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Empirical Evidence for the Relationship between Globalisation and Tourism by Country Income Groups

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Abstract This study investigated the impacts of globalisation on international tourist arrivals in 72 countries between 2002 and 2019. Due to the endogeneity problem created by the mutual determination between tourism and globalisation, the two-step system generalised method of moments (GMM) was preferred to solve the problem. However, co-integration analysis was used for low-income countries because of data limitations. Again, due to data limitations, the research results are limited in terms of generalisation for the whole world. Different panel data estimators were applied to three distinct groups (33 high-income, 30 middle-income, and 9 low-income countries). The results indicate that globalisation increased the number of inbound tourists in high- and middle-income countries. That is, globalisation is one of the major driving forces behind tourism development in these countries, regardless of income level. Regarding the two-step system GMM estimations, the coefficients of the globalisation variable were 0.58 and 0.38 for the high- and middle-income country group models, respectively, whereas there was no causality between globalisation and tourist arrivals in low-income countries. These findings fill a crucial gap in the literature by offering suggestions about the strategy to adopt while producing tourism policies for countries with different income levels.

Keywords Tourism · Globalisation · Income groups · Two-step system GMM · Panel co-integration

JEL Classification Z30 · Z38 · Z39

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Empirical Evidence for the Relationship between Globalisation and Tourism by Country Income Groups

Enthusiasm for sightseeing continues to grow, while the elimination of boundaries has made the world one village (Dalglish, 2006). This globalisation of the tourism market has many economic, technological, social, political, and demographic drivers (Dwyer, 2015).

The economic drivers first include global trade, moving goods and services freely, and rising income (Dwyer, 2015). Rising incomes imply higher spending power, allowing for increased travel expenditures. In other words, it enables individuals to travel to more luxurious and distant destinations (Zhang, 2020). On the other hand, economic development enables people to travel as domestic or foreign tourists, while people's mobility has been increased by financial developments (Dwyer, 2015), such as new payment systems (proximity payment systems, branded proximity payment systems, and payments among individuals), and reservation systems (computer reservation system (CRS) and online booking reservation system (BRS online). These new payment systems improve tourist experiences while also ensuring a smooth operation. Therefore, more payment technology alternatives can positively affect tourists' revisit intentions (Susanto et al., 2022). Additionally, travel trends and destinations can become more popular faster thanks to these attractive payment systems. The mobility experienced with globalisation and increasing urban populations has enabled the development of different types of tourism, such as educational, adventure, urban, and rural tourism. Furthermore, transport advances are another key supporter of mobility. In particular, developments in aviation technology enable long flights in less time and with more comfort. The desire to travel is also increasing with the aspirations of the middle class in developing countries for higher living standards and related political developments (Dwyer, 2015). In short, globalisation is a socio-cultural phenomenon that prioritises mobility and travel (business or leisure).

The number of international visitors will increase with globalisation. Based on this, the main research question of the study is whether the effect of globalisation on tourism development differs according to the income groups of the countries. This study tests the hypothesis that progress in globalisation in high, middle, and low-income countries has a positive impact on tourism development. This study focuses on the relationship between globalisation and tourism across different income groups. This study makes a novel contribution by investigating the relationship between globalisation and tourism at particular levels of economic development (in terms of per capita income). Although previous studies have examined many countries grouped geographically and economically, no study, to the best of our knowledge, has grouped them by income group. Hence, this study aims to fill a significant gap in the literature. The next section reviews the literature regarding the nexus of globalisation and tourism. The following section presents the empirical methods, data, models, and findings. The final section makes inferences and provides policy implications based on the findings.

Literature Review of the Globalisation and Tourism Nexus

While globalisation has been researched from various aspects, few studies have focused on the relationship between tourism and globalisation. Among these, Hjalager's (2007) explanation of tourism's economic globalisation stages is essential. As shown in Table 1, Hjalager (2007) described the four stages of tourism globalisation, drawing on McKinsey Global Institute (2003).

Table 1

Stages of Globalisation of Tourism

Stage 1	Missionaries in the markets
Stage 2	Integration across borders
Stage 3	Fragmentation of the value chain
Stage 4	Transcending into new value chains

Source: Hjalager, 2007.

The primary purpose of Stage 1 is to attract tourists to the enterprise, destination, or country where tourism products will be sold. Stage 2 involves opening to foreign markets. Stage 3 aims to increasing profitability by segmenting the value chain. Stage 4 involves entering new international value chain (Hjalager, 2007).

Song et al. (2018) identified three main perspectives: hyperglobalizers, sceptics, and transformationalists. Hyperglobalizers and sceptics describe globalisation as an economic-driven process that, they claim, develops in a linear process. Transformationalists, in contrast, assert that globalisation is nested within all human activities and follows a nonlinear development path (Song et al., 2018). Mihajlović and Krželj-Čolović (2014) regard globalisation as the driving force of structural changes in the tourism market, of which perhaps the most striking occur through culture, which simultaneously affects many areas. Tolkach and Pratt (2021) also argue that global networks are associated with cultural change, which they discuss in terms of three paradigms: the clash of civilisations, McDonaldization, and hybridisation. According to the first two paradigms, Western culture is imposed on non-Western countries, whereas the hybridisation paradigm assumes that cultures affect each other dynamically in a co-evolutionary process. According to Tolkach and Pratt (2021), inbound tourists contribute to cultural change, whether positively or negatively. Given the negative effects of capitalist globalisation, Higgins-Desbiolles (2008) states that justice tourism can offset the inequalities and harms of contemporary tourism and provide a radical transformation of the global order. Hence, it can be described as alternative globalisation. Bianchi (2006), however, argues that the increasing insecurity caused by the globalisation of terrorism and military intervention, and the targeted attacks on foreign tourists in certain regions, have raised concerns and threatened the freedom of travel. In this respect, tourism is far from offering an alternative form of globalisation; indeed, neo-liberal globalisation has radically changed tourism itself.

The studies reviewed above all analyse the sociocultural and socio-economic aspects of tourism and globalisation. Meanwhile, empirical studies have also begun to analyse the relationship between globalisation and tourism, which has become measurable within a macroframework through the globalisation index. Table 2 presents the proxy variables used in these studies to represent tourism.

Table 2

Proxies of the Tourism Variable in Globalisation and Tourism Nexus Studies

1	International tourism expenditures (expenditures of international outbound visitors)
2	International tourism receipts (expenditures by international inbound visitors)
3	Number of international inbound tourists
4	Tourism's contribution to economic growth
5	Tourism service exports
6	Tourism service imports
7	Tourism service trade balance

Source: Created by the author.

Most studies in the literature have used tourist arrivals and tourism expenditures or receipts to represent the tourism sector. Studies analysing various country samples have found a positive relationship between tourist arrivals and the globalisation index (Fereidouni et al., 2014; Gülcemal, 2020; Javid and Katircioglu, 2017). Similarly, studies using tourism receipts and expenditures as the dependent variables have also found a positive relationship between social, political, and economic globalisation indices and tourism (Gülcemal, 2020; Javid and Katircioglu, 2017; Shao et al., 2023).

Many policy recommendations are made based on the existence of this positive relationship. For instance, Fereidouni et al. (2014) said that policymakers in the MENA (Middle East and North Africa) region can benefit from the complementary relationship between globalisation and international tourism. More specifically, to attract more international tourists, they advocate policies to develop international trade and investments, increase the flow of information and education, increase MENA countries' participation in international organisations, develop international diplomatic relations with other countries, and reduce regional religious tensions and internal conflicts. They also emphasise that the tourism sector can help improve the connection of MENA economies and societies with other parts of the world. Javid and Katircioglu (2017) also recommend developing economic ties, such as foreign ownership of companies in the tourist-receiving country, foreign access to domestic capital markets, and access of host country citizens to foreign capital markets.

From a political perspective, it is important for tourism development to maintain good political relations with international organisations and participate in them. Chen and Guo (2023) remark on developing political systems to minimise risk and stimulate the tourism industry. Haini et al. (2024) argued for developing institutions and infrastructure to increase social globalisation, such as visa-free travel practices and the construction of international airports to benefit more from growing international tourism.

However, these general policy recommendations may not be applicable in all contexts. According to Jena et al. (2022), for example, the impact of globalisation depends on the level of development of each country's tourism sector. They found that globalisation increases tourism arrivals in countries with flourishing tourism sectors but reduces them in countries with very undeveloped tourism sectors, and has no statistically significant effect in countries with moderately underdeveloped tourism sectors. Furthermore, Zhang and Chiu (2020) argue that the relationship may reverse eventually. In their analysis of China, they express that, in the short run, globalisation increases tourism service exports and trade balances, whereas it reduces tourism service imports. However, this impact may be reversed in time. Finally, Ivanov and Webster (2013) conclude that globalisation may not directly affect tourism.

Table 3

Control Variables in Models for the Globalisation and Tourism Relationship

1	GDP per capita at constant prices
2	Gross domestic product (GDP) at constant prices or GDP growth rate
3	Gross fixed capital formation at constant prices
4	Overall population
5	Real effective exchange rates
6	Political risk index
7	Composite risk index

Source: Created by the author.

Given that empirical studies of the effects of globalisation on tourism take different perspectives, the control variables also differ in their models, as summarised in Table 3. Those studies that take a global perspective use GDP, GDP per capita, or capita growth rate as control variables for different national income

levels, i.e., different economic volumes. In addition, although capital accumulation data are not available for all countries, some studies also use gross fixed capital formation as a control variable. Studies that consider globalisation in terms of human mobility may use the population as a control variable. For countries with dual currency systems, the real exchange rate is a crucial factor that makes the country cheaper and thus a more preferred destination. Finally, some studies also consider political and social risks, especially regarding developing countries, and therefore include some risk indicators as control variables.

Overall, the literature states that globalisation affects tourism positively, although the development level of each country's tourism sector also determines whether this relationship is positive, negative, or non-significant. A key policy recommendation from the literature is that, regardless of the shape of the tourism-globalisation relationship, countries should not abandon their efforts to integrate with the rest of the world.

Empirical Analysis

In this section, we investigate the nexus between the overall globalisation index and the number of international tourist arrivals. The study's primary purpose is to reveal the effects of globalisation on tourism in countries with different income groups.

Data, Models, and Methods

The data used in the analysis were retrieved from the World Bank (2022) and KOF Swiss Economic Institute (2021) statistics. This study included 72 countries for which data were available from 2002 to 2019. We had the largest number of countries in the analysis (see Appendix 1) with the longest time dimension. The countries were grouped in terms of the World Bank's 2019 income classification. Table 4 shows the per capita gross national income (GNI) limits for the classification.

Table 4

Country Classification by Income

Group	GNI Per Capita (US$)
Low-Income	< 1,036
Lower-Middle Income	1,036 - 4,045
Upper-Middle Income	4,046 - 12,535
High Income	> 12,535

Source: World Bank, 2019.

The dataset includes 9 low-income, 30 middle-income, and 33 high-income countries (see Appendix 1). Because of methodological constraints, the lower-middle (9) and upper-middle (21) income groups were placed together in a single middle-income class. The sample size of the low-income group was also too small to estimate using the system GMM method, so we used the panel co-integration method for this group. Table 5 presents the symbols used for the variables, definitions, and descriptive statistics.

Table 5

Variable Definitions and Summary Statistics

High-Income Country Group					
Variables	**Description**	**Obs.**	**Mean**	**Min.**	**Max.**
$\ln(\mathrm{tour})$	Log of International Inbound Tourists	198	15.99	12.78	18.99
$\ln(\mathrm{global})$	Log of Overall Globalisation Index	198	4.34	3.85	4.51
$\ln(\mathrm{ex})$	Log of the Real Effective Exchange Rate Index (2010 = 100)	198	4.61	4.30	5.02

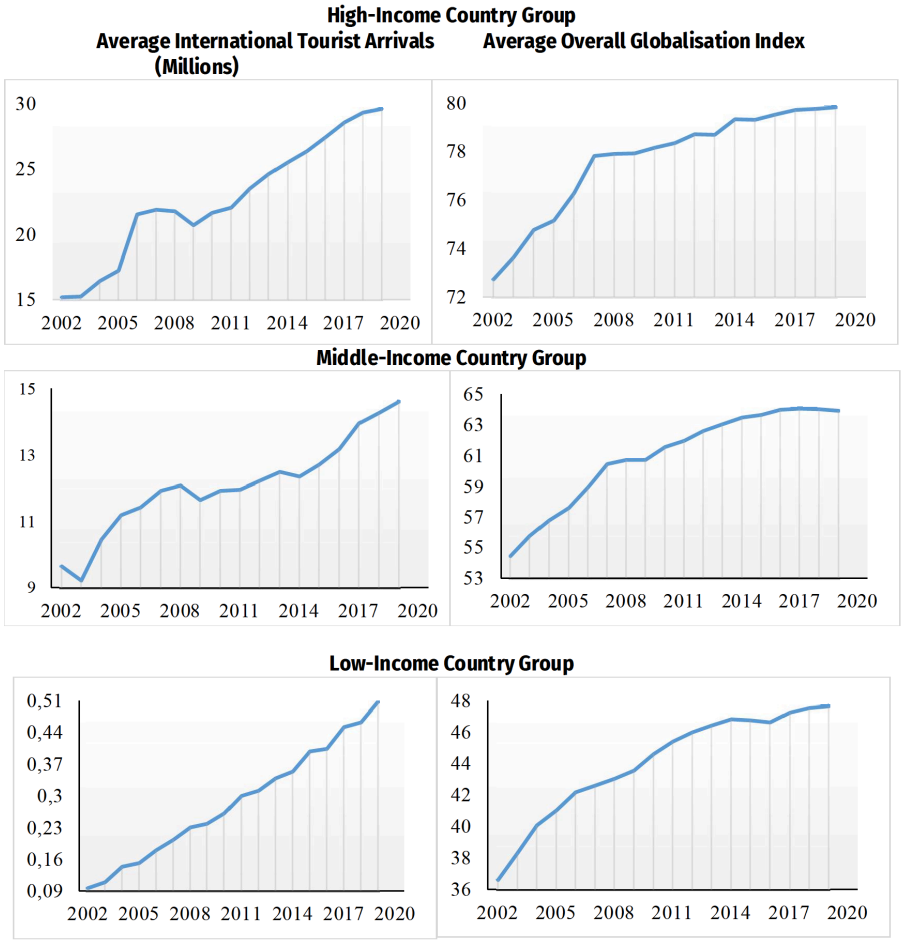
Middle-Income Country Group					
Variables	**Description**	**Obs.**	**Mean**	**Min.**	**Max.**
ln (tour)	Log of International Inbound Tourists	180	14.70	10.49	18.87
ln (global)	Log of Overall Globalisation Index	180	4.14	3.13	4.52
ln (ex)	Log of the Real Effective Exchange Rate Index (2010 = 100)	180	4.56	4.08	4.97
Low-Income Country Group					
Variables	**Description**	**Obs.**	**Mean**	**Min.**	**Max.**
ln (tour)	Log of International Inbound Tourists	162	12.00	7.97	14.24
ln (global)	Log of Overall Globalisation Index	162	4.09	3.55	4.34

Source: Author's calculations.

Our analysis used international inbound tourist arrivals as the dependent variable as a proxy for tourism (see the list in Table 2). This is because we consider globalisation as being the result of human actions. The first lag of the dependent variable was chosen to measure visitor preferences in the previous year, while the real effective exchange rate was chosen to control for differences between the countries. Of the control variables listed in Table 3, Gross Domestic Product (GDP), GDP per capita, or capita growth rate were not preferred because the countries were grouped by income level. Likewise, population was not used as a control variable because the countries were grouped according to the GNI per capita ($\frac{GNI}{Population}$).

Figure 1

International Tourist Arrivals and Overall Globalisation Index (2002-2019)



Source: World Bank (2022) and KOF Swiss Economic Institute (2021) Statistics.

As Figure 1 shows, international tourist arrivals (tour) and the overall globalisation index (global) follow similar trends. More specifically, after 2007, the upward trend for both variables slowed in both high-income and middle-income country groups, which can be attributed to the 2008 global financial crisis.

Panel data models, which combine cross-sectional and time series data, have become popular in economic investigations over the last 30 years (Balestra, 2013). By providing a large dataset for researchers, panel data increases the degrees of freedom and reduces collinearity between the explanatory variables, which makes it more effective for economic estimations (Hsiao, 2003). A simple linear model can be specified as follows:

$$y_{it} = \alpha + x'_{it}\beta + u_{it} \qquad i = 1, ..., N; t = 1, ..., T \tag{1}$$

$$u_{it} = \mu_i + v_{it} \tag{2}$$

i and t denote individuals and time, respectively; that is, i represents the cross-sectional dimensions, whereas t represents the time series. α is a scalar, β is $kx1$, and X_{it} is the i_t^{th} observation on K explanatory variables. u_{it} represents the disturbances, where μ_i denotes the unobservable individual-specific effect while v_{it} denotes the remainder disturbance (Baltagi, 2005). Many economic relationships are dynamic. A lagged-dependent variable between the regressors can characterise these:

$$y_{i,t} = \delta y_{i,t-1} + x'_{it} + u_{it} \qquad i = 1, ..., N; t = 1, ..., T \tag{3}$$

$$u_{it} = \mu_i + v_{it} \tag{4}$$

δ is a scalar, x'_{it} is $1xK$, and β is $K \times 1$. We assume that u_{it} follows a one-way error component model, where $\mu_i \sim IID(0, \sigma_\mu^2)$ and $v_{it} \sim IID(0, \sigma_v^2)$ are independent of each other and among themselves (Baltagi, 2005). Thus, the equation for modelling dynamic relationships in this study can be defined as follows:

$$ln\,(tour)_{it} = ln\,(tour)_{it-1} + ln\,(global)_{it} + ln\,(ex)_{it} + u_{it} \tag{5}$$

$i = 1, ..., N$; $t = 1, ..., T$. We estimated the panel data model in equation (5) for the high- and middle-income country groups using the two-step system generalising the method of moments (GMM). The log of international inbound tourists was defined as the dependent variable to determine the effect of globalisation on tourism for high- and middle-income country groups. Many previous studies have used the KOF globalisation index (Dreher, 2006; Gygli et al., 2019) as a proxy variable to measure globalisation effects on tourism (Saint Akadiri et al., 2019; Akar and Sarıtaş, 2020; Gülcemal, 2020).

As outlined earlier, a two-step system GMM estimation could not be applied to the low-income country group because data were available for only 9 countries. Therefore, equation (5) could not be estimated by any other method, while real exchange rate data cannot be accessed reliably for low-income countries. Hence, for the low-income country group, we only investigated the short- and long-term relationships between tourism and globalisation.

Estimations and Findings

The two-step system GMM approach enables problems with potentially omitted variables and endogeneity to be controlled for (Holtz-Eakin et al., 1988; Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998). In our study, the two-step GMM estimation method was conducted using the three-year mean of the variables in both groups. In the estimation to reduce it, the time dimension was collapsed into 6, while all variables were normalised to eliminate level differences between them. The two-step system GMM estimations are presented in Table 6.

Table 6
System GMM Estimations

Dependent Variable		$\ln(\text{tour})$	
Independent Variables	**Coefficient**	**Corrected Standard Error**	**Probability**
$\ln(\text{tour})_{t-1}$	0.92	0.16	0.000
$\ln(\text{global})_t$	0.58	0.33	0.078
$\ln(\text{ex})_t$	−0.07	0.04	0.053
Dummy Variables	There are 6 dummy variables every 3 years.		
Arellano-Bond AR (1) Prob.	0.049	No. of observations	165
Arellano-Bond AR (2) Prob.	0.132		
Arellano-Bond AR (3) Prob.	0.184	No. of cross-sections	33
Time dimension	Three-year average for 2002-2019		
Hansen Test Prob.	0.851	Method	
No. of Instrumental Variables	11	Two-Stage Panel System GMM	
Wald Test Prob.	0.000		
Middle-Income Countries			
Dependent Variable		$\ln(\text{tour})$	
Independent Variables	**Coefficient**	**Corrected Standard Error**	**Probability**
$\ln(\text{tour})_{t-1}$	0.70	0.27	0.010
$\ln(\text{global})_t$	0.38	0.20	0.061
$\ln(\text{ex})_t$	−0.56	0.36	0.128
Dummy Variables	There are 6 dummy variables every 3 years.		
Arellano-Bond AR (1) Prob.	0.324	No. of observations	150
Arellano-Bond AR (2) Prob.	0.416		
Arellano-Bond AR (3) Prob.	0.189	No. of cross-sections	30
Time dimension	Three-year average for 2002-2019		
Hansen Test Prob.	0.659	Method	
No. of Instrumental Variables	10	Two-Stage Panel System GMM	
Wald Test Prob.	0.000		

Source: Author's calculations.

The system GMM estimations should meet three criteria to be considered valid. First, the number of instruments must be kept to a minimum (Roodman, 2009). In our study, the number of instruments was 11 and 10 for high- and middle-income countries, respectively, which is relatively low considering the number of countries. Second, the Arellano-Bond autocorrelation test must accept the null hypothesis of no autocorrelation. Third, the Hansen test of over-identifying instruments should accept the null hypothesis, stating that the instruments used are exogenous. As Table 6 shows, both estimations satisfy all three criteria. Appendix 2 presents the Difference-in-Hansen Tests of Exogeneity for all instrument variables. The estimation results show that the globalisation index increases the number of international tourists for both high- and middle-income groups at the 10% significance level, although the coefficient of the effect was larger in the high-income group (0.58) than the middle-income group (0.38). In sum, advancing or regressing in globalisation greatly impacts tourism for both middle- and high-income country groups.

To investigate the dynamic process, the first lag of the log of the international inbound tourists variable was included in the model to consider visitor preferences in the previous years. For both income groups, the

number of visitors in the past period had a positive effect on the current period at the 1% significance level for high- and middle-income countries. The coefficients of the effect were 0.92 in the high-income group and 0.70 in the middle-income group.

Regarding the control variables, the effect of the real effective exchange rate varied by income group. In both models, there was a negative relationship between the number of tourists and the real effective exchange rate. However, this relationship was only statistically significant for the high-income group. That is, for these countries, when the national currency appreciated, the number of visitors fell.

Co-integration Analysis of the Low-Income Country Group

For the low-income country group, the relationship between globalisation and tourism was tested using the variables $ln\,(tour)$ and $ln\,(global)$. A positive or negative co-integrating relationship would imply that globalisation affects tourism in low-income countries. Conversely, if the variables are not co-integrated, it would imply that globalisation has no long-run effect on these countries. First, before conducting the co-integration analysis, it is necessary to determine whether the two series are stationary. If the two series are stationary to the same degree, they can be co-integrated. If there is no co-integration, the differenced variables can be used to conduct a short-run causality test.

Given that some stationarity tests do not consider cross-sectional heterogeneity and dependency, we chose the Swamy (1970) and Pesaran (2004) tests, which examine heterogeneity and cross-sectional dependency, respectively. Table 7 presents the test results.

Table 7

Diagnostic Tests for Stationarity Tests

Swamy Homogeneity Test					
$\mathbf{H_{null}}$ = The coefficient of intercept is homogeneous. $\mathbf{H_{alternativ}}$ = The coefficient of intercept is heterogeneous.					
Dependent Variable	$ln\,(tour)$				
Independent Variables	χ^2	**P-value of** χ^2	**Decisions**		
$\ln\,(\mathbf{global})$	1407.22	0.0000	Reject $\mathbf{H_{null}}$; Accept $\mathbf{H_{alternative}}$		
Pesaran CD Test					
$\mathbf{H_{null}}$ = Cross-sectional independence $\mathbf{H_{alternative}}$ = Cross-section dependence					
Variables	**CD Statistics**	**Prob.**	**Cross-Section**	**Obs.**	**Decisions**
$\ln\,(\mathbf{tour})$	14.45	0.000	9	162	Reject H_{null}
$\ln\,(\mathbf{global})$	23.05	0.000	9	162	Reject H_{null}
Pesaran CD_{LM} Test					
$\mathbf{H_{null}}$ = Cross-sectional independence $\mathbf{H_{alternative}}$ = Cross-section dependence					
Variables	$\mathbf{CD_{LM}}$ **Statistics**	**Prob.**	**Cross-Section**	**Obs.**	**Decisions**
$\ln\,(\mathbf{tour})$	153	0.000	9	162	Reject H_{null}
$\ln\,(\mathbf{global})$	193.1	0.000	9	162	Reject H_{null}

Source: Author's calculations.

Table 7 confirms that the two series are cross-sectionally dependent while the intercept coefficient is heterogeneous, which means that a test should be chosen that accounts for both cross-sectional dependency and heterogeneity.

Table 8
Panel Stationarity Tests

Variable	Tests	Level			First Difference		
		Statistic	**Prob.**	**Decision**	**Statistic**	**Prob.**	**Decision**
$\ln(\text{tour})$	Hadri Lagrange Multiplier (LM) Test	11.63	0.00	Non-stationary	−0.37	0.64	Stationary
	Harris-Tzavalis Test	0.68	0.83	Non-stationary	0.03	0.00	Stationary
	Fisher Type Unit Root Test	11.03	0.89	Non-stationary	203.36	0.00	Stationary
		CIPS test statistics	**Critical Value**	**Decision**	**CIPS test statistics**	**Critical Value**	**Decision**
	Cross-sectionally augmented Im-Pesaran-Shin (CIPS) Test	−2.36	−3.15	Non-stationary	−3.89	−3.15	Stationary
Variable	**Tests**	**Level**			**First Difference**		
		Statistic	**Prob.**	**Decision**	**Statistic**	**Prob.**	**Decision**
$\ln(\text{global})$	Hadri Lagrange Multiplier (LM) Test	9.44	0.00	Non-stationary	0.27	0.39	Stationary
	Harris-Tzavalis Test	0.42	0.01	Stationary	-	-	-
	Fisher Type Unit Root Test	103.95	0.00	Stationary	-	-	-
		CIPS test statistics	**Critical Value**	**Decision**	**CIPS test statistics**	**Critical Value**	**Decision**
	Cross-sectionally augmented Im-Pesaran-Shin (CIPS) Test	−2.95	−3.15	Non-stationary	−4.51	−3.15	Stationary

Source: Author's calculations.

Table 8 shows the results of four stationarity tests widely used in panel data econometrics: Hadri (2000), Lagrange Multiplier (LM), Harris and Tzavalis (1999), and Fisher-type test (combines the p-values from N independent unit root tests, as developed by Maddala and Wu, 1999). These tests were developed under the condition that the cross-sections were independent. However, we subtracted the cross-section means using the relevant commands and estimated robust results for the cross-sectional dependence above. The cross-sectionally augmented Im-Pesaran-Shin (CIPS) test considers dependency and heterogeneity. All four tests at the level show that the ln(tour) series is not stationary but becomes stationary at the first difference. The $ln\,(global)$ series is stationary according to the Harris and Tzavalis (1999) and Fisher Type Unit Root Tests, whereas the Hadri (2000) Lagrange Multiplier (LM) and CIPS tests show that it is not stationary at the level, but the first difference is stationary. Therefore, the existence of a co-integration relationship can be investigated because the variables could be $I\,(1)$ and $I\,(1)$.

Table 9

Gengenbach, Urbain, and Westerlund Co-Integration Test

$\mathbf{H_{null}}$ = There is no co-integration. $\mathbf{H_{alternative}}$ = There is a co-integration.				
$\mathbf{\Delta ln\,(tour)}$	**Coefficient**	$\overline{\mathbf{T}}$ **Statistics**	**Prob.**	**Decision**
$\mathbf{\hat{u}_{t-1}}^*$	−0.681	−2.096	>0.1	Accept H_{null}

Note: * $\hat{u}_{t-1}$ is the error correction term.

Source: Author's calculations.

Table 9 presents the results for the Gengenbach, Urbain, and Westerlund Co-Integration Test (Westerlund, 2007; Persyn and Westerlund, 2008; Chudik and Pesaran, 2015; Gengenbach, Urbain, and Westerlund, 2015; Eberhardt and Presbitero, 2015). These results confirm that the two variables are not co-integrated.

Table 10

Dumitrescu-Hurlin Panel Causality Test (2003-2019)

Causality	$\overline{\mathbf{Z}}$ **Statistic**	**Prob.**	$\bar{\mathbf{Z}}$ **Statistic**	**Prob.**
$\mathbf{\Delta\ ln\,(global) \rightarrow \Delta\ ln\,(tour)}$	−1.33	0.25	−1.26	0.15
$\mathbf{\Delta\ ln\,(tour) \rightarrow \Delta\ ln\,(global)}$	1.15	0.31	0.56	0.56

Source: Author's calculations.

Based on these results, Dumitrescu and Hurlin's (2012) Causality Test could be applied to the $ln\,(global)$ and the $ln\,(tour)$ variables at the first difference. As Table 10 shows, there was no causality between globalisation and tourism for the low-income country group. We assessed the $\overline{Z}$ statistic because the number of cross-sections (9) was smaller than the time dimension (17)$(N < T)$.

Conclusions

Globalisation is a multidimensional economic, social, and political phenomenon. Financial and commercial globalisation enables countries to establish infrastructure that can improve their tourism sectors in various ways, such as capital inflows and payment systems. The social dimension, which is another substantial dimension of tourism development, concerns elements of the globalisation index like freedom to visit and the number of international airports. Regarding the political dimension of the globalisation of tourism, embassies are important for facilitating travel.

Based on the factors in the calculation of the globalisation index, we can theorise that globalisation is a prerequisite for tourism development. Our study provided empirical evidence that the globalisation of countries increases the number of visitors. More specifically, the comparative analysis of different income groups (high-, middle-, and low-income countries) showed that a country's sensitivity to the impact of globalisation on tourism varied by income level. The findings indicate that a decline in globalisation will reduce the number of visitors in high- and middle-income countries, whereas globalisation does not appear to affect the number of visitors in low-income countries. Accordingly, policymakers in high- and middle-income countries should make no concessions to the gains of globalisation while developing tourism policies. Otherwise, their efforts may be wasted because of a substantial decrease in the number of visitors. Conversely, although there is no connection between globalisation and tourism in low-income countries, opening up to the world may still affect their tourism market.

The present study fills a crucial gap in the literature by offering suggestions about the most appropriate strategies for countries to adopt depending on their income levels while developing tourism policies. The main limitation of the study is that only a few low-income countries were analysed because of data

constraints. Future studies can also investigate how tourism affects globalisation in different income country groups and whether this effect is greater than the impact of globalisation on tourism.

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Appendix | Ek

Appendix 1

Countries Covered in the Analysis

High-Income Country Group	Middle-Income Country Group	Low-Income Country Group
Antigua and Barbuda	Algeria	Burkina Faso
Australia	Armenia	Central African Republic
Austria	Bolivia	Chad
Bahamas	Brazil	Ethiopia
Bahrain	Bulgaria	Gambia, The
Belgium	China	Mali
Croatia	Colombia	Niger
Cyprus	Costa Rica	Togo
Finland	Dominica	Uganda
Germany	Dominican Republic	
Hong Kong	Georgia	
Hungary	Grenada	
Iceland	Guyana	
Ireland	Iran, Islamic Rep	
Italy	Lesotho	
Japan	Malaysia	
South Korea	Mexico	
Latvia	Moldova	
Luxembourg	Morocco	
Malta	Nicaragua	
Netherlands	North Macedonia	
New Zealand	Paraguay	
Norway	Philippines	
Poland	Russian Federation	
Portugal	South Africa	
Romania	St. Lucia	
Singapore	St. Vincent and the Grenadines	
Spain	Tunisia	
Sweden	Ukraine	
Trinidad and Tobago	Zambia	
United Kingdom		
United States of America		
Uruguay		

Source: Created by the author.

Appendix 2

Difference-in-Hansen Tests of the Exogeneity of the Instrument

High-Income Countries		
H_0= Instruments are exogenous.		
Variables	**χ2**	**Probability**
GMM instruments for levels	1.55	0.671
$\ln(\mathbf{tour})\mathbf{t}-\mathbf{1}$, collapse lag(4 4)	1.83	0.401
$\ln(\mathbf{global})$ collapse lag(2 2)	1.48	0.476
$\ln(\mathbf{ex})$ collapse lag(1 3)	1.69	0.792
Iv (d1 d2 d3)	0.77	0.682
Middle-Income Countries		
H_0= Instruments are exogenous.		
Variables	**χ2**	**Probability**
GMM instruments for levels	0.41	0.938
$\ln(\mathbf{tour})\mathbf{t}-\mathbf{1}$, collapse lag(2 2)	0.10	0.950
$\ln(\mathbf{global})$ collapse lag(1 2)	1.99	0.575
$\ln(\mathbf{ex})$ collapse lag(5 5)	2.07	0.356
Iv (d1 d2 d3)	0.61	0.738

Source: Author's calculations.