating global collaboration within the tourism community to advance the objectives of the 2030 Agenda. Therefore, our selection of determinants aligns with this overarching goal of leveraging tourism as a catalyst for sustainable

development. In this context, the ECON-ESG approach highlights the importance of economic factors in achieving sustainable development goals (SDGs) and provides a theoretical framework that aligns with them. Integrating these concepts is essential, particularly when considering the impact of economic inequalities, income levels, and exchange rates on tourism mobility.

By focusing on factors that are known to influence tourism demand and aligning them with the SDGs, our research aims to contribute to the broader agenda of sustainable development through the lens of tourism. Analyzing the determinants of tourism demand is essential for unraveling the intricacies of tourism's evolution, identifying the demographics that frequent specific destinations, and pinpointing the attractions that draw visitors (Khan & Qaiser, 2022). Economic, social, and political factors exert significant influence over tourism demand, with financial accessibility standing out as a pivotal consideration (Page & Connell, 2014). The success of businesses operating within the tourism sector, from airlines and hotels to tour operators, heavily hinges on their ability to cater to market demand, as failure to do so may lead to operational inefficiencies and setbacks (Agbola et al., 2020). Moreover, in the face of global uncertainties (Wu et al., 2025), such as the unprecedented challenges posed by COVID-19, grasping the underlying drivers of tourism demand becomes even more critical. This understanding is essential for devising resilient strategies aimed at navigating uncertainties, addressing emerging challenges, and fortifying the resilience of the tourism and hospitality industry (Pelegrín Naranjo et al., 2022). Furthermore, theories of destination development provide comprehensive frameworks for understanding how economic, environmental, social, and governance factors collectively influence tourism demand and destination attractiveness.

The multidimensional nature of tourism demand theories requires a structure that incorporates economic and ESG factors. This study proposes a new theoretical structure, ECON-ESG, by integrating the economic dimension into the ESG framework. The theoretical foundations of these four dimensions are detailed below. Economic theories delve into the intricate relationship between economic indicators and tourism demand (Icoz & Icoz, 2019; Polat & Sevil, 2022). They elucidate how GDP per capita, exchange rates, and income levels impact travelers' decision-making processes, expenditure patterns, and destination choices. For instance, destinations with favorable exchange rates and higher income levels may attract more international visitors due to increased purchasing power and affordability.

Environmental theories highlight the critical role of sustainable practices and environmental stewardship in destination development. These theories emphasize preserving natural resources, mitigating negative environmental impacts, and promoting eco-friendly tourism initiatives. Destinations prioritizing environmental conservation, sustainable tourism practices, and green certifications often appeal to environmentally conscious travelers seeking authentic and eco-friendly experiences (Boniface & Cooper, 1994; Goh, 2012). Social theories underscore the significance of cultural authenticity, social inclusivity, and community engagement in shaping destination attractiveness. They emphasize the role of local communities in creating memorable and authentic visitor experiences, fostering cultural exchange, and promoting social cohesion. Destinations celebrating cultural diversity empower local communities and offer immersive cultural experiences, often attracting travelers seeking authentic and socially enriching experiences. Governance theories focus on the role of effective governance structures, political stability, regulatory frameworks in destination management, and tourism demand (Bhuiyan et al., 2023; Detotto et al., 2021; Meyer & Rheeders, 2024). They highlight the importance of transparent and accountable governance practices, destination safety, security, and regulatory compliance in fostering visitor confidence and trust. Destinations with stable political environments, well-defined regulatory frameworks, and efficient public services often attract tourists seeking safe and hassle-free travel experiences. By integrating insights from these theoretical perspectives, destination planners and policymakers can develop holistic strategies for sustainable tourism development. These strategies aim to maximize economic benefits while minimizing negative environmental and social impacts, promoting cultural authenticity, fostering community engagement, and upholding principles of good governance. Ultimately, embracing a multidimensional approach to destination development ensures tourism destinations' long-term sustainability and resilience in an increasingly competitive global market.

Finally, this study's theoretical contribution emerges by integrating the economic dimension as a fourth axis into the three traditional components of the ESG approach: environmental, social, and governance. The ECON-ESG model developed within this framework provides a more balanced, comprehensive, and contextually valid theoretical basis for analyses of sustainable tourism demand.

METHODOLOGY

Selection of Variables

We included specific countries and variables in our study for several reasons. Firstly, our decision to incorporate Economic, ESG factors and SDGs alongside tourism demand was driven by a comprehensive understanding of contemporary economies' complex dynamics. Economic indicators were chosen to gauge nations' financial robustness and productivity levels, while environmental metrics were selected to evaluate their ecological impact and commitment to sustainability initiatives. Similarly, the inclusion of social and governance factors was motivated by a desire to assess societal well-being and the effectiveness of institutional contexts in managing economies. Additionally, incorporating technologies was deemed necessary to recognize the significant effect of innovation in stimulating growth and promoting the environment.

Furthermore, incorporating SDG indicators into our analysis was consistent with global initiatives addressing urgent environmental and social challenges. Previous research (Işık et al., 2025b; 2025c; 2025d; 2024a; 2024b; 2024c; 2024d; 2024e; 2024f; 2024g) has affirmed the significance of these variables as fundamental indicators for Economic (ECON), Environmental, Social, and Governance (ESG) considerations. Our methodology involves utilizing Principal Component Analysis to derive specific scores for Economic (ECON), Environmental (E), Social (S), and Governance (G) factors. By including these variables, we aimed to provide a comprehensive overview of the factors influencing tourism demand in 23 EAP and 7 SA countries. Table 1 shows the selection and definition of variables.

Table 1. *Variety of Variables*

Variable	Definition	Measurement	Source
TD	Tourism demand	Number of arrivals	WDI (2024)
ECON	Economic Factors	PCA	WDI (2024)
ENV	Environmental Factors	PCA	WDI (2024)
SOC	Social Factors	PCA	WDI (2024)
GOVN	Governance Factors	PCA	WDI (2024)
SDGs	Sustainable Development Goal Score	Score (1-100)	SDG Index (2024)

Model and Data

This study investigates the complex relationship between tourism demand and Economic, Environmental, Social, and Governance (ESG) factors, along with the moderating role of Sustainable Development Goals (SDGs), using the ECON-ESG framework introduced by Işik (2024a). In this study, the positioning of the SDGs as a moderating variable is fundamentally based on holistically addressing the impact of sustainable development principles and ESG factors on tourism demand. As SDGs provide a guiding framework across various domains—such as environmental protection, social inclusion, governance quality, and economic equity—the extent to which countries adopt and implement these goals can either enhance or constrain the effectiveness of ESG components. For instance, an SDG policy that prioritizes environmental sustainability can amplify the influence of strong environmental (E) performance on tourism demand. Likewise, SDG-driven commitments to social justice and governance transparency can strengthen the effect of social and governance factors on the attractiveness of a destination. In this context, SDGs serve as an institutional and structural layer that shapes the strength of the relationship between ECON-ESG and tourism demand; thus, their role as a moderator is conceptually and analytically justified.

The analysis covers a panel of 30 countries—23 from East Asia and Pacific (EAP) and 7 from South Asia (SA)—from 2003 to 2020. These countries were selected based on several key criteria: data availability and consistency, economic and tourism relevance, environmental diversity, and balanced regional representation. Specifically, only countries with consistent and comprehensive data across tourism demand, ESG indicators, and SDG metrics throughout the study period were included. This ensured methodological rigor and robustness of the panel data analysis. Economically and in terms of tourism, the selected countries represent major players or emerging markets within their respective regions, providing diverse tourism development stages. Environmentally, the countries reflect a wide range of contexts—coastal and island ecosystems, mountainous areas, tropical forests, and urban centers—allowing for broader applicability of findings. The final sample includes high-income economies such as Japan, Australia, and Singapore, alongside developing countries like Cambodia, Nepal, and Myanmar, ensuring balanced representation across development levels. Other countries in the EAP and SA regions were excluded solely due to the unavailability or inconsistency of key data, particularly for ESG and SDG indicators, which made their

inclusion infeasible without compromising the study's analytical integrity. Table 2 shows the selected countries.

Table 1. *Selection of Countries*

Region	Countries	Number of Countries
East Asia Pacific	Australia, Brunei Darussalam, Cambodia, China, Fiji, Indonesia, Japan, Korea Rep, Lao Pdr, Malaysia, Mongolia, Myanmar, New Zealand, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Island, Thailand, Timor-Leste, Tonga, Vanuatu, Vietnam	23
South Asia	Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka	7

The main models framed in this research is organized as follows:

$$\ln TD_{it} = \delta_0 + \delta_1 ECON_{it} + \delta_2 ENV_{it} + \delta_3 SOC_{it} + \delta_4 GOVNI_{it} + \varepsilon_{it} \quad (1)$$

$$\ln TD_{it} = \delta_0 + \delta_1 \ln SDG_{it} + \varepsilon_{it} \quad (2)$$

This study also examines the moderating effect of SDG in each variable. Therefore, the mathematical representation for all the constructs is as follows:

Economic Factor $$\ln TD_{it} = \propto_0 + \propto_1 ECON_{it} \cdot \ln SDG_{it} + \pi_i + \mu_t + \varepsilon_{it} \quad (3)$$

Environmental Factor $$\ln TD_{it} = \propto_0 + \propto_1 ENV_{it} \cdot \ln SDG_{it} + \pi_i + \mu_t + \varepsilon_{it} \quad (4)$$

Social Factor $$\ln TD_{it} = \propto_0 + \propto_1 SOC_{it} \cdot \ln SDG_{it} + \pi_i + \mu_t + \varepsilon_{it} \quad (5)$$

Governance Factor $$\ln TD_{it} = \propto_0 + \propto_1 GOVN_{it} \cdot \ln SDG_{it} + \pi_i + \mu_t + \varepsilon_{it} \quad (6)$$

Econometric Approach

Our preferred estimation methodology is the generalized method of moments (IV-GMM) approach due to concerns regarding reverse causality among variables. Traditional methods like ordinary least squares (OLS), fixed effects (FE), random effects (RE), or feasible generalized least squares (FGLS) may not provide efficient and consistent estimates because of potential endogeneity issues. However, FGLS remains a viable option, especially for addressing challenges arising from unknown heteroscedasticity (Zhao et al., 2022). Conversely, the IV-GMM model is a robust solution to endogeneity concerns, leveraging orthogonal conditions to produce reliable and effective estimators (Islam, 2025; Liu et al., 2025; Zhao et al., 2023). In this method, the reverse causality problem caused by

the independent variable is eliminated with the help of instrumental variables. In this way, the accuracy and reliability of the estimated coefficients are increased. Consistent with the methodological framework employed by Acheampong et al. (2020), this study utilizes the lagged values of the independent variable (GOV) as instruments in the IV-GMM estimation to address potential endogeneity. Furthermore, we utilize panel quantile regression to account for asymmetric relationships between variables. While traditional models usually consider average effects, the quantile regression method allows us to analyze how effects change for values of the dependent variable at different levels (e.g., low, medium, high). Traditional panel data estimators might produce inefficient and biased results when there is heterogeneity in the dataset (Allard et al., 2018; Kocak et al., 2019). Additionally, traditional econometric approaches often focus solely on the conditional mean, overlooking the behavior of variables at the tails of the distribution (Kocak et al., 2019). In contrast, quantile regression provides more efficient estimates in the presence of heterogeneity by capturing variations across the entire distribution. The pioneering work of Koenker and Bassett (1978) introduced quantile regression, a technique that accommodates data heterogeneity and yields insights not only at the median but also at the lower and upper quantiles of the dependent variable.

In this context, our study also employs quantile regression to show how the effects of economic and social factors on tourism demand differ across various levels of tourism intensity—ranging from low to high quantiles.

Lastly, we apply IV-GMM estimation to examine the moderating role of SDG variables (see Appendix A for details on variable construction).

RESULTS

Descriptive Statistics

Table 3 shows the descriptive statistics of the tourism demand, economic, ESG factors, and SDGs. The first statistic pertains to the natural logarithm of tourism demand (lnTD). The mean lnTD value is approximately 6.10, indicating that, on average, the natural logarithm of total debt is around 6.10, with a median value of 6.067. The maximum lnTD value observed is 8.211, while the minimum is 2.767. The distribution of lnTD is slightly left-skewed with a skewness of -0.232, and it has a moderate peak compared to a normal distribution with a kurtosis of 2.71. Moving on to the economic

factor (ECON), the mean ECON value is approximately -1.70e-08, close to zero, with a median value of 0.067. The distribution exhibits a moderate left-skewness (skewness = -0.794) and a high peak compared to a normal distribution (kurtosis = 16.043). The maximum ECON value observed is 5.989, while the minimum is -8.325. Next, the environmental factor (ENV) has a mean value close to zero (approximately 2.22e-09), with a median of -0.205. The distribution shows a moderate right-skewness (skewness = 0.742) and a moderate peak (kurtosis = 3.108). The maximum ENV value observed is 2.385, while the minimum is -1.862. Similarly, the social factor (SOC) and governance factor (GOVN) exhibit distributions with mean values close to zero and moderate peaks. For SOC, the mean value is approximately 2.59e-09, with a median of 0.043, while for GOVN, the mean value is approximately 3.33e-09, with a median of -0.299. The distributions of both factors show slight left-skewness (SOC: skewness = -0.099; GOVN: skewness = 0.995) and moderate peaks (SOC: kurtosis = 3.46; GOVN: kurtosis = 3.161). Lastly, the natural logarithm of sustainable development goals (lnSDG) has a mean value of approximately 1.806201, with a median of 1.807. The distribution is slightly left-skewed (skewness = -0.209) and exhibits a moderate peak (kurtosis = 2.163). The maximum lnSDG value observed is 1.898, while the minimum is 1.693.

Table 3. *Descriptive Statistics*

	Mean	**Median**	**Max**	**Min**	**Skewness**	**Kurtosis**
lnTD	6.10496	6.067	8.211	2.767	-.232	2.71
ECON	-1.70e-08	.067	5.989	-8.325	-.794	16.043
ENV	2.22e-09	-.205	2.385	-1.862	.742	3.108
SOC	2.59e-09	.043	2.541	-2.414	-.099	3.46
GOVN	3.33e-09	-.299	2.481	-1.636	.995	3.161
lnSDG	1.806201	1.807	1.898	1.693	-.209	2.163

Baseline Regression Results

Table 4 displays the outcomes of baseline regressions computed using five distinct models. These models serve dual purposes: firstly, facilitating comparison to ensure the dependability of our principal findings, and secondly, highlighting IV-GMM as our preferred model, focusing primarily on the final column for analysis. Before delving into the coefficients derived

from the IV-GMM model, it is imperative to assess the Wald test, which validates the credibility of the instrumental variable (IV). Examination of the Wald test statistics (located in the last row of Table 4) reveals that our IV is neither under-identified nor weak, bolstering confidence in its reliability.

Table 4. *Baseline Regression Results*

Variables	**OLS**	**FE**	**RE**	**FGLS**	**IV-GMM**
ECON	0.1563***	0.0936***	0.0781***	0.1563***	0.1563***
	(0.0390)	(0.0138)	(0.0140)	(0.0388)	(0.0524)
ENV	0.1094**	-0.1740*	-0.0201	0.1094**	0.0976
	(0.0518)	(0.0967)	(0.0899)	(0.0516)	(0.0614)
SOC	0.3722***	2.2360***	0.8221***	0.3722***	0.3624***
	(0.0505)	(0.2603)	(0.1490)	(0.0503)	(0.0546)
GOVN	0.2154***	0.0932	0.1668***	0.2154***	0.2221***
	(0.0403)	(0.0587)	(0.0565)	(0.0401)	(0.0375)
Under Identification Test		KP LM Statistic			174.606***
Weak Identification Test		CD Wald F Statistic			1.9e+04
		KP F Statistic			3.3e+04
Over Identification Test		Hansen J Statistic			0.0000

Note: (*) Significance level set at $p < 0.01$; (**) Significance level set at $p < 0.05$; (***) Significance level set at $p < 0.001$

Asymmetric Nexus

We have expanded our analysis beyond linear relationships to explore potential nonlinear associations between economic, environmental, social, and governance (ECON-ESG) factors and tourism demand (TD). By employing panel quantile regression, we aimed to identify the potential asymmetric impacts of these factors across different levels of tourism demand. This method enables the assessment of how the marginal effects of ECON-ESG vary across distribution particularly at low, median, and high quantiles of tourism demand. In doing so, we investigate whether the influence of ESG factors changes depending on the intensity of tourism demand. Such insights can assist policymakers in formulating differentiated strategies tailored to varying tourism contexts. The results presented in Table 5 provide valuable findings based on the panel quantile regression analysis.

Table 5. *Panel Quantile Regression*

Quantile	ECON	ENV	SOC	GOVN
10th	*-0.001093*	*0.064857*	*0.559283****	*0.302622****
	(0.023762)	*(0.063197)*	*(0.042841)*	*(0.054162)*
20th	*0.056722*	*0.061488*	*0.413335****	*0.326381****
	(0.070583)	*(0.116790)*	*(0.056605)*	*(0.056253)*
30th	*0.083829**	*0.168808***	*0.410232***	*0.156513***
	(0.044383)	*(0.075516)*	*(0.068322)*	*(0.061400)*
40th	*0.171871****	*0.093541*	*0.297089****	*0.258117****
	(0.056884)	*(0.095980)*	*(0.081581)*	*(0.072768)*
50th	*0.161277****	*0.078575*	*0.284326****	*0.217577****
	(0.059967)	*(0.093688)*	*(0.081294)*	*(0.068680)*
60th	*0.197057***	*-0.016848*	*0.253010****	*0.232649****
	(0.076218)	*(0.075166)*	*(0.082290)*	*(0.056354)*
70th	*0.161996***	*0.099230*	*0.278689*	*0.227738****
	(0.062636)	*(0.157777)*	*(0.178009)*	*(0.058360)*
80th	*0.218646***	*0.027423*	*0.259546*	*0.232882****
	(0.094207)	*(0.167477)*	*(0.197922)*	*(0.067150)*
90th	*0.220944****	*0.059197*	*0.364846*	*0.256093****
	(0.048965)	*(0.257925)*	*(0.309869)*	*(0.085565)*

*Slope equality test. Wald statistics: 171.4646*** (0.000).*

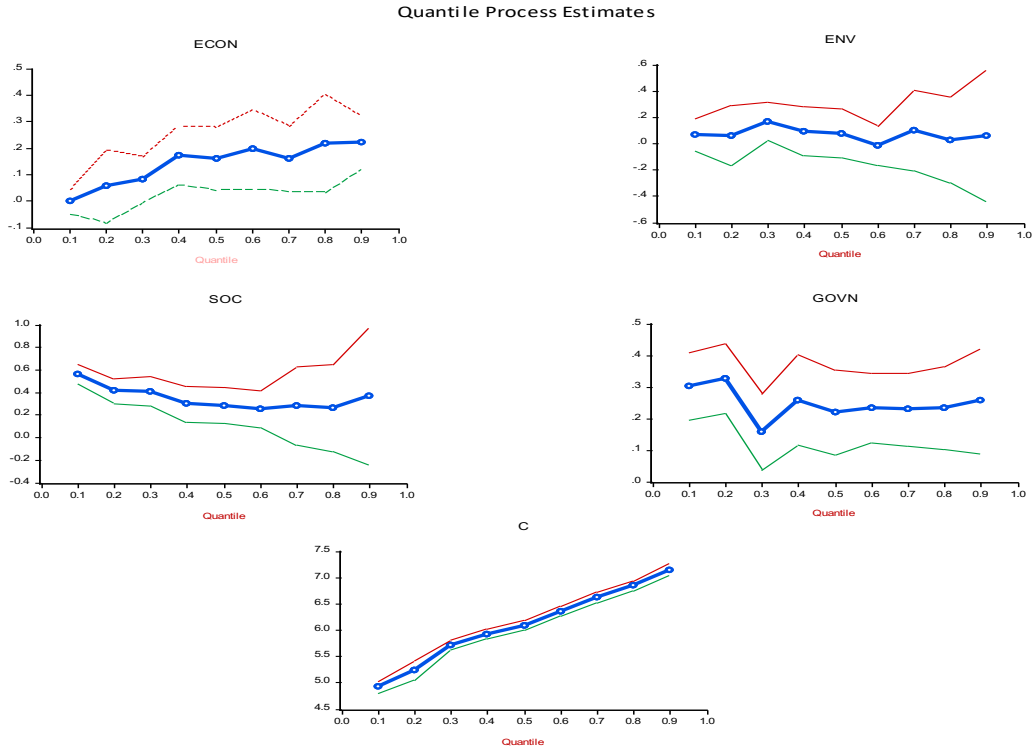
(i) Economic Factor and Tourism Demand: Economic factors positively and significantly impact tourism demand across quantiles from the 30th to the 90th. This suggests a positive ECON-TD relationship at low to high levels of tourism demand. Countries experiencing low to high tourism demand levels tend to exhibit a significant positive association between economic factors and tourism demand. These findings contribute to a deeper understanding of the relationship between economic factors and tourism demand and validate the robustness of our primary results.

(ii) Environmental Factor: The observed significant effect of the environmental factor on tourism demand at the 30th quantile suggests a nuanced relationship between natural surroundings and visitor attraction. While environmental considerations may not be the primary driver of tourism demand across all quantiles, they play a crucial role in shaping destination appeal for a segment of travelers seeking specific environmental experiences. Sustainable tourism practices, such as eco-tourism initiatives and conservation efforts, can leverage this relationship to target environmentally-conscious travelers and capitalize on the unique natural assets of destinations. By aligning tourism development with

environmental preservation, destinations can enhance their long-term competitiveness and mitigate negative impacts on ecosystems.

(iii) Social Factor: The positive and significant association between the social factor and tourism demand within the 10th to 60th quantiles underscores the influence of social dynamics on destination attractiveness. Social factors encompass various aspects, including cultural heritage, community engagement, and quality of life indicators, collectively contributing to the overall visitor experience. Destination management strategies prioritizing community involvement, cultural authenticity, and social infrastructure development can enhance the appeal of destinations across a broad spectrum of tourism demand levels. Investing in social amenities, promoting cultural events, and fostering local engagement initiatives can enrich the visitor experience and cultivate positive perceptions among travelers.

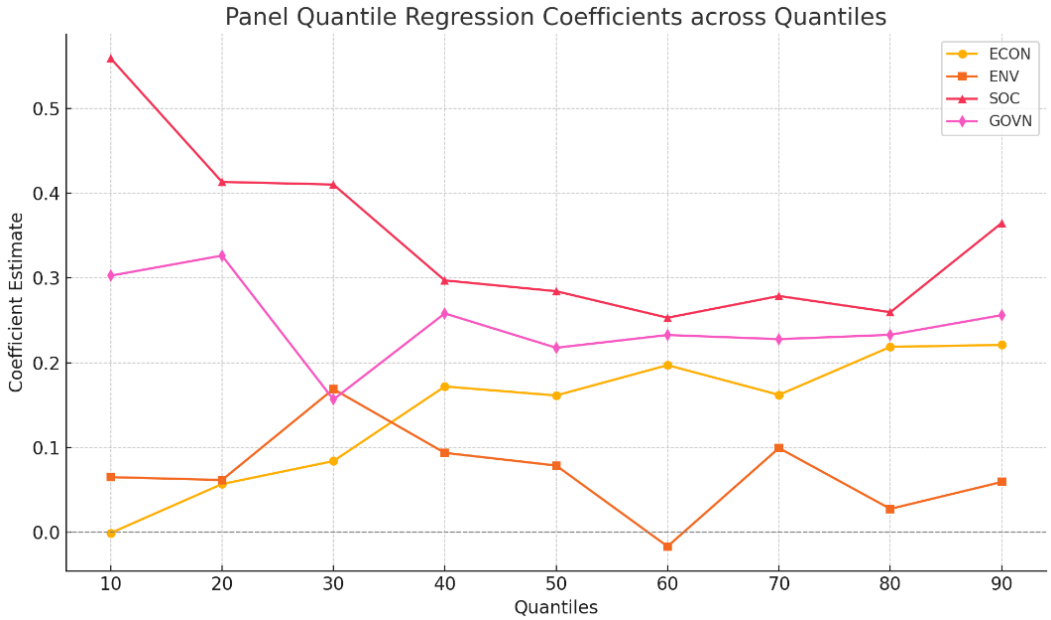
Figure 1. *Quantile Estimation Process*



(iv) Governance Factor: The consistent positive relationship between the governance factor and tourism demand across all quantiles highlights the pivotal role of effective governance in destination development and management. Good governance practices, characterized by transparency, accountability, and stakeholder collaboration, enable tourism growth and investment environment. Destinations with sound governance frameworks

can capitalize on opportunities for tourism development, streamline regulatory processes, and attract private sector investment. Governments can foster a conducive business climate that stimulates tourism demand across diverse market segments by prioritizing policy coherence, infrastructure planning, and destination marketing.

Figure 2. *Graphical Result of Panel Quantile Regression*



Additionally, Figure 1 vividly illustrates the asymmetric impact of economic (ECON) and ESG factors on tourism demand (TD). See also graphical result of panel quantile regression on Figure 2.

The Moderating Role of SGDs

Table 6 presents the direct influence of both Sustainable Development Goals (SDGs) and tourism demand (TD), while our investigation further explores the moderating role of SDGs in the relationship between Economic-Environmental-Social Governance (ECON-ESG) and tourism demand. In our analysis, we examine the direct effects of each variable, focusing individually on SDGs and tourism demand. The findings reveal a significant yet negative economic and environmental impact on SDGs. This suggests that, while these factors contribute to sustainable development, their influence may not always align positively with achieving SDG targets. In contrast, governance positively affects SDGs, indicating that stronger governance structures promote progress toward these goals. On the other hand, economic, environmental, and social factors positively and significantly influence tourism demand, meaning that improvements in these areas tend to boost tourism activity. However, governance negatively

affects tourism demand, suggesting that stricter governance practices may hinder tourism growth. Notably, there is a significant and positive correlation between ECON-ESG and SDG.

Table 6. *Direct Effects*

	SDG	**TD**
ECON	-0.0078***	0.1920***
	(-4.63)	(4.48)
ENV	-0.0105***	0.3025***
	(-5.21)	(6.36)
SOC	0.0009	0.359***
	(0.36)	(8.36)
GOVN	0.0310***	-0.214***
	(18.58)	(-4.57)
SDG		11.053***
		(11.77)
ECONESG	0.0086***	
	(4.01)	
KP LM Statistic	178.101***	145.496***
CD Wald F Statistic	2.2e+04	1.2e+04
KP F Statistic	2.6e+04	1.5e+04
Hansen J Statistic	0.000	0.000

Note: (*) Significance level set at p < 0.01; (**) Significance level set at p < 0.05; (***) Significance level set at p < 0.001

The analysis indicates that the Sustainable Development Goals (SDGs) have a significant and positive moderating effect on the relationship between economic, environmental, social, and governance (ECON-ESG) factors and tourism demand (see Table 7). This suggests that the presence of SDGs enhances the influence of these factors on tourism demand, creating a more favorable environment for tourism growth. Specifically, when SDGs act as a moderator, a 1% increase in economic variables (ECON) leads to a 0.2374% rise in tourism demand. This implies that economic improvements—such as higher GDP, improved infrastructure, or increased financial investments—have a more pronounced effect on boosting tourism when aligned with SDG-driven initiatives. Similarly, environmental factors (ENV) demonstrate a positive moderating relationship. A 1% increase in environmental performance, which includes better resource management, pollution reduction, or the adoption of green technologies, results in a 0.1508% increase in tourism demand when SDGs are considered. This shows that sustainability efforts linked to environmental goals can attract more tourists by promoting eco-friendly and responsible tourism practices. Regarding social factors (SOC), the moderating effect of SDGs leads to a 0.1225% increase in tourism demand for every 1% improvement. This can

be attributed to enhanced social equity, better education, improved healthcare, and greater inclusivity, all aligning with SDG targets and making destinations more appealing to tourists.

Table 7. *The Moderating Role of SDG*

Variable	**I**	**II**	**III**	**IV**	**V**
ECON		0.1540***	0.1596***	0.1462***	0.1349***
		(3.06)	(3.04)	(2.80)	(2.70)
ENV	0.1020		0.0011	0.1015	0.0689
	(1.62)		(0.02)	(1.60)	(1.12)
SOC	0.3752***	0.4749***		0.3624***	0.4395***
	(6.47)	(9.71)		(6.54)	(7.93)
GOVN	0.2918***	0.1820***	0.2341***		0.1753***
	(4.06)	(4.84)	(6.44)		(4.57)
ECON_SDG	0.2374**				
	(2.03)				
ENV_SDG		0.1508***			
		(5.26)			
SOC_SDG			0.1225***		
			(4.14)		
GOVN_SDG				0.1032***	
				(5.10)	
ECONESG_SDG					0.1284***
					(5.45)
KP LM Statistic	10.216***	134.232***	142.141***	169.477****	193.152***
CD Wald F Statistic	38.184	5.9e+04	8.0e+06	3.0e+04	7.6e+04
KP F Statistic	7.130	6.1e+04	5.1e+06	3.5e+04	5.7e+04
Hansen J Statistic	0.000	0.000	0.000	0.000	0.000

Note: (*) Significance level set at $p < 0.01$; (**) Significance level set at $p < 0.05$; (***) Significance level set at $p < 0.001$

Regarding governance (GOVN), SDGs also play a moderating role, whereby a 1% improvement in governance practices, such as transparency, accountability, and political stability, leads to a 0.1032% increase in tourism demand. This highlights the importance of strong governance in building trust and creating a stable environment that encourages tourism growth, mainly when linked to sustainable development. Moreover, the combined effect of ECON-ESG factors moderated by SDGs results in a 0.1284% increase in tourism demand for every 1% improvement. This underscores the collective influence of economic and ESG factors in driving tourism, further amplified by the integration of SDGs. Overall, these findings emphasize SDGs' critical role in enhancing the positive impacts of ECON-ESG factors on tourism demand, showing how sustainability initiatives contribute to a more prosperous and resilient tourism sector.

Table 8 presents the SDG scores and ranks for EAP and SA countries. Each country's SDG score reflects its progress towards achieving the UN's 17 global goals for sustainable development by 2030, encompassing areas such as poverty alleviation, education, clean water and sanitation, and sustainable cities. Lower ranks denote higher progress, with Japan leading among the EAP countries with a score of 79.41 and a rank of 21, while Bhutan tops the SA countries with a score of 72.34 and 61. The scores and ranks serve as benchmarks for assessing each nation's advancement towards SDGs, offering valuable insights into areas of improvement and successful strategies. Solomon Islands, Timor-Leste, Tonga, and Vanuatu do not have rankings and scores provided in the SDG Index. The figures below depict the graphical representation of the SDG rankings and scores.

Table 8. *Ranking of SDGs 2024*

East Asia Pacific Countries	Score	Rank	South Asian Countries	Score	Rank
Japan	79.41	21	Bhutan	72.34	61
New Zealand	78.43	27	Maldives	71.27	68
South Korea	78.06	31	Sri Lanka	69.4	83
Australia	75.9	40	Nepal	66.47	99
Thailand	74.74	43	Bangladesh	65.91	101
Vietnam	73.32	55	India	63.45	112
Fiji	72.88	57	Pakistan	58.97	128
China	72.01	63			
Singapore	71.78	64			
Indonesia	70.16	75			
Malaysia	69.85	78			
Philippines	67.14	98			
Brunei Darussalam	65.71	102			
Cambodia	64.84	103			
Mongolia	64.69	106			
Lao Pdr.	62.96	115			
Myanmar	60.44	125			
Papua New Guinea	53.6	148			

Note: (*), (**), and (***) indicate significance at the 10%, 5%, and 1% levels, respectively

DISCUSSION

This study proposes a novel approach—the ECON-ESG framework—that systematically incorporates the economic dimension alongside environmental, social, and governance (ESG) factors when analyzing the determinants of tourism demand. In the existing literature, the impact of ESG components on tourism has been primarily examined from

environmental and social perspectives, while economic factors have rarely been treated as a distinct axis. In this context, our study fills a significant gap and offers a new approach that expands traditional ESG models.

Our empirical findings reveal that economic factors strongly and statistically significantly influence tourism demand. This result aligns with studies such as Borhan & Arsad (2019) and Martins et al. (2017), emphasizing the role of per capita income, exchange rates, and price levels in shaping tourism flows. However, our study integrates these factors with ESG components for a more comprehensive analysis. Additionally, panel quantile regression results demonstrate that the impact of economic variables on tourism varies across different levels of demand, indicating an asymmetric structure. This finding is consistent with the analyses of Martins et al. (2017), who show that the effects of price and income levels on tourism expenditures differ across countries and income groups. Moreover, by employing the IV-GMM method, our study offers a more reliable causality assessment and enhances the empirical robustness of the results.

The effect of social factors on tourism demand is also supported by variables such as gender equality and social participation, as emphasized in studies like Boyer (2019) and Zhang et al. (2022). Similarly, the positive impact of governance factors is confirmed in our findings, in line with studies by Topcu et al. (2023) and Al-Tal & Elheddad (2023). However, the fact that environmental factors are not statistically significant in some tourism quantiles suggests that their effects may vary depending on context. Goh (2012) also highlights the importance of environmental—particularly climatic—factors on tourism demand, which implies that such effects may need to be assessed under more localized, seasonal, or destination-specific conditions. In this regard, analyzing environmental indicators at a more contextual level is crucial for ensuring the consistency of findings and the effectiveness of policy recommendations.

In conclusion, this study not only develops an original theoretical framework (ECON-ESG) but also contributes to literature by critically comparing the findings with existing empirical research. The proposed ECON-ESG approach offers a comprehensive structure that can be used in both theoretical and practical analyses of sustainable tourism demand and holds strong potential for informing policy design in the context of East Asia Pacific (EAP) and South Asian (SA) countries.

CONCLUSION

In conclusion, this study provides valuable insights into the complex dynamics shaping tourism demand in EAP and SA countries. We find that economic, social, and governance factors significantly and positively influence tourism demand, underscoring the importance of fostering economic development, social well-being, and effective governance to stimulate tourism activity. These findings align with existing literature, highlighting robust economies, vibrant societies, and stable governance structures in attracting tourists and driving tourism growth. However, our analysis also reveals a negative association between the environmental factor and tourism demand, emphasizing the critical need for sustainable practices to mitigate adverse environmental impacts on tourism.

While seemingly counterintuitive, the negative association between environmental factors and tourism demand may be attributed to contextual and policy-related dynamics. In some countries, stricter environmental regulations—such as conservation zoning, carbon taxation, and eco-certification requirements—can raise operational costs for tourism-related businesses. This may translate into higher tourist prices or limited access to protected areas, thereby reducing tourism attractiveness, particularly for price-sensitive travelers. Additionally, highly regulated or "eco-restricted" destinations may be perceived as less convenient or enjoyable by tourists seeking comfort, freedom, or entertainment-driven experiences.

Another possible explanation lies in the structural composition of the environmental index itself. In some emerging economies, where tourism demand is rapidly growing, environmental degradation (e.g., deforestation, CO_2 emissions, urban pollution) may also increase. This can lead to a statistical correlation in which higher tourism inflows coincide with lower environmental performance scores—indicating a reverse causality. Moreover, environmental improvements often yield long-term benefits, whereas tourism demand tends to respond to short-term factors like affordability, accessibility, and marketing. Thus, the observed negative relationship may reflect a temporal mismatch between sustainable policy implementation and immediate tourist behavior.

This underscores the importance of adopting environmentally friendly policies and practices to preserve natural resources, minimize pollution, and enhance the overall sustainability of the tourism industry. Sustainable tourism initiatives, such as eco-tourism and conservation efforts, can attract environmentally conscious travelers and safeguard destination ecosystems for future generations.

Furthermore, our exploration of the moderating role of SDGs sheds light on their crucial function in shaping the relationship between ECON-ESG factors and tourism demand. We found that SDGs serve as a guiding framework for sustainable tourism development, indirectly enhancing the positive impact of economic and social factors on tourism demand while mitigating the negative influence of governance factors. This underscores the importance of aligning tourism development with broader SDGs to ensure long-term environmental, social, and economic viability.

In our investigation of nonlinear effects, we uncover nuanced relationships between ECON-ESG factors and tourism demand across different quantiles, highlighting the heterogeneous nature of these associations. Additionally, our findings (Appendix B) demonstrate that the combined effect of ECON-ESG positively influences both tourism demand and SDGs when moderated by SDGs, further emphasizing the interconnectedness between sustainable tourism development and broader SDGs. Overall, our study contributes to a deeper understanding of the factors driving tourism demand and underscores the importance of adopting a holistic and sustainable approach to tourism development. By integrating economic, environmental, social, and governance considerations within the framework of SDGs, policymakers, and stakeholders can work towards promoting inclusive, resilient, and environmentally responsible tourism that benefits both current and future generations.

Policy Implications

The findings of this study hold several important policy implications for governments, policymakers, and stakeholders involved in tourism development in East Asia Pacific (EAP) and South Asian (SA) countries:

Promoting Sustainable Tourism Practices: Policymakers should prioritize implementing sustainable tourism practices to mitigate the negative environmental impacts of tourism activities. This may include investing in eco-tourism initiatives, promoting renewable energy sources (Işık et al., 2025e), implementing waste management strategies, and preserving natural habitats and cultural heritage sites. However, sustainability efforts should not be designed to compromise accessibility or economic viability. Such environmental sustainability policies are particularly relevant to SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land). Providing concrete contributions to

these goals will play a critical role in reducing the long-term environmental impacts of tourism.

For example, in EAP countries with high natural diversity, such as the Philippines, promoting coastal protection projects and community-based ecotourism programs will both serve SDG 14 and increase local people's access to sustainable income sources.

Investing in Economic Development: Given the positive impact of economic factors on tourism demand, governments should focus on fostering economic growth, attracting foreign investment, and enhancing infrastructure development in the tourism sector. This does not mean, however, that environmental concerns should be ignored entirely. Policymakers must balance economic growth with environmental protection and plan carefully to ensure that short-term economic gains do not undermine long-term sustainability. This may involve implementing policies to improve GDP growth, enhance business environments, and support tourism-related industries. This may include implementing policies to improve GDP growth, enhancing business environments, and support tourism-related industries.

These efforts are directly linked to SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure). The contribution of tourism to economic infrastructure should be assessed in line with these goals and supported by traceable indicators.

In SA countries with large domestic tourism potential, such as India, improving rail and road infrastructure can increase tourism accessibility. In addition, investment incentives for small businesses can accelerate local development.

Enhancing Social Well-being: Policies to improve social indicators such as life expectancy, education, and gender equality can enhance tourism demand. Governments should prioritize education, healthcare, and social infrastructure investments to improve residents' overall quality of life and attract tourists seeking culturally enriching experiences. These improvements play a strategic role not only for internal social welfare purposes but also in shaping the destination image, increasing local people's support for tourism, and promoting community-based tourism.

Such social investments are particularly closely linked to SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 5

(Gender Equality). Supporting these SDGs will increase both the well-being of local people and the attractiveness of tourism destinations.

In SA countries such as Nepal, programs supporting women's integration into the tourism sector (e.g., women guide training and women cooperatives) will advance gender equality and diversify local production and services.

Aligning Tourism Development with Sustainable Development Goals (SDGs): The moderating role of SDGs highlights the importance of integrating sustainable development principles into tourism planning and policymaking. Policymakers should align tourism development strategies with the objectives outlined in the SDGs, focusing on promoting economic growth, social inclusion, environmental conservation, and cultural preservation. In this context, specific strategies should be developed for each SDG group. For example, environmental SDGs (SDG 12, 13, 14, 15) should target natural resource management and carbon footprint reduction, while social SDGs (SDG 1, 3, 4, 5, 10) should prioritize social equality and participation. This harmony should not remain at the rhetorical level only; measurable SDG indicators should be integrated into tourism strategies, and tourism should make a concrete contribution to these goals.

Capacity Building and Collaboration: Governments should invest in capacity-building initiatives and foster collaboration between public and private sector stakeholders to address the tourism industry's complex challenges. This may involve providing training programs, fostering innovation, and facilitating knowledge sharing to foster the sustainability and resilience of the tourism sector. Capacity building should not be limited to formal training programs; empowering local communities and increasing cross-sectoral collaboration is critical to ensuring sustainability goals are understood and implemented at all levels of tourism management.

In this context, training local people in disaster management and sustainable tourism planning in EAP countries consisting of many islands, such as Indonesia, both increases resilience and strengthens the effectiveness of public-private partnerships.

By implementing these policy recommendations, governments and stakeholders can contribute to building a more sustainable, inclusive, and resilient tourism sector that maximizes economic benefits while minimizing negative environmental and social impacts. By embracing sustainable tourism practices and aligning with the principles of the SDGs, East Asia

Pacific (EAP) and South Asian (SA) countries can position themselves as leading destinations for responsible and ethical tourism in the global marketplace.

Study Limitations and Future Research

While this study offers important insights into the association between economic and ESG factors and tourism demand across EAP and SA countries, several limitations must be acknowledged. These include potential biases stemming from data availability and quality, sample selection constraints, and the possibility of residual endogeneity despite employing advanced econometric techniques such as IV-GMM. The exclusion of certain countries due to incomplete data may also affect the generalizability of the findings. Moreover, the model does not fully capture dynamic feedback effects or contextual differences across countries.

This study does not directly address case examples or country-based policy implementations. However, future research examining real-world examples from specific countries would be useful in assessing the practical implications of the ECON-ESG framework (Ongan et al., 2025).

Future research should address these limitations by conducting cross-country comparative studies, applying dynamic panel models, and incorporating longitudinal analyses to better understand temporal effects. Integrating qualitative research methods could also enrich insights into local governance, cultural factors, and policy implementation. Additionally, exploring the effectiveness of targeted policy interventions, incorporating emerging factors such as digitalization and climate resilience, and evaluating the real-world impact of sustainable tourism practices will be essential for informing policy and advancing sustainable tourism development globally.

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Appendix A. *Measurement of Variables*

The evaluation of environmental variables emphasizes the importance of the first principal component (Comp-1), which clarifies 47.3% of the variance, as delineated in Appendix A1. Comp-1, predominantly influenced by factors such as REC, FA, CO_2, CH4, and N2O, is the cornerstone for shaping the Environmental factor. Similarly, in the social domain elaborated in Appendix A2, Comp-1 emerges as crucial, elucidating 50.8% of the variance, with notable contributions from LE, PD, and FMR molding the social factor. Shifting attention to governance, as detailed in Appendix A3, Comp-1 accounts for 69.1% of the variance, propelled by contributions from SOC, RQ, RL, and GE, laying the foundation for the governance factor. Transitioning to the economic factor outlined in Appendix A4, Comp-1 assumes significance, explaining 41.1% of the variance, with substantial contributions from GDPG, CPI, and FDI.

A1 Calculation of Environmental Index

Principal components/correlation — Number of obs = 540
Number of comp. = 5
Trace = 5
Rotation: (unrotated = principal) — Rho = 1.0000

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.367	1.128	0.473	0.473
Comp2	1.239	0.266	0.248	0.721
Comp3	0.973	0.679	0.195	0.916
Comp4	0.294	0.168	0.059	0.975
Comp5	0.126	.	0.025	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Unexplained
REC	-0.505	0.456	-0.189	0.489	0.512	0
FA	-0.274	0.232	0.871	0.151	-0.300	0
CO2	0.528	-0.297	0.392	0.346	0.600	0
CH4	0.346	0.699	0.115	-0.547	0.282	0
N2O	0.521	0.401	-0.199	0.566	-0.457	0

A2 Calculation of Social Index

Principal components/correlation — Number of obs = 540
Number of comp. = 3
Trace = 3
Rotation: (unrotated = principal) — Rho = 1.0000

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.524	0.428	0.508	0.508
Comp2	1.096	0.716	0.365	0.873
Comp3	0.380	.	0.127	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
FMR	-0.651	0.434	0.623	0
LE	0.211	0.892	-0.401	0
PD	0.729	0.130	0.672	0

A3 Calculation of Governance Index

Principal components/correlation — Number of obs = 540
Number of comp. = 4
Trace = 4
Rotation: (unrotated = principal) — Rho = 1.0000

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.763	1.776	0.691	0.691
Comp2	0.986	0.814	0.247	0.937
Comp3	0.173	0.094	0.043	0.981
Comp4	0.078	.	0.019	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Unexplained
COC	0.575	-0.052	-0.575	0.580	0
RQ	0.565	-0.077	0.792	0.218	0
RL	0.585	-0.029	-0.204	-0.785	0
GE	0.091	0.995	0.025	0.024	0

A4 Calculation of Economic Index

Principal components/correlation — Number of obs = 540
Number of comp. = 3

Trace = 3

Rotation: (unrotated = principal) Rho = 1.0000

Component	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
Comp1	1.233	0.186	0.411	0.411
Comp2	1.048	0.329	0.349	0.760
Comp3	0.719	.	0.240	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Unexplained
GDPG	-0.738	-0.054	0.673	0
CPI	0.373	0.798	0.473	0
FDI	0.562	-0.600	0.569	0

Appendix B. *Regression Analysis Results*

Regression (Moderating variable: Tourism Demand)

Regression (Moderating variable: SDGs)

Dependent = lnTD Moderating Effect= lnSDG				
Variables	**Coefficient**	**Std. Error**	**P-value**	**Effect**
ECON-ESG → lnTD	-5.7535***	1.094861	0.000	Direct
lnSDG → lnTD	6.1386***	0.7459	0.000	Direct
ECON-ESG→ lnSDG → lnTD	3.2384***	0.6178	0.000	Moderating
Wald Test (F-Statistic)	26.938***			

Dependent = lnSDG Moderating Effect= lnTD				
Variables	**Coefficient**	**Std. Error**	**P-value**	**Effect**
ECON-ESG → lnSDG	-0.0574***	0.0125	0.000	Direct
lnTD → lnSDG	0.0279***	0.0029	0.000	Direct
ECON-ESG→lnTD → lnSDG	0.0127***	0.0019	0.000	Moderating
Wald Test (F-Statistic)	37.707***			