Analyzing the Influence of Macroeconomic Variables on Tourism Receipts in OIC Countries: A Quantile Analysis Approach Across Varying Income Levels

Saizal Pinjaman[1,2,*], Abdul Rahim Ridzuan[2,3], Suddin Lada[2], Shaidathul Jemin[3]

[1]Centre for Economic Development and Policy, Universiti Malaysia Sabah, Malaysia

[2]Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, Malaysia

[3]Universiti Teknologi Mara, Malaysia

DOI: https://dx.doi.org/10.47772/IJRISS.2025.9020180

Received: 31 January 2025; Accepted: 10 February 2025; Published: 10 March 2025

ABSTRACT

This study examines the heterogeneous effects of macroeconomic variables on tourism receipts across income tiers in Organization of Islamic Cooperation (OIC) countries, addressing a critical gap in tourism economics literature. Employing a panel quantile regression approach on data from 34 OIC countries (1995–2020), the research analyzes how exchange rates, income per capita, inflation, and trade openness differentially influence tourism receipts at lower, middle, and upper quantiles of tourism spending. The methodology leverages quantile regression for panel data (QRPD) to account for non-linear relationships and income-level heterogeneity, offering a nuanced alternative to traditional linear models. Key findings reveal significant income-tiered disparities. Exchange rate depreciation enhances tourism receipts in most contexts, except in upper-middle-income countries, where volatility signals instability. Income per capita exhibits positive yet inelastic effects in low- and lower-middle-income nations, but adverse impacts in high-income countries, suggesting market saturation. Inflation erodes receipts in low-income economies but stimulates demand in high-income OIC states, reflecting divergent tourist price sensitivities. Trade openness consistently suppresses tourism across quantiles, with high-income countries experiencing the steepest declines. These results challenge the universality of the Tourism-Led Growth Hypothesis, emphasizing context-specific dynamics. Policy recommendations advocate for income-tiered strategies: low-income countries should prioritize exchange rate stabilization, inflation control, and infrastructure investments via Islamic finance instruments, while high-income nations must pivot to premium niches like halal and cultural tourism. Regional cooperation through unified visa policies and OIC-wide halal certification standards is critical to harnessing collective tourism potential. Policymakers are urged to balance trade liberalization with targeted tourism-sector incentives to mitigate resource diversion. By aligning interventions with macroeconomic realities, OIC countries can transform tourism into an engine of equitable growth, advancing Sustainable Development Goals (SDGs) on economic diversification and inclusive employment.

INTRODUCTION

Tourism has emerged as a pivotal driver of economic growth, particularly in developing and emerging economies, where it serves as a vital source of foreign exchange earnings, employment generation, and economic diversification. For member countries of the Organization of Islamic Cooperation (OIC), the tourism sector holds immense potential, given their rich cultural heritage, historical landmarks, and natural attractions (Zamani-Farahani & Eid, 2016). However, despite these advantages, the tourism industry in OIC countries remains underdeveloped, with significant disparities in performance across nations. For instance, while countries like Turkey, Malaysia, and the United Arab Emirates have established themselves as global tourism hubs, others, particularly low-income OIC nations, struggle to attract international visitors and generate substantial tourism revenues (Mahmoudinia, 2024). This disparity highlights the uneven distribution of tourism benefits within the OIC bloc and underscores the need to examine the underlying factors influencing tourism receipts, particularly macroeconomic variables, which play a critical role in shaping tourism demand and expenditure patterns.

The OIC region, comprising 57 member states, is characterized by diverse economic structures, ranging from high-income oil-exporting nations to low-income agrarian economies (Nafar, 2019). This economic heterogeneity is reflected in the tourism sector, where income levels, infrastructure development, and policy frameworks vary significantly. For example, high-income OIC countries often benefit from advanced infrastructure, robust marketing strategies, and favorable exchange rates (Garini et al., 2025), which enhance their competitiveness in the global tourism market. In contrast, low-income OIC countries face challenges such as inadequate infrastructure, limited access to financing, and political instability, which hinder their ability to capitalize on tourism opportunities. These disparities are further exacerbated by external factors such as global economic fluctuations, geopolitical tensions, and health crises, which disproportionately affect tourism-dependent economies (Hamarneh, 2022).

Moreover, the tourism sector in OIC countries is uniquely positioned to leverage the growing global interest in cultural and religious tourism. The OIC region is home to some of the world's most significant religious sites, including Mecca and Medina in Saudi Arabia, Al-Aqsa Mosque in Palestine, and the Blue Mosque in Turkey, which attract millions of pilgrims and tourists annually. Additionally, the concept of halal tourism, which caters to the needs of Muslim travelers, has gained traction in recent years, offering OIC countries a niche market to explore (Alrawadeh, 2024). Despite these opportunities, the full potential of cultural and religious tourism remains untapped in many OIC countries due to insufficient investment in infrastructure, marketing, and service quality. Furthermore, the lack of regional cooperation and integration in tourism development initiatives has limited the ability of OIC countries to collectively promote their tourism offerings on the global stage.

The relationship between macroeconomic factors and tourism receipts has been extensively studied in the context of developed and emerging economies (Rivera, 2017; Gopalan & Khalid, 2024). However, the unique economic, cultural, and geopolitical characteristics of OIC countries necessitate a tailored analysis. Existing literature highlights the influence of variables such as exchange rates, income levels, inflation, and trade openness on tourism demand. For instance, studies like Belloumi (2010) have demonstrated that exchange rates and income exhibit a positive relationship with tourism receipts, while inflation and trade openness present more complex, context-dependent effects (Soh et al., 2024). Despite these insights, there is a paucity of research examining how these relationships vary across different levels of tourism spending and income within OIC countries. This gap is particularly significant given the heterogeneous economic structures and development trajectories of OIC member states.

The primary objective of this research is to analyze the influence of macroeconomic variables on tourism receipts in OIC countries, employing a quantile regression approach to capture the heterogeneous effects across varying income levels. By doing so, this study aims to provide a nuanced understanding of how factors such as exchange rates, income, inflation, and trade openness differentially impact tourism receipts at lower, middle, and higher quantiles of tourism spending. This approach not only addresses the limitations of traditional linear models but also offers actionable insights for policymakers seeking to optimize tourism strategies tailored to specific economic contexts.

The relevance of this study is multifaceted. First, it contributes to the growing body of literature on tourism economics by extending the analysis to OIC countries, a region that has been relatively underexplored in this context. Second, the use of quantile regression represents a methodological advancement, enabling the identification of threshold effects and non-linear relationships that are often overlooked in conventional analyses. Third, the findings of this research have practical implications for OIC countries, providing evidence-based recommendations for enhancing tourism competitiveness and economic resilience. For instance, understanding the differential impact of macroeconomic variables can inform targeted interventions, such as currency stabilization measures for low-income countries or trade liberalization policies for high-income nations.

LITERATURE REVIEW

The relationship between macroeconomic variables and tourism receipts has been a focal point of academic research, driven by the tourism industry's significant contribution to global economic growth and development. Theoretical frameworks such as the Tourism-Led Growth Hypothesis (TLGH) and the Economic Dependency Theory provide a foundation for understanding how macroeconomic factors influence tourism demand and

receipts. The TLGH posits that tourism stimulates economic growth through foreign exchange earnings, job creation, and infrastructure development (Seetanah et al., 2022; Lin, 2024), while the Economic Dependency Theory emphasizes the sensitivity of tourism to external economic shocks, such as exchange rate fluctuations and income disparities (Monterrubio et al., 2018). These theories underscore the bidirectional relationship between tourism and macroeconomic variables, highlighting the need for empirical studies to explore these dynamics in diverse contexts.

Recent studies have extensively examined the impact of key macroeconomic variables—exchange rates, income per capita, consumer price index (CPI), and trade openness—on tourism receipts, employing advanced econometric techniques to capture nuanced relationships. Exchange rates, for instance, have been widely recognized as a critical determinant of tourism demand (Martins et al., 2017; Louail, 2020). A depreciation in the local currency often makes a destination more affordable for international tourists, thereby boosting tourism receipts. Martins et al. (2017) utilized panel data analysis to demonstrate that exchange rate volatility significantly influences global tourism demand, with stable or favorable exchange rates positively impacting tourism inflows. Similarly, Brida and Risso (2010) and Khan et al. (2020) highlighted the importance of relative prices, which are closely tied to exchange rates, in shaping tourism demand, particularly in developing economies.

Income per capita, both domestically and in source countries, is another crucial macroeconomic variable affecting tourism receipts (Culiuc, 2014; Khalid et al., 2020). Higher income levels generally correlate with increased disposable income, enabling greater spending on travel and tourism activities. Wijesekara et al. (2022) employed Granger causality and wavelet coherence analysis to reveal a bidirectional relationship between income levels and tourism demand across 105 countries, emphasizing the role of income in driving tourism growth. In the context of OIC countries, Soofi et al. (2018) found that income per capita exhibits a positive relationship with tourism receipts, although the strength of this relationship varies across countries with different economic structures.

The consumer price index (CPI), which measures inflation, also plays a significant role in shaping tourism demand. High inflation rates can erode purchasing power and increase the cost of travel, thereby deterring tourists. However, the relationship between CPI and tourism receipts is not always straightforward. For example, Pinjaman et al. (2023) found that while moderate inflation can signal economic growth and stimulate tourism demand, hyperinflation has a detrimental effect on tourism receipts, particularly in low-income OIC countries. This finding aligns with earlier studies by Lee and Chang (2008), who emphasized the importance of price stability in sustaining tourism growth, especially in developing economies.

Trade openness, which reflects a country's integration into the global economy, has also been identified as a key determinant of tourism receipts (Shahbaz et al., 2017). Countries with higher levels of trade openness tend to attract more tourists due to improved infrastructure, enhanced connectivity, and greater exposure to international markets. Pinjaman et al. (2023) highlighted the positive impact of trade openness on tourism development, noting that it facilitates the flow of goods, services, and tourists across borders. However, the relationship between trade openness and tourism receipts can be complex, as increased trade openness may also expose countries to external economic shocks, which can negatively impact tourism demand (Mutoni, 2019).

Despite the wealth of research on the topic, significant gaps remain in the literature, particularly concerning the influence of macroeconomic variables on tourism receipts in OIC countries. While existing studies have explored the relationship between macroeconomic factors and tourism demand, few have employed a quantile analysis approach to capture the heterogeneous effects across varying income levels. This gap is particularly critical given the economic diversity within the OIC bloc, which includes high-income oil-exporting nations and low-income agrarian economies. Addressing these gaps would not only advance academic discourse but also provide actionable insights for policymakers seeking to enhance tourism competitiveness and economic resilience in the region.

METHODOLOGY

The current study utilizes the international tourism receipt per arrival in US dollars to represent the tourism

demand while macroeconomic factors are represented by the exchange rate, income per capita, consumer price index, and trade openness. These macroeconomic factors are determined based on the findings of previous research.

Panel Quantile Regression Analysis

The analysis of panel quantile regression is employed to evaluate the correlation between tourism receipts and macroeconomic factors. Quantile regression, according to Koenker and Hallock (2001), entails analysing the quantiles of the dependent variable's conditional distribution as functions of a number of variables. The goal of the quantile regression model is to estimate the entire range of conditional quantile functions, as opposed to the classical linear regression model, which estimates models for conditional mean functions (Buhai, 2004).

According to Wang et al. (2019), quantile regression analysis is appropriate when there is heterogeneity and the interaction between the variables varies across quantiles. It also permits varying elasticities of the factors along the independent variable's distribution (Martinez-Zarzoso et al., 2017). This method helps researchers concentrate their attention on specific portions of a conditional distribution and produces convincing results, especially for misspecification errors brought on by non-normality and the presence of outliers (Koenker & Hallock, 2001; Lin et al., 2021).

The current paper specifically utilised the quantile regression for panel data, or QRPD, of Powell (2021), which allows non-additive fixed effects in the quantile functions and maintains the nonseparable disturbance term. Considering the uneven size of the tourism receipts of the OIC countries, this method offers the best approach.

The potential outcome framework of the model is described below:

$$Y_{it}^{d} = q\left(d_1, U_{it}^{*d}\right)$$

Where Y_{it} is the outcome and d is the random potential values of independent variables. Let U_{it}^{*d} as a function of some fixed and time-varying disturbance terms $U_{it}^{*d} = f(\alpha_i, U_{it})$ with $U_{it}^{*d} \sim U(0,1)$. The quantile function of $q(d, \tau)$ is strictly increasing in τ, a given quantile of the outcome distribution. To permit individual heterogeneity, the model assumes that $P(Y_{it} \leq q(D_{it}, \tau)|Z_{it})$ varies by individual and generally not equal to τ. D_{it} is the general term for treatment variables and Z_{it} is the intruments.

The QRPD estimates the quantile treatment effects (QTE) which represent the causal effect of a change of the independent variable from d_1 to d_2 on Y_{it} at particular quantile, $q(d_2, \tau) - q(d_1, \tau)$.

The structural quantile function of interest is:

$$S_Y(\tau|d) = q(d|\tau), \tau \in (0,1)$$

The quantile function defines the quantile of the latent outcome variable $Y_{it}^{d} = q(d_1, U^*)$ for a fixed d and a randomly selected $U^* \sim U(0,1)$. Powell (2021) said QRPD produces consistent estimates for small T.

The current study uses QRPD to investigate how the variables of interest interact at various income levels. Based on the World Bank classification, the OIC countries are then split into four income levels in the following model: low income, low-middle income, upper-middle income, and high-income countries. 34 OIC nations with complete data from 1995 to 2020 were selected for this study.

Pre- and post-estimations

Quantile regression minimises the weighted sum of absolute deviations, making it robust to outliers and non-normal distributions. According to Nouri (2022), this yields a more efficient estimate than conventional least squares when there are non-normal or asymmetric error term distributions. Furthermore, absolute estimation is preferred in dealing with multicollinearity, heteroskedastic variance, and model misspecification (Harter, 1975). This led to the relaxation of pre- and post-estimations for the quantile model.

Results analysis

Table 1a: Summary Statistics for Low Income Countries

Statistics	Tourism Receipt	Exchange Rate	Income Per capita	Inflation	Trade Openness
Mean	6.3505	5.6320	6.5250	4.7665	3.8407
Median	6.4919	6.2480	6.4154	4.6089	3.8510
Maximum	8.3261	9.1932	7.7129	9.0641	4.6995
Minimum	3.9373	-0.5447	5.3903	2.7311	2.2966
Std. Dev.	0.7095	2.0791	0.5582	0.8420	0.4182
Skewness	-0.8338	-1.0367	0.9050	1.3376	-0.4826
Kurtosis	3.7347	3.4155	2.8034	6.6043	3.4709
Jarque-Bera	29.1929	43.6001	32.3169	196.4404	11.2457
Probability	0.0000	0.0000	0.0000	0.0000	0.0036
Sum	1339.9500	1317.8840	1526.8410	1115.3670	898.7161
Sum Sq. Dev.	105.7086	1007.1910	72.5993	165.1869	40.7568
Observations	211	234	234	234	234

Table 1b: Summary Statistics for Low-Middle Income Countries

Statistics	Tourism Receipt	Exchange Rate	Income Per capita	Inflation	Trade Openness
Mean	6.1956	5.0783	7.5778	4.3582	4.0221
Median	6.2993	5.2598	7.5902	4.4960	3.9843
Maximum	8.8062	10.6180	9.1113	5.6584	4.9844
Minimum	2.9188	-0.0513	6.2899	1.4110	3.0311
Std. Dev.	1.0808	2.5415	0.7001	0.7402	0.3585
Skewness	-0.1935	-0.0940	0.1565	-1.1916	0.3164
Kurtosis	2.9431	2.3430	2.1151	4.8409	2.8790
Jarque-Bera	2.2116	6.7513	12.7374	131.1151	6.0009
Probability	0.3310	0.0342	0.0017	0.0000	0.0498

Sum	2149.8680	1762.1610	2629.5010	1512.2840	1395.6530
Sum Sq. Dev.	404.1353	2234.8150	169.5979	189.5509	44.4679
Observations	347	347	347	347	347

Table 1c: Summary Statistics for Upper-Middle Income Countries

Statistics	Tourism Receipt	Exchange Rate	Income Per capita	Inflation	Trade Openness
Mean	6.3109	2.4833	8.6147	4.4790	4.5373
Median	6.3820	2.4656	8.7289	4.5355	4.5308
Maximum	7.8394	6.0233	9.3983	6.2242	5.3955
Minimum	4.1234	-2.9957	6.9959	1.0367	3.5293
Std. Dev.	0.7562	2.1914	0.5634	0.8178	0.4153
Skewness	-0.3031	0.0022	-1.0091	-1.0891	-0.0836
Kurtosis	3.1611	1.7166	3.3607	6.1631	2.3936
Jarque-Bera	3.3441	14.0000	35.7307	125.3751	3.3635
Probability	0.1879	0.0009	0.0000	0.0000	0.1860
Sum	1287.4330	506.5884	1757.4060	913.7074	925.6167
Sum Sq. Dev.	116.0912	974.8421	64.4365	135.7655	35.0159
Observations	204	204	204	204	204

Table 1d: Summary Statistics for High Income Countries

Statistics	Tourism Receipt	Exchange Rate	Income Per capita	Inflation	Trade Openness
Mean	5.6638	-1.0542	10.0441	4.5840	4.6627
Median	5.5157	-0.9676	9.9994	4.5768	4.5868
Maximum	6.9917	-0.9676	10.6252	5.2762	5.2568
Minimum	4.4637	-1.3093	9.6447	4.2227	4.2340
Std. Dev.	0.7070	0.1239	0.2806	0.3051	0.2433
Skewness	0.2546	-0.7807	0.4528	0.7907	0.5338
Kurtosis	1.8901	1.7481	2.0882	2.7293	2.4237

Jarque-Bera	4.7838	12.8494	5.2990	8.2593	4.7228
Probability	0.0915	0.0016	0.0707	0.0161	0.0943
Sum	436.1126	-81.1715	773.3973	352.9670	359.0259
Sum Sq. Dev.	37.9867	1.1659	5.9825	7.0739	4.4997
Observations	77	77	77	77	77

Table 1(a-d) presents summary statistics of the data transformed into natural logarithms, revealing small standard deviations for the variables across all income levels. Moreover, the medians of all variables closely resemble their respective arithmetic means, falling distinctly between the minimum and maximum values. This indicates minimal variability in the data, rendering the presence of outliers improbable.

Table 2: Panel quantile regression

Lower Income				
Variable	**20th**	**40th**	**60th**	**80th**
Exchange rate	0.0670*** (0.0028)	0.0100 (0.0996)	0.0691*** (0.0003)	0.0514*** (0.0005)
Income percapita	0.0981*** (0.0036)	0.1743 (0.3521)	0.1903*** (0.0017)	0.0996*** (0.0030)
Inflation	-0.1021*** (0.0017)	-1.1002** (0.4423)	0.0894*** (0.0031)	0.1426*** (0.0022)
Trade openness	0.0796*** (0.0065)	0.2093 (0.1602)	0.1052*** (0.0043)	-0.0001 (0.0004)
Lower Middle Income				
Variable	**20th**	**40th**	**60th**	**80th**
Exchange rate	0.1021 (0.0789)	0.0074 (0.0177)	0.0894*** (0.0077)	0.1442*** (0.0232)
Income percapita	0.3356*** (0.0737)	0.5291*** (0.0373)	0.7033*** (0.0193)	1.3071*** (0.2948)
Inflation	-0.0568 (0.0420)	-0.2612*** (0.0940)	0.1742*** (0.0204)	-0.0783 (0.1440)

Trade openness	-0.1097 (0.3323)	0.2880*** (0.0861)	-0.2533*** (0.0389)	-1.0901*** (0.3574)
Upper Middle Income				
Variable	**20th**	**40th**	**60th**	**80th**
Exchange rate	-0.2277*** (0.0786)	-0.0586*** (0.0035)	-0.0218*** (0.0005)	0.0508*** (0.0000)
Income percapita	0.3117** (0.1556)	0.3923*** (0.0068)	0.0942*** (0.0025)	-0.0510*** (0.00060)
Inflation	0.1924*** (0.0562)	0.0399*** (0.0120)	0.1379*** (0.0020)	0.1352*** (0.0010)
Trade openness	0.2844 (0.3985)	-0.4139*** (0.0370)	-0.3517*** (0.0058)	0.0976*** (0.0004)
High Income				
Variable	**20th**	**40th**	**60th**	**80th**
Exchange rate	5.3881*** (0.0050)	10.4225*** (0.0213)	5.8260*** (0.3988)	3.4132*** (0.1439)
Income percapita	-0.1174*** (0.0013)	0.7907*** (0.0042)	1.1307*** (0.1461)	-1.3414*** (0.0394)
Inflation	0.4100*** (0.0015)	1.6782*** (0.0099)	1.6325*** (0.3658)	0.9299*** (0.0182)
Trade openness	-1.2515*** (0.0018)	-1.5709*** (0.0038)	-4.0515*** (0.5563)	-0.9779*** (0.0243)

Table 2 shows the results of the panel data quantile regression analysis, where the international tourism receipt per arrival in US dollars at different quantiles is treated as the dependent variable while the exchange rate, income per capita of the domestic market, inflation rate, and trade openness are considered the independent variables. The results align with the Tourism-Led Growth Hypothesis in lower-income contexts but challenge its universality, particularly in high-income OIC nations where macroeconomic stability and niche marketing outweigh traditional growth drivers. These findings underscore the need for income-tiered policies, as one-size-

fits-all strategies fail to account for the unique economic structures and tourist preferences shaping OIC countries' tourism trajectories.

Based on the analysis, it is evident that the exchange rate is highly related to tourism receipts across all percentiles, with the exception of the lower percentiles of the lower middle-income host countries. With the exception of the higher-middle-income host countries, where the impact is negative, it has been established that the exchange rate has a positive impact on tourism receipts. A 1% increase in the exchange rate, which indicates the depreciation of the domestic currency, will cause tourism receipts to rise by 0.5% to 10%, depending on the level of income of the host countries. In addition, the strength of the relationship is higher for hosts with high incomes, where the coefficients are higher and more significant. In light of this, it may be deduced that tourists are more sensitive to fluctuations in the exchange rate against the US dollar when they are staying with higher-income host countries, as opposed to those with lower incomes.

Income per capita for the host countries, on the other hand, is believed to be significant and positively related to tourism receipts across all points of receipts and for most of the OIC countries, as expected. This suggests that tourists are concerned about the level of income, which is commonly associated with the improvement in infrastructure and travel security, of the host countries. The small value of the coefficient postulates a significant yet inelastic relationship between the variables, where a 1 percent increase in the income per capita for the host countries will cause tourism receipts to increase by 0.09% to 0.39%. Furthermore, as seen by the higher level of coefficients, this is more obvious to the host countries that have lower incomes and lower middle status. It is worth mentioning that in high-income countries, income per capita is adversely impacting tourism receipts at the lower and upper ends of the percentiles.

The relationship between inflation and tourism receipts is negative, as demonstrated in low- and lower-middle-income countries. As the tourism receipt increases to higher points, the adverse impact of inflation is stronger, suggesting that higher-spending tourists in low- and low-middle-income countries are severely affected by the increase in price level. A 1 percent increase in inflation will cause tourism receipts to fall up to 1 percent at the 40th percentile for these countries. Meanwhile, inflation seems to have positively impacted the receipts for upper-middle and high-income host countries across all percentiles of tourism receipts, as well as the higher percentiles for the lower-income host countries. The positive impact is more visible for the high-income hosts, where an increase in inflation of 1 percent can lead to an increase in tourism receipts of up to 1.7 percent.

Trade openness is mostly negative in its relationship with tourism receipts for most of the tourism receipt percentiles and across all income levels of the host countries. Moreover, the strength of the relationship increases in the high-income host countries, with the change in tourism receipts falling up to 4 percent at the 60th percentile as trade openness increases by 1 percent. In the low-income host countries, trade openness is demonstrated to be insignificant in explaining the movement of tourism receipts at the higher points.

CONCLUSION AND RECOMMENDATIONS

This study's quantile regression analysis reveals critical insights into the heterogeneous effects of macroeconomic variables on tourism receipts across income levels in OIC countries. Key findings underscore that exchange rate depreciation generally enhances tourism receipts, except in higher-middle-income countries, where currency stability may signal economic confidence. Income per capita exerts a positive, inelastic influence, particularly in low- and lower-middle-income countries, aligning with the Tourism-Led Growth Hypothesis, as argued by Seetanah et al. (2022) and Lin (2024), by emphasizing infrastructure and security improvements. However, in high-income countries, income per capita shows adverse effects at certain quantiles, potentially reflecting market saturation or shifting tourist expectations toward experiential over infrastructural quality. Inflation's dual role—negative in low-income nations due to eroded purchasing power but positive in high-income contexts, possibly signaling economic vitality—mirrors earlier studies on price stability's importance. Trade openness consistently reduces tourism receipts, likely due to resource diversion from tourism to trade sectors, a finding that challenges assumptions about globalization's uniform benefits.

These results extend prior research by contextualizing macroeconomic dynamics within OIC's economic diversity. The quantile approach validates non-linear relationships posited by the Economic Dependency Theory,

particularly the asymmetric impacts of exchange rates and inflation. For instance, while Martins et al. (2017) emphasized exchange rate stability, this study nuances that high-income OIC countries may benefit less from depreciation due to premium market positioning. Similarly, the inflation dichotomy supports Pinjaman et al.'s (2023) contention that moderate inflation can stimulate demand in robust economies but harm fragile ones.

The findings of this study underscore the need for OIC countries to adopt income-tiered and context-specific strategies to maximize tourism receipts while addressing macroeconomic vulnerabilities. For low-income OIC countries, policymakers should prioritize exchange rate stabilization through prudent monetary policies to enhance destination affordability without inducing volatility, coupled with targeted inflation control measures such as fiscal discipline and subsidies for tourism-related goods and services. Concurrently, investments in infrastructure, safety, and service quality are critical to amplify the positive spillover effects of rising income per capita, which enhances tourist confidence. These nations could leverage international partnerships or Islamic financing mechanisms, such as sukuk bonds, to fund such initiatives. High-income OIC countries, in contrast, should shift focus from price competitiveness to value-driven tourism by capitalizing on niche markets like luxury travel, halal tourism, and cultural heritage. While inflation in these contexts may signal economic vitality, central banks must ensure it reflects quality upgrades in tourism services rather than macroeconomic instability.

Regional cooperation is pivotal for OIC-wide tourism growth. Member states should establish platforms to promote intra-regional religious and cultural tourism, harmonize visa policies, and launch joint marketing campaigns under a unified OIC tourism brand. A "Halal Tourism Corridor" initiative could standardize halal-certified services—from hospitality to logistics—across member states, enhancing their collective appeal to Muslim-majority markets. To counterbalance the adverse effects of trade openness on tourism, governments should incentivize tourism-linked investments—such as eco-resorts or heritage conservation projects—through tax breaks or public-private partnerships, ensuring trade liberalization does not divert resources from the tourism sector.

Finally, OIC countries must institutionalize data-driven monitoring systems to track the real-time impact of macroeconomic shifts on tourism. Income-level-specific tourism observatories, supported by the Islamic Development Bank or OIC-affiliated bodies, could provide actionable insights for adaptive policymaking. By tailoring interventions to economic contexts and fostering regional synergies, OIC nations can transform tourism into a catalyst for equitable growth, aligning with Sustainable Development Goals (SDGs) on decent work, industry innovation, and reduced inequalities.

REFERENCES

1. Alrawadieh, Z. (2024). Tourism in OIC Member Countries: Reflection on the Past, Present, and Prospective Future. SPECIAL EDITION. Eri.News.030919.2.pdf
2. Belloumi, M. (2010). The relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia. International journal of tourism research, 12(5), 550-560. https://doi.org/10.1002/jtr.774
3. Brida, J. G., & Risso, W. A. (2010). Tourism as a factor of long-run economic growth: An empirical analysis for Chile. Tourism Economics, 16(3), 709–717. https://doi.org/10.5367/000000010792278352
4. Buhai, I. S. (2004). Quantile Regression: Overview and Selected Applications. Ad Astra, 4(4), 1–17. https://www.sebastianbuhai.com/papers/publications/quantile_regressions.pdf
5. Culiuc, M. A. (2014). Determinants of international tourism. International Monetary Fund.
6. Garini, F. A., Majid, M. S. A., & Suriani, S. (2025). Foreign Investment, Domestic Savings, and Exchange Rates as Drivers of Per Capita Income and Financial Sector Development in OIC Countries. Grimsa Journal of Business and Economics Studies, 2(1), 15-25. https://doi.org/10.61975/gjbes.v2i1.42
7. Gopalan, S., & Khalid, U. (2024). How does financial inclusion influence tourism demand? Empirical evidence from emerging markets and developing economies. Tourism Recreation Research, 49(3), 639-653. https://doi.org/10.1080/02508281.2022.2028084
8. Hamarneh, I. (2022). Challenges and Opportunities in the Tourism Sector in the Post-COVID-19 Period. Innovative Strategic Planning and International Collaboration for the Mitigation of Global Crises,

230-248. https://doi.org/10.4018/978-1-7998-8339-5.ch014
9. Khalid, U., Okafor, L. E., & Shafiullah, M. (2020). The effects of economic and financial crises on international tourist flows: A cross-country analysis. Journal of Travel Research, 59(2), 315-334. https://doi.org/10.1177/0047287519834360
10. Khan, N., Hassan, A. U., Fahad, S., & Naushad, M. (2020). Factors affecting tourism industry and its impacts on global economy of the world. Available at SSRN 3559353. https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3559353
11. Koenker, R., & Hallock, K. F. (2001). Quantile Regression. In Journal of Economic Perspectives (Vol. 15, Issue 4). https://10.1257/jep.15.4.143
12. Lee, C. C., & Chang, C. P. (2008). Tourism development and economic growth: A closer look at panels. Tourism Management, 29(1), 180–192. https://doi.org/10.1016/j.tourman.2007.03.013
13. Lin, W. L. (2024). Tourism and Economic Growth: Assessing the Significance of Sustainable Competitiveness Using a Dynamic Panel Data Approach. International Journal of Tourism Research, 26(5), e2760. https://doi.org/10.1002/jtr.2760
14. Lin, W. L., Lee, C., & Law, S. H. (2021). Asymmetric effects of corporate sustainability strategy on value creation among global automotive firms: A dynamic panel quantile regression approach. Business Strategy and the Environment, 30(2), 931-954. https://doi.org/10.1002/bse.2662
15. Louail, B. (2020). The Relationship between Tourism Receipts, Real Effective Exchange Rate and Economic Growth in Algeria During the Period (1995-2017). Pacific Business Review International, 12(8). https://www.proquest.com/openview/fe2edb65dfd726103c1845de27f09177/1?pq-origsite=gscholar&cbl=7065076
16. Mahmoudinia, D. (2024). Does Financial Development, Governance and Oil Price Promote Tourism Demand in OIC Counties: Evidences from Quantile Regression. International Journal of New Political Economy, 5(1), 51-82. https://doi.org/10.48308/jep.5.1.51
17. Martínez-Zarzoso, I., Nowak-Lehmann D, F., & Rehwald, K. (2017). Is aid for trade effective? A panel quantile regression approach. Review of Development Economics, 21(4), e175-e203. https://doi.org/10.1111/rode.12322
18. Martins, L. F., Gan, Y., & Ferreira-Lopes, A. (2017). An empirical analysis of the influence of macroeconomic determinants on World tourism demand. Tourism Management, 61, 248–260. https://doi.org/10.1016/j.tourman.2017.02.009
19. Monterrubio, C., Osorio, M., & Benítez, J. (2018). Comparing enclave tourism's socioeconomic impacts: A dependency theory approach to three state-planned resorts in Mexico. Journal of destination marketing & management, 8, 412-422. https://doi.org/10.1016/j.jdmm.2017.08.004
20. Mutoni, G. (2019). DETERMINANTS OF TOURISM DEMAND IN AFRICA 2005-2015: A PANEL DATA ANALYSIS (Doctoral dissertation, 서울대학교 대학원). https://s-space.snu.ac.kr/handle/10371/161127
21. Nafar, N. (2019). The investment of waqf properties and infrastructure development. Revitalization of Waqf for Socio-Economic Development, Volume I, 285-308. https://doi.org/10.1007/978-3-030-18445-2_14
22. Pinjaman, S., Jemin, S., Ridzuan, A. R., & Lada, S. (2023). The relationship between macroeconomic factors and tourism demand for OIC countries. GATR Journal of Business and Economics Review, 8(2), 60–68. https://doi.org/10.35609/jber.2023.8.2(2)
23. Powell, D. (2021). Quantile Regression with Nonadditive Fixed Effects. Empirical Economics, 63(5), 2675-2691. https://doi.org/10.1007/s00181-022-02216-6
24. Rivera, M. A. (2017). The synergies between human development, economic growth, and tourism within a developing country: An empirical model for Ecuador. Journal of destination marketing & management, 6(3), 221-232. https://doi.org/10.1016/j.jdmm.2016.04.002
25. Seetanah, B., Nunkoo, R., Gopy-Ramdhany, N., & Jaffur, Z. K. (2022). Tourism development and economic growth: theoretical underpinnings and agenda for future research. In A Modern Guide to Tourism Economics (pp. 152-169). Edward Elgar Publishing. https://doi.org/10.4337/9781800378766.00015
26. Shahbaz, M., Kumar, R. R., Ivanov, S., & Loganathan, N. (2017). The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia. Tourism Economics, 23(1), 168-186. https://doi.org/10.5367/te.2015.0505

27. Soh, A. N., Kuek, T. H., & Puah, C. H. (2024). Constructing tourism market vulnerability indicator in Thailand. Environment, Development and Sustainability, 1-23. https://doi.org/10.1007/s10668-024-05552-y
28. Soofi, A. A., Rafsanjani, S. M. L. P., & Zamanian, G. (2018). Factors affecting tourism demands in selected OIC countries. Semantic Scholar. https://www.semanticscholar.org/paper/Factors-Affecting-Tourism-Demands-in-Selected-OIC-soofi-Rafsanjani/41bb0ac7016b357f183bd68939d0b3cc039f617a
29. Wang, S., Zeng, J., & Liu, X. (2019). Examining the multiple impacts of technological progress on CO2 emissions in China: a panel quantile regression approach. Renewable and Sustainable Energy Reviews, 103, 140-150. https://doi.org/10.1016/j.rser.2018.12.046
30. Wijesekara, C., Tittagalla, C., Jayathilaka, A., Ilukpotha, U., Jayathilaka, R., & Jayasinghe, P. (2022). Tourism and economic growth: A global study on Granger causality and wavelet coherence. PLoS ONE, 17(9), e0274386. https://doi.org/10.1371/journal.pone.0274386
31. Zamani-Farahani, H., & Eid, R. (2016). Muslim world: A study of tourism & pilgrimage among OIC Member States. Tourism Management Perspectives, 19, 144-149. https://doi.org/10.1016/j.tmp.2015.12.009