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Does trade pattern matter for tourism activities? Evidence from the twenty most visited countries

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Abstract

This study aims to investigate the relationship between international tourism and total trade, including exports and imports, for the twenty most visited countries. In order to accurately assess the relationship, the study employs the Emirmahmutoglu and Kose (2011) causality analysis, which accounts for cross-sectional dependency and heterogeneity. The empirical results show a unidirectional causality running from total trade, exports, and imports to international tourist arrivals for Germany, India, Mexico, and the Netherlands. Conversely, the causality runs from international tourist arrivals to total trade, exports, and imports for Portugal, Russia, and Spain (except imports). Additionally, a bidirectional causality link between international trade and tourism is found for China, indicating that both tourism and trade mutually reinforce each other. These results highlight the importance of considering the direction of causality in the relationship between tourism and trade, and developing targeted policies that take into account the unique characteristics of each country.

Keywords: International Tourism, International Trade, Trade and Tourism Flows, Bootstrap Panel Causality

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1. Introduction

International tourism, which includes travel and passenger transportation, is a major source of foreign income for many locations around the world and essential for promoting job growth, entrepreneurship, and economic development (UNWTO, 2020). According to a report by the World Travel and Tourism Council (2021), the travel and tourism industry contributes to global GDP by 10.4% (USD 9.2 trillion), and accounts for 10.6% of total employment (334 million people), with one in four new employment opportunities globally arising from this sector in 2019. Furthermore, international tourism can also lead to an increase in international trade volumes, as tourists not only transport goods from their home countries to destinations but also from destinations to their home countries (Tsui & Fung, 2016). In other words, individuals traveling for business purposes may travel to foreign countries to make import purchases or engage in export sales. As these business trips prove successful and the number of trade deals increases, it may also result in increased flows of export and import volumes between those countries. Additionally, these business trips can also generate externalities, such as advertising effects, which may further encourage business travel. Hence, the generation of consumer interest and awareness may result in subsequent holiday travel flows, as proposed by Kulendran and Wilson (2000) in their simple flow model of business travel and trade. However, there are also more intricate versions of this model that take lag effects into account between tourism and trade. Furthermore, it is crucial to examine the relationship between tourism and trade in terms of non-business international travel. This is because non-business travellers, such as those visiting family, studying abroad, or on vacation, may encounter business opportunities, leading to export sales and import purchases.

In recent academic literature, studies have focused on employing a direct approach to examine the relationship between international tourism and trade by using a benchmark model (e.g. Keum, 2011; Santana-Gallego *et al*., 2011b; Lee, 2012; Suresh & Tiwari, 2018; Balli *et al*., 2019). These studies suggest that international trade encourages international tourism and vice versa. From the tourism perspective, both export and import are stimulated in several ways. First, when tourists engage in successful business trips, it results in increased exports or imports in subsequent periods. Additionally, holiday visitors may also discover new business opportunities that might lead to increase international transactions and reduce international transaction costs in the context of export and import, such as shuttle trade. Another direct effect can be demonstrated by any international trade model that allows consumers to consume abroad. In fact, the volume of trade (exports and imports) is influenced both by the change in consumption abroad and by the change in consumption patterns in the host country (Santana-Gallego *et al*., 2010a). At the same time, tourists purchase services such as accommodation and transport, as well as goods, some of which must be imported (e.g. souvenirs, food, and fuel) (Khan *et al*., 2005). In such transactions, an increase in the imports of a particular nation inherently implies a corresponding increase in the exports of another.

Conversely, both exports and imports stimulate tourist arrivals in several ways. One of these ways can be the arrival of products from foreign countries, which can increase consumer interest and raise awareness for both the product and the country of origin. This interest and awareness may subsequently lead to increased holiday travel (Kulendran & Wilson, 2000). In another way, international trade not only necessitates but also influences business travel. As business networks expand, travel and exchanges between countries also increase.

In recent years, examining the relationship between tourism and trade in connection with this framework has received considerable attention (e.g. Fry *et al*., 2010; Massidda & Mattana, 2013; Madaleno *et al*., 2017; Suresh & Tiwari, 2018; Çalışkan *et al*., 2019). These studies explore the relationship between trade and tourism for specific countries, regions, or groups. However, there are no articles focusing on the most visited countries to determine the direction of the relationship between trade and

tourism. As we seek to understand the relationship between trade and tourism, we believe that selecting the most visited countries provide a crucial vantage point where this relationship is likely to be most evident. In this sense, the primary objective of this study is to examine the direction of the relationship between international tourism and total trade, exports, and imports for the twenty most visited countries [1], namely Austria, Canada, China, Croatia, Germany, Hong Kong, India, Italy, Malaysia, Mexico, the Netherlands, Poland, Portugal, Russia, Spain, Thailand, Turkey, the UK, the USA, and Vietnam. The selection of these countries is based on several factors. Firstly, as shown in Table 1, these countries' share of global gross domestic product increased from 62.7% in 2004 to 66.9% in 2019 [2], reflecting a growth of 4.2%. Additionally, the share of goods exports for these countries increased from 59.3% to 63.8% between 2004 and 2019. Furthermore, the import share of goods for these countries also increased from 61.5% to 62.5% over the same period. In terms of service exports, although the share of these countries has decreased over time, it still represents more than half of the total service exports globally [3]. Additionally, service imports of these countries constituted 47% of the world's goods imports in 2019, despite a decline of 5.9% since 2004. Therefore, analysing the relationship between international tourism, total trade, exports, and imports for these countries is crucial to understand the direction of this relationship for the most visited countries.

Table 1: The Most Visited Tourist Countries' Economic Statistics

Date/ Statistic	2004	2006	2008	2010	2012	2014	2016	2018	2019
Share of World GDP	62.7%	62.8%	61.5%	60.0%	61.9%	64.9%	65.0%	66.2%	66.9%
Share of World Goods Export	54.8%	55.3%	55.3%	54.2%	55.7%	58.9%	58.4%	58.5%	59.3%
Share of World Goods Import	60.5%	59.5%	58.6%	58.2%	58.4%	60.3%	60.7%	60.7%	61.5%
Share of World Service Export	55.2%	55.3%	54.5%	54.2%	54.1%	54.2%	53.5%	52.6%	52.2%
Share of World Service Import	52.9%	51.8%	50.0%	49.7%	49.3%	49.9%	49.6%	48.8%	47.0%

Source: Author's calculation according to World Bank Data, 2023.

Our contribution to the literature involves conducting an empirical analysis that examines the relationship between tourist arrivals and international trade in the twenty most visited countries while utilizing the Emirmahmutoglu and Kose (2011) panel causality test to address issues of slope heterogeneity and cross-section dependency. This research effort offers several noteworthy contributions to the existing body of literature. First, the utilization of the Emirmahmutoglu and Kose (2011) panel causality test introduces a novel methodological approach to the study of the relationship between tourist arrivals and international trade. This approach helps to address the limitations of traditional methods by accounting for potential cross-section dependency and heterogeneity among the selected countries. Previous studies in the limited panel literature have not taken into account cross-section dependence, which may lead to biased results (e.g. Fry *et al.*, 2010; Keum, 2010; Santana-Gallego *et al.*, 2011b). The consideration of cross-section dependency is important when investigating the relationship between tourist arrivals and international trade in empirical research. The nature of these two phenomena necessitates acknowledging the potential interdependence across different countries due to various reasons. Firstly, the global economy is interconnected and actions in one country can significantly influence other countries. For example, an increase in tourist arrivals in one country might lead to higher demand for certain goods and services, which can influence trade patterns in other countries. Similarly, changes in trade policies or economic conditions in one country can impact the attractiveness of that country as a tourist destination. Secondly, countries often share common factors that can affect both tourist arrivals and international trade. These factors include economic conditions, political stability, exchange rates, cultural ties, and transportation infrastructure. Cross-section dependency helps capture these shared factors and their potential impact on the relationship between tourism and trade. Furthermore, trade and tourism policies can interact and have ripple effects across countries. Changes in trade policies can affect the availability and cost of goods and services that tourists consume. Conversely, tourism policies can impact the ease of travel and attractiveness of a destination,

thereby influencing the flow of tourists. These policy interactions can lead to correlated patterns in data, which should be properly addressed through techniques that consider cross-section dependency.

Allowing for slope heterogeneity is another advantage of Emirmahmutoglu and Kose (2011) panel causality test. As the characteristics and economic conditions vary across countries in the world, the homogeneity assumption may lead to biased parameters and suggest misleading policy recommendations (Kar *et al.*, 2011). The fundamental reason behind slope heterogeneity lies in the unique set of characteristics, economic structure and specialization, and policies that each country possesses. For instance, a country heavily reliant on tourism-related industries may experience a stronger correlation between tourist arrivals and trade compared to a country where tourism is a minor economic contributor. Additionally, trade policies of a country, such as tariffs, trade agreements, and export incentives, can significantly impact the link between tourist arrivals and international trade. Countries with open trade policies and a focus on export-oriented growth may experience a different relationship than those with more protectionist trade policies. Therefore, we implement Emirmahmutoglu and Kose (2011) panel causality approach which takes into account the heterogeneity by using the bootstrap method.

Second, by focusing on the twenty most visited countries, our study contributes to a more comprehensive understanding of the relationship between tourism and trade. The extensive coverage of these countries enhances the robustness of our findings, potentially leading to insights that are more broadly applicable and relevant, especially among developed countries. Third, the relationship between tourism and trade is an area of growing interest. We believe that our methodology and findings could serve as a benchmark for future researchers examining similar relationships in different regions or time periods.

The structure of the paper is as follows. The introduction is presented in the first part of the study. The empirical literature review is presented in the second part. The third part consists of empirical methodology. The fourth part of the study is the empirical results. Part five presents discussion and concluding remarks. Lastly, limitations and recommendations for future research is given in the part six.

2. Literature Review

Investigating the potential bidirectional relationship between the flow of goods and international tourism is of great interest. Understanding the impact of trade and tourism on one another enables a country to emphasize leveraging its interdependent dynamics. Such insight might drive adjustments to a nation's tourism strategies concerning specific countries, aiming to enhance forthcoming trade associations. Likewise, forging trade accords with emerging economies could potentially bolster upcoming tourism visits (Brahmbhatt & Menezes, 2013). Accordingly, recent empirical research has focused on the relationship uncovering the secrets of this significant relationship between international tourism and trade (Santana-Gallego *et al.*, 2011b). The rationale of hypothesizing a relationship between tourism and trade is straightforward and can be explained by both perspectives. From the perspective that trade promotes tourism, some of the main reasons can be listed as follows. First, as a country's international trade grows, its visibility and promotion increase, and this can stimulate the interest of foreign tourists to visit that country. Second, the objective of maintaining international trade and establishing new trade links can increase international business travel and hence tourism. Third, countries that engage in intensive international trade also have good facilities, services and infrastructure, such as transport and communication systems, which collectively enhance the overall appeal and attractiveness of these nations to potential tourists. Fourth, bilateral trade can reduce transaction costs between home and host countries (Leitao, 2010). Finally, the high level of trade

between countries can ensure that these countries have a high demand for each other's goods. This leads foreign tourists to prefer countries where they can find these goods. All these characteristics may lead foreign tourists to prefer these countries.

From another perspective, tourism can also promote trade in several ways. First, business travellers visit a country for either the purpose of purchasing a product from that country (import purchase) or selling a product to that country (export sale) (Kulendran & Wilson, 2000). Second, successful business trips directly promote import and export flows in subsequent periods. Hence, in a direct way, it can stimulate the flow of imports and exports in later periods. Third, tourists may demand to consume goods and services that are not produced in the host country and therefore need to be imported. Another reason is the direct effect that can be demonstrated by any international trade model that allows consumers to consume abroad. In fact, the volume of trade is affected by both the shift of consumption abroad and the change in the consumption pattern in the destination country with respect to that in the country of origin (Santana-Gallego *et al.*, 2011b). Finally, it is widely acknowledged that international business visitors can lead to an increase in the volume of international trade, as business trips result in the sale (export) or purchase (import) of perishable and/or valuable goods to or from their countries (Tsui & Fung, 2016).

The empirical literature on the relationship between international tourism and trade has employed various methodologies, including both indirect and direct approaches. Indirect methods typically involve the examination of export-led growth, tourism-led growth, and tourism demand models. Conversely, recent studies have taken a direct approach, analysing the relationship between tourism, total trade, imports, and exports. In this study, we present both time series and panel data models that have been employed in the literature, including both direct and indirect approaches. Some studies, such as those conducted by Fischer and Gil-Alana (2009), and Gil-Alana and Fischer (2010), have utilized cointegration analysis to investigate the relationship between tourist arrivals and exports at the bilateral level for Spain and Germany. They found a positive relationship between the two variables. However, other studies, such as those conducted by Suresh *et al.* (2011) and Balli *et al.* (2019), have not found a significant relationship between total trade and tourist arrivals, even when examined at the aggregate level.

Another part of time series literature is developed around causality analysis. Various studies that utilize the Granger (1969) and Toda and Yamamoto (1995) causality tests find that there are unidirectional and bidirectional causality links between tourist arrivals, total trade, export and import for different country samples. Some of them have found a unidirectional causality running from total trade to tourist arrivals (e.g. Kulendran & Wilson, 2000 for Australia and the UK; Kadir & Jusoff, 2010 for Malaysia; Massidda & Mattana, 2013 for Italy) and some other studies find that export granger causes tourist arrivals such as Kadir and Jusoff (2010) for Malaysia and Lee (2012) for Singapore. In one case, Kadir and Jusoff (2010) show that import granger causes tourist arrivals to Malaysia.

There are also other studies that find the causality is running from tourism to total trade (e.g. Tsui and Fung (2016) for between Hong Kong with Taiwan and China), to export (e.g. Kulendran and Wilson (2000) for Australia with the USA and Japan; Madaleno *et al.* (2017) for cheese and canned fish of Portugal) and to import (e.g. Lee (2012) for Singapore). On the other hand, there is a bidirectional causality relationship between tourist arrivals with total trade (e.g. Kulendran and Wilson (2000) for Australia and the USA; Shan and Wilson (2001) between China and Australia, Japan and the USA; Santana-Gallego *et al.* (2011a) for between Canary Islands with Netherlands and France), export (e.g. Santana-Gallego *et al.* (2011a) for between Canary Islands with Germany and France; Madaleno *et al.* (2017) for wine export of Portugal) and import (e.g. Khan *et al.* (2005) between Singapore and all

countries; Santana-Gallego *et al.* (2011a) for between Canary Islands with Spain, the UK, France and the USA). In different to previous studies, Suresh and Tiwari (2018) investigate the relationship between tourism and total trade by using asymmetric causality analysis. Their results imply that while negative and positive shocks of total trade lead to granger cause tourist arrivals, the positive shock of tourist arrivals also leads to granger cause total trade.

Considering the panel data literature, the relationship between international tourism and trade has been investigated by using panel data estimators and causality analysis. Some of them utilize Pooled Least Square (POLS), Fixed Effect (FE), Random Effect (RE), Generalized Methods of Moments (GMM), panel Autoregressive Distributed Lag (ARDL), and Tobit Model depending on their data structure, cross-section dependency, and homogeneity/heterogeneity assumption. For example, Easton (1998) examines the relationship between tourism and total trade, imports and exports, and the results show that increased Canadian exports lead to increased tourist arrivals. Çalışkan *et al.* (2019) also find that Turkey's exports and imports to 13 Silk Road countries positively affect inbound and outbound tourist arrivals. Similarly, Chaisumpunsakul and Pholphirul (2018) show that Tayland's total trade has a positive effect on tourist arrivals from 207 countries. On the contrary, Brau and Pinna (2013) state that the impact of tourist arrivals on exports is positive for 25 European countries. Another study on the tourism-trade nexus for Portugal with 14 countries is presented by Leiato (2010). The empirical results indicate that total trade is one of the most important determinants of tourism.

In the context of causality analysis, some studies find that unidirectional causality runs from total trade to tourist arrivals (e.g. Fry *et al.* (2010) between South Africa and Australia, the UK and the Netherlands) and from exports to tourist arrivals and departures (e.g. Santana-Gallego *et al.* (2011b) for OECD countries). On the other hand, there are other studies that find unidirectional causal link from tourist arrivals to total trade (e.g. Fry *et al.* (2010) for the USA) and from tourist arrivals to exports and imports (Keum (2011) between South Korea and 21 countries). Differently, there is also bidirectional causality between total trade-tourist arrivals and import-tourist arrivals (e.g. Santana-Gallego *et al.* (2011b) for OECD countries) and causal link from import to tourist departures (e.g. Keum (2011) between South Korea with 21 countries).

As can be seen, previous studies explore the relationship between trade and tourism for the cases of specific countries, regions, or groups. However, there are no articles focusing on the most visited countries to determine the direction of the relationship between trade and tourism. As we seek to understand the relationship between trade and tourism, we believe that selecting the most visited countries provides a crucial vantage point where this relationship is likely to be most evident. In this sense, the primary objective of this study is to examine the direction of the relationship between international tourism and total trade, exports, and imports for the twenty most visited countries. Also, to the best of our knowledge, no other previous study has implemented the panel causality test of Emirmahmutoglu and Kose (2011) in the context of the tourism-trade nexus.

3. Data and Methodology

3.1. Data

In the construction of the theoretical model, the studies of Fry *et al.* (2010), Kadir and Jusoff (2010), Santana-Gallego *et al.* (2011a), and Santana-Gallego *et al.* (2011b) play a crucial guiding role. The causal relationship between international tourism and total trade, export and import, the model is described as follows:

$$International\ Tourism = f(Total\ Trade, Export, Import) \quad (1)$$

Our dataset includes four variables, namely international tourist arrivals, total trade, export and import for most visited countries: Austria, Canada, China, Croatia, Germany, Hong Kong, India, Italy, Malaysia, Mexico, the Netherlands, Poland, Portugal, Russia, Spain, Thailand, Turkey, the UK, the USA and Vietnam. To examine the relationship between international tourism and trade, this study considers the annual data period of 1995-2019. There are two main reasons for considering this period. The first reason is that consistent data for our sample has been available since 1995. The second reason for choosing 2019 as the last observation is to mitigate the potential negative impacts of the COVID-19 pandemic on international tourism and trade, which could significantly affect the results. International tourist arrivals are used as a proxy variable to represent international tourism. The choice of tourist arrivals data was primarily guided by two factors: the widespread availability of this variable across numerous countries and its precedent in previous pioneering studies such as Kulendran and Wilson (2000), Khan *et al.* (2005), Santana-Gallego *et al.* (2011b), Suresh and Tiwari (2018). Trade flows, export, import, and total trade (sum of export and import of each cross-section), are measured in USD. These variables are converted into real terms using the USA GDP deflator, as in Santana-Gallego *et al.* (2011). All data are taken from the World Bank Database and expressed in natural logarithms.

3.2. Cross-section Dependence and Heterogeneity

In today's interconnected global economy, any panel data analysis must account for two important issues: cross-section dependence and slope heterogeneity (Chang *et al.*, 2015: 1407). The first issue is that the rapid economic and financial integration process of the world in recent years may cause shocks in any country to spillover to other countries (Kar *et al.*, 2011: 688). Considering this integration, a significant part of the panel datasets are likely to show cross-sectional dependence. Ignoring cross-sectional dependence in estimation may have serious outcomes including estimator efficiency loss and invalid test statistics due to unaccounted-for residual dependence. Therefore, we start our empirical study by testing the cross-section dependence across the countries.

One of the most common cross-section dependency test in the literature is the Breusch-Pagan (1980) Lagrange Multiplier (LM) test where the null hypothesis of no cross-sectional dependence is tested against cross-sectional dependence. In the context of a seemingly unrelated regression, Breusch and Pagan (1980) show that under the null hypothesis of no cross-sectional dependence, LM statistic is given by:

$$BP_{LM} = \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} T_{ij} \hat{\rho}_{ij}^2 \qquad (2)$$

Where $\hat{\rho}_{ij}$ refers to the pair-wise correlation of the residuals of Eq.(2) by using Ordinary Least Square (OLS) estimation. Under the null hypothesis that there is no cross-section dependency, the BP_{LM} statistic shows a chi-square distribution feature at $N(N-1)/2$ degrees of freedom. However, Breusch and Pagan (1980) test is not efficient in large N and relatively small T. In order to solve this shortcoming, Pesaran (2004) proposes a standardized version of the LM statistic as shown in Eq.(3);

$$Pesaran_{LM} = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} (T_{ij} \hat{p}_{ij}^2 - 1) \qquad (3)$$

Under the null hypothesis of no cross-section dependency with $T \to \infty$ and $N \to \infty$, this test statistic shows asymptotic standard normal distribution properties. Although $Pesaran_{LM}$ solves the shortcoming of BP_{LM}, there is incontestable size distortion when $N/T \to \infty$. Pesaran (2004) proposes an alternative statistic based on the average of the pair-wise correlation coefficients to solve the size distortion of BP_{LM} and $Pesaran_{LM}$;

$$Pesaran_{CD} = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} T_{ij} \hat{p}_{ij} \quad (4)$$

Under there is no cross-section dependency null hypothesis with $T \to \infty$ and $N \to \infty$, $Pesaran_{CD}$ statistic also shows asymptotic standard normal distribution properties.

Testing the homogeneity of the estimated coefficients is another important preliminary analysis in panel data. As stated by Breitung (2005), the homogeneity assumption cannot account for the variations that may arise from specific characteristics unique to each country. To test for homogeneity between cross-section units, we use so called Delta ($\tilde{\Delta}$) test by Pesaran and Yamagata (2008) where null hypothesis of slope homogeneity is tested against slope heterogeneity. When considering the heterogeneity, the Delta ($\tilde{\Delta}$) test is valid when N and T approach to infinity without any restrictions on the relative expansion rates of N and T when the error terms are normally distributed (Durusu-Ciftci, 2019).

3.3. Panel Bootstrap Granger Causality

The Granger causality means that if Y contains historical information that helps to predict X and if this information is not present in no other series used in the predictor, then there is a causal link from Y to X (Granger, 1969:430). Under the conditions of cross-sectional dependence and heterogeneity between countries, it is necessary to apply the most appropriate causality method that can take into account these features (Nazlioglu *et al.*, 2011:6618). At this point, Emirmahmutoglu and Kose (2011) panel causality test appears to be a suitable method since it explains both cross-sectional dependence and heterogeneity across the countries and offers some advantages. Firstly, there is no need for a common hypothesis as the bootstrap critical values vary from country to country when testing causality. Another advantage is that this approach does not require pre-testing cointegration. The only prior information needed for this approach is the maximum order of integration of the processes (Durusu-Ciftci, 2019:501). In addition, in terms of empirical power, it tends to be more powerful even when N and T are small (Emirmahmutoglu & Kose, 2011:873).

To conduct the bootstrap panel causality test of Emirmahmutoglu and Kose (2011), a system of two equations can be defined as follows;

$$y_{n,t} = c_{1,n} + \sum_{j=1}^{k_n+dmax_n} \delta_{1,nj} y_{n,t-j} + \sum_{j=1}^{k_n+dmax_n} \gamma_{1,nj} x_{n,t-j} + \varepsilon_{1n,t} \quad (5)$$

$$x_{n,t} = c_{2,n} + \sum_{j=1}^{k_n+dmax_n} \delta_{2,nj} y_{n,t-j} + \sum_{j=1}^{k_n+dmax_n} \gamma_{2,nj} x_{n,t-j} + \varepsilon_{2n,t} \quad (6)$$

where y expresses the tourist arrivals, x denotes the international trade indicators (i.e., total trade, export and import), subscripts n and t denote individual cross-sectional units and time periods from $t = 1$ to T (last time number), respectively. $dmax_n$ is the maximum order of integration suspected to occur in the system for each n and k_n is the lag lengths for each of the two estimated models that depend on the dependent and independent variables. The error term has independent and identical distribution across the cross-sections for all time periods. Emirmahmutoglu and Kose (2011) employ a bootstrap procedure to consider cross-section dependency.

There are four different outcomes from the Granger causality test. First, one-way Granger causality is running from X to Y if at least one coefficient of γ_{1nj} is not equal to zero, but all δ_{2nj} are zero. Second, one-way Granger causality is running from Y to X if at least one coefficient of δ_{2nj} is not equal to zero, but all γ_{1nj} are zero. Third, there is bidirectional Granger causality between Y and X if at least one

coefficient of δ_{2nj} and γ_{1nj} is not equal to zero. Finally, there is no Granger causality if all coefficients of δ_{2nj} and γ_{1nj} are zero.

4. Empirical Results

Our empirical analysis[4] consists of three steps to examine the relationship between international tourism and trade. The first step is to test for cross-sectional dependence between panel members. At this point, we use the approaches of Breusch and Pagan (1980) and Pesaran (2004). Then, we test the slope heterogeneity by utilizing Pesaran and Yamagata (2008) approach. As can be seen in Table 2, the null hypothesis of no cross-sectional dependency for $BP_{LM,}$ $Pesaran_{LM}$ and $Pesaran_{CD}$ and heterogeneity for $\tilde{\Delta}$ and $\tilde{\Delta}_{adj}$ are rejected. These results suggest that the causal relationship between the variables may differ across countries.

Table 2. Cross-section Dependence and Heterogeneity

Test	BP_{LM}	$Pesaran_{LM}$	$Pesaran_{CD}$	$\tilde{\Delta}$	$\tilde{\Delta}_{adj}$
lnTotal Trade	1358.029***	74.096***	14.251***	28.066***	29.841***
lnExport	1409.771***	77.233***	14.961***	28.953***	30.783***
lnImport	1313.275***	71.382***	13.767***	26.220***	27.878***

The null hypothesis of there is no cross-sectional dependency for $BP_{LM,}$ $Pesaran_{LM}$ and $Pesaran_{CD}$ and heterogeneity for $\tilde{\Delta}$ and $\tilde{\Delta}_{adj}$. "***" denotes the 1% significance level.

Table 3. Panel CIPS Unit Root Test

	Level		***First Difference***	
Variables	*t-stat*	*p-val*	*t-stat*	*p-val*
lnTourism	-2.099	0.124	-3.483***	0.000
lnTotal Trade	-2.543***	0.001	-	-
lnExport	-2.801***	0.000	-	-
lnImport	-3.653***	0.000	-	-

Note: CIPS refers to Pesaran (2007) panel unit root test. Maximum number of lags is set to 3 and the optimal number of lags is determined by the Akaike information criterion.

In the second step, we examine the unit root properties of variables. To take cross-sectional dependence and heterogeneity into account, we perform the Panel CIPS unit root test by Pesaran (2007) and report our results in Table 3. CIPS results show that all the variables except for Tourist Arrivals (lnTourism) are stationary. Individual CADF unit root results can be found in the Appendix. Results show that most of the variables are I(1) with some exceptions. The third step consists of the estimation of the bootstrap panel causality procedure. In order to examine the causality relationship between international tourist arrivals and total trade, export with import, six bilateral models are predicted as tourism-total trade, tourism-export, tourism-import and reverse directions. These results are reported in Tables 4, 5, and 6, respectively. As can be seen in Table 4, the causal link from total trade to international tourist arrivals is established for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA. These results imply that an increase in total trade leads to an increase in tourist arrivals to these countries. On the other hand, the causal link between international tourist arrivals and total trade is statistically significant only for China, Croatia, Portugal, Russia, Spain, and the UK. Thus, increasing tourist arrivals in these countries also cause their total trade to increase. These results suggest that the dynamics of causality vary between countries, with a two-way causality observed in the case of China.

Table 4. Total Trade and Tourist Arrivals Bootstrap Panel Causality Results

H_0: *lnTotal Trade does not cause lnTourism*			H_0: *lnTourism does not cause lnTotal Trade*	
Cross-section	**Wald Statistic**	**P-value**	**Wald Statistic**	**P-value**
Canada	2.622	0.454	0.623	0.891
China	7.925**	0.048	26.842***	0.000
Croatia	3.124	0.373	11.333***	0.010
Germany	3.820*	0.051	0.165	0.684
India	15.003***	0.001	1.830	0.401
Italy	0.582	0.747	1.549	0.461
Malaysia	1.816	0.612	5.852	0.119
Mexico	7.087*	0.069	1.341	0.719
Netherlands	8.288**	0.04	3.166	0.367
Poland	3.335	0.343	0.768	0.857
Portugal	1.166	0.761	26.100***	0.000
Russia	3.674	0.299	26.213***	0.000
Spain	4.825	0.185	7.154*	0.067
Thailand	0.745	0.863	0.816	0.846
Turkey	7.275**	0.026	1.514	0.469
UK	4.56	0.207	13.234***	0.004
USA	7.801**	0.050	0.623	0.891

Note: Maximum number of lags is set to 3 and the optimal number of lags is determined by the Akaike information criterion. *, ** and *** denote the significance level at 10%, 5% and 1%, respectively.

Table 5. Export and Tourist Arrivals Bootstrap Panel Causality Results

H_0: *lnExport does not cause lnTourism*			H_0: *lnTourism does not cause lnExport*	
Cross-section	**Wald Statistic**	**P-value**	**Wald Statistic**	**P-value**
Canada	2.631	0.452	0.391	0.942
China	8.278**	0.041	30.244***	0.000
Croatia	3.145	0.370	4.596	0.204
Germany	3.861**	0.049	0.183	0.669
India	15.590***	0.000	2.339	0.311
Italy	0.658	0.720	2.660	0.265
Malaysia	1.901	0.593	4.735	0.192
Mexico	7.065*	0.070	1.147	0.766
Netherlands	8.359**	0.039	3.208	0.361
Poland	3.907	0.272	2.095	0.533
Portugal	1.179	0.758	17.906***	0.000
Russia	3.574	0.311	28.054***	0.000
Spain	5.121	0.163	9.587**	0.022
Thailand	0.714	0.870	0.716	0.869
Turkey	6.656**	0.036	0.717	0.699
UK	4.652	0.199	10.434**	0.015
USA	7.591*	0.055	0.321	0.956

Note: Please see the footnote of Table 4.

Table 5 shows the causality from exports to international tourist arrivals. Unidirectional causality from exports to international tourist arrivals is found for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA. This means that an increase in the total export volume of these countries leads to an increase in international tourist arrivals. On the other hand, a causal link between international tourist arrivals and exports is reported for China, Portugal, Russia, Spain, and the UK. Thus, one of the main drivers of the export volume of these countries is the inbound tourist arrivals to these countries. On the other hand, export volume and tourist arrivals feed each other for China, as shown by the empirical results.

In Table 6, the null hypothesis that import does not cause international tourist arrivals is statistically significant for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA. These results imply that an increase in the volume of imports leads to an increase in the number of inbound tourists to these countries. On the other hand, the causal link between international tourist arrivals and imports is statistically significant only for China, Croatia, Malaysia, Portugal, Russia, and the UK. Thus, an increase in tourist arrivals in these countries leads to an increase in their import volume. These results suggest that the dynamics of causality vary across countries. However, there is also a two-way causality for China.

Table 6. Import and Tourist Arrivals Bootstrap Panel Causality Results

H_0: *lnImport does not cause lnTourism*			H_0: *lnTourism does not cause lnImport*	
Cross-section	**Wald Statistic**	**P-value**	**Wald Statistic**	**P-value**
Canada	2.586	0.460	1.053	0.788
China	7.471*	0.058	21.170***	0.000
Croatia	3.185	0.364	15.902***	0.001
Germany	3.775*	0.052	0.136	0.713
India	14.397***	0.001	1.457	0.483
Italy	0.540	0.764	0.796	0.671
Malaysia	1.708	0.635	7.104*	0.069
Mexico	7.106*	0.069	1.532	0.675
Netherlands	8.202**	0.042	3.127	0.373
Poland	3.091	0.378	0.269	0.966
Portugal	1.180	0.758	28.686***	0.000
Russia	3.993	0.262	16.617***	0.001
Spain	4.713	0.194	5.815	0.121
Thailand	0.746	0.962	0.857	0.836
Turkey	7.401**	0.025	1.940	0.379
UK	4.542	0.209	15.060***	0.002
USA	7.728*	0.052	0.846	0.839

Note: Please see the footnote of Table 4.

5. Discussion and Concluding Remarks

This study examines the causal relationship between international tourist arrivals with total trade, exports and imports for the most visited countries Austria, Canada, China, Croatia, Germany, Hong Kong, India, Italy, Malaysia, Mexico, the Netherlands, Poland, Portugal, Russia, Spain, Thailand, Turkey, the UK, the USA, and Vietnam. In order to examine this link, Emirmahmutoglu and Kose (2011) panel causality analysis is carried out for the period of 1995-2019. However, to conduct the bootstrap panel causality, it is necessary to control for cross-sectional dependence and heterogeneity for panel

members. According to the results of the cross-sectional dependence and heterogeneity tests, there are both cross-sectional dependence and heterogeneity.

The results of Emirmahmutoglu and Kose (2011) panel bootstrap causality analysis indicate that there is a one-way causality from total trade to international tourist arrivals for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA and vice versa for China, Croatia, Portugal, Russia, Spain, and the UK. At the same time, the causality runs from exports to tourist arrivals for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA. Oppositely, causality runs from tourist arrivals to exports for China, Portugal, Russia Spain, and the UK. Finally, while a one-way causality from imports to tourist arrivals is reported for China, Germany, India, Mexico, the Netherlands, Turkey, and the USA. Causality from tourist arrivals to imports is only reported for China, Croatia, Malaysia Portugal, Russia, and the UK. In light of the empirical findings on Granger causality, our study reveals that there is evidence of causal relationship running from total trade, exports, and imports to tourist arrivals, which is consistent with the findings of Shan and Wilson (2001) for China, Kadir and Jusoff (2010) for Malaysia, Santana-Gallego *et al*. (2011b) for OECD countries and Suresh and Tiwari (2018) for India. Additionally, our results indicate a similar causal relationship from tourist arrivals to total trade, exports, and imports, aligning with the results obtained by Shan and Wilson (2001) for China, Santana-Gallego *et al*. (2011b) for OECD countries and Madaleno *et al*. (2017) for Portugal. These similarities not only provide robustness to our findings but also strengthen the empirical foundation for the identified causal relationships. However, it is worth noting that our empirical results are in contrast with the findings of Suresh *et al*. (2011) for India and Massidda and Mattana (2013) for Italy. These differences may be due to variations in data sources, methodologies, or other contextual factors that require further investigation.

Looking at countries' trade and tourism patterns, China has bidirectional causality in all models. This means that China's tourism and trade patterns work well together and are mutually supportive. First of all, the existence of this two-way causality draws great attention to China, which has significant shares in world tourism and goods trade, to support both tourism-led and trade-led growth. Second, bidirectional causality between international tourism and trade for China implies that any policy aimed at reducing transaction costs for trade and/or tourism would expand the market size, promoting growth and enabling business strategies to harness the advantages of this relationship (Santana-Gallego *et al*., 2011a:120). Third, policymakers should consider various factors that can affect the relationship between tourist arrivals and trade, including exchange rates, climatic conditions, price competitiveness, and travel expenses. While policymakers may not implement direct control over climate change, their interventions can cultivate favourable conditions for exchange rates, price competitiveness, and travel expenses, thereby promoting an increase in either tourist arrivals or international trade (Fry *et al*., 2010:303). Lastly, if this relationship is handled in terms of unemployment, relaxing certain restrictions in order to boost investments in tourism infrastructure and trade between countries will encourage employment by increasing both trade and tourism activities for China.

As for Germany, India, Mexico, the Netherlands, Turkey, and the USA the direction of causality is running from trade to international tourist arrivals. These countries' international trade serves as one of the main channels for the augmentation of their international tourism. Therefore, economic policies should focus on promoting inbound tourist arrivals by encouraging exports and imports. Policymakers should prioritize intensive research and development endeavours to identify growth opportunities within the international trade domain. This should be coupled with the provision of trade workshops aimed at imparting essential knowledge and expertise to exporters and importers engaged in global commerce. Moreover, governmental policies can foster international tourism via trade by initiating trade negotiations with main trading nations, effecting trade liberalization through tariff reduction, new free trade agreements, and actively promoting foreign investment. Furthermore, infrastructure

improvements, such as building airports, expanding transportation and communication networks, can enhance connectivity in international trade, hence, facilitate tourist arrivals. Lastly, fostering a favourable business environment, reducing bureaucratic red tape, and offering incentives for small and medium-sized enterprises (SMEs) to engage in international trade can significantly contribute to the growth of both trade and tourism sectors. By facilitating market access and providing financial and logistical support, governments can empower SMEs to take advantage of the trade-tourism synergy, ultimately benefiting the national economy and promoting global interconnectivity.

In contrast, the tourism patterns of Croatia (except for the export-tourist arrivals model), Portugal, Russia, and Spain (except for the import-tourist arrivals model) are different. Tourist arrivals in these countries stimulate their trade volumes and policymakers should focus on promoting tourism in order to boost trade. This can be achieved through policies that enhance the attractiveness of the tourism industry, such as promoting cultural heritage sites and investing in tourist facilities such as restaurants and hotels. Additionally, tourist arrivals include not only leisure travellers but also individuals undertaking business trips with the explicit purpose of establishing new trade relationships between nations. Increased flows of business visitors from different countries create a positive impact on the business landscape and foreign direct investments within the host country. It also augments the profitability of local airlines while amplifying travel and tourism expenditures, spanning categories such as hotels, dining, luxury goods, shopping, retail sales, sightseeing tours, and entertainment. Consequently, these aspects collectively contribute significantly to foreign exchange earnings for the country's economy. Hence, policymakers may channel their efforts toward policies that actively encourage and promote these expenditures. Moreover, measures that improve the quality of services provided to tourists, such as ensuring safety and cleanliness, can enhance the reputation of these countries as desirable tourist destinations, thereby boosting trade. Furthermore, a more detailed analysis of their unique motivations and needs may allow policymakers to develop initiatives that promote growth in the business tourism sector in these countries. These initiatives might involve attractive business travel packages, such as airfare and hotel promotions (Tsui & Fung, 2016:402).

The absence of causality between international trade and tourist arrivals in Canada, Italy, Poland, and Thailand underscores the need for diversified economic strategies. Policymakers should consider tailoring investments and promotional efforts for each sector separately, focusing on infrastructure development specific to trade and tourism. This finding also calls for effective risk management and resilience strategies, recognizing that shocks in one sector might not necessarily transmit to the other. Furthermore, sector-specific incentives, sustainable development practices, and refined data analysis could play pivotal roles in enhancing the independent growth of both international trade and tourism sectors.

6. Limitations and Recommendations for Future Research

Despite carefully implementing the chosen methodology and meeting the necessary conditions for conducting statistical analysis, this study possess certain constraints. First, due to the unavailability of data, we regrettably had to exclude France, Greece, and Japan from our analysis. Nonetheless, we believe that the incorporation of these countries could potentially enhance the comprehensiveness of our study, leading to more robust findings and valuable implications. This underscores the potential for further research to consider these countries for a more comprehensive understanding of the relationship between tourism and trade. Second, one of the limitations inherent in our study lies in the extent to which we addressed aggregation bias. While we took steps to mitigate this bias by disaggregating the international trade data into exports and imports, there remains an opportunity for more in-depth refinement. Specifically, some trading sectors share a closer affinity with the tourism industry. Acknowledging this, future research endeavours could potentially enhance the precision of their

analysis by delving further into these sectors, thereby offering a more nuanced exploration of the tourism and trade nexus. Lastly, we opted to utilize tourist arrivals data as a proxy variable to represent international tourism. This choice was primarily guided by two factors: the widespread availability of this variable across numerous countries and its precedent in previous pioneering studies. However, other proxy variables such as total receipts or country generation potential index may have provided different results. We defer this aspect for future research endeavours.

Endnotes

1. France, Greece and Japan are excluded because of data unavailability. Therefore, we include Vietnam, India, and Croatia instead of France, Greece and Japan.
2. As stated in the World Tourism Organization's 2022 report, projections for tourism suggest that due to the COVID-19 pandemic, the industry will not return to pre-pandemic levels of performance until 2024 or later. As such, we have designated 2019 as the final year of observation.
3. Given the non-availability of tourism revenue and expenditure data for certain countries, we have instead utilized total service import and export statistics as a proxy, as international tourism is a significant contributor to service trade.
4. Austria, Hong Kong, and Vietnam are excluded from the empirical analysis because there are missing observations in their data.

Appendix

Table A1. CADF Unit Root Test Results

Country Sample	Level								First Difference							
	lntour		lnttrade		lnexp		lnimp		dlntour		dlnttrade		dlnexp		dlnimp	
Canada	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**	**t-stat**	**p-val**
Canada	-2.011	≥0.10	-3.167*	<0.10	-3.232*	<0.10	-3.776**	<0.05	-1.936	≥0.10						
China	-1.916	≥0.10	-1.264	≥0.10	-1.728	≥0.10	-1.164	≥0.10	-2.720	≥0.10	-3.732**	<0.05	-3.196*	<0.10	-4.452***	<0.01
Germany	-1.594	≥0.10	-2.510	≥0.10	-2.920	≥0.10	-1.765	≥0.10	-5.248***	<0.01	-6.007***	<0.01	-5.100***	<0.01	-2.389	≥0.10
Spain	-3.393*	<0.10	-2.727	≥0.10	-3.574**	<0.05	-3.500**	<0.05			-4.151**	<0.05				
UK	-4.559***	<0.01	-2.815	≥0.10	-2.365	≥0.10	-3.000*	<0.10			-3.343*	<0.10	-3.830**	<0.05		
Croatia	-2.495	≥0.10	-2.961	≥0.10	-4.311***	<0.01	-2.769	≥0.10	-1.989	≥0.10	-3.480**	<0.05			-1.695	≥0.10
India	-2.400	≥0.10	-3.774**	<0.05	-2.968	≥0.10	-3.846**	<0.05	-5.092***	<0.01			-2.081	≥0.10		
Italy	-2.952	≥0.10	-2.484	≥0.10	-3.359*	<0.10	-2.426	≥0.10	-3.983**	<0.05	-4.550***	<0.01			-1.474	≥0.10
Mexico	-1.420	≥0.10	-2.035	≥0.10	-1.856	≥0.10	-2.182	≥0.10	-3.141*	<0.10	-6.864***	<0.01	-7.465***	<0.01	-6.301***	<0.01
Malaysia	-1.107	≥0.10	-0.468	≥0.10	-2.219	≥0.10	-0.976	≥0.10	-3.939**	<0.05	-3.964**	<0.05	-3.398*	<0.10	-4.177**	<0.05
Netherlands	-0.358	≥0.10	-1.737	≥0.10	-1.979	≥0.10	-1.447	≥0.10	-0.443	≥0.10	-5.806***	<0.01	-5.260***	<0.01	-5.960***	<0.01
Poland	-2.298	≥0.10	-0.801	≥0.10	-1.106	≥0.10	-2.832	≥0.10	-1.602	≥0.10	-4.959***	<0.01	-4.804***	<0.01	-4.160**	<0.05
Portugal	-0.697	≥0.10	-3.369*	<0.10	-4.267***	<0.01	-3.521**	<0.05	-3.892**	<0.05						
Russia	-3.102*	<0.10	-1.726	≥0.10	-0.054	≥0.10	-2.562	≥0.10			-3.090*	<0.10	-3.649**	<0.05	-3.387*	<0.10
Thailand	-2.036	≥0.10	-4.157**	<0.05	-5.830***	<0.01	-2.887	≥0.10	-5.123***	<0.01					-1.903	≥0.10
Turkey	-1.775	≥0.10	-3.489**	<0.05	-3.512***	<0.05	-3.326*	<0.10	-4.575***	<0.01					-6.566***	<0.01
US	-1.566	≥0.10	-3.740**	<0.05	-2.333	≥0.10	-3.697**	<0.05	-4.367***	<0.01			-1.613	≥0.10		
Panel CIPS	-2.099	≥0.10	-2.543***	<0.01	-2.801***	<0.01	-3.653***	<0.01	-3.483***	<0.01						

References

Balli, H. O., Balli, F., & Tsui, W. H. (2019). International Tourism Demand Number of Airline Seats and Trade Triangle: Evidence from New Zealand Partners. *Tourism Economics* 25(1), 132 - 144. https://doi.org/10.1177/1354816618801504

Brahmbhatt, Jigar & Menezes, Ronaldo. (2013). On the relation between tourism and trade: A network experiment. Proceedings of the 2013 IEEE 2nd International Network Science Workshop, NSW 2013. https://doi.org/10.1109/NSW.2013.6609197

Brau, R., & Pinna, A. M. (2013). Movements of People for Movements of Goods? *The World Economy* 36(10), 1318-1332. https://doi.org/10.1111/twec.12104

Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *The Review of Economic Studies* 47(1), 239-253. https://doi.org/10.2307/2297111

Breitung, J. (2005). A parametric approach to the estimation of cointegration vectors in panel data. *Econometric Reviews*, *24*(2), 151-173. https://doi.org/10.1081/ETC-200067895

Chaisumpunsakul, W., & Pholphirul, P. (2018). Does International Trade Promote International Tourism Demand? Evidence from Thailand's Trading Partners. *Kasetsart Journal of Social Sciences* 39(3), 393 - 400. https://doi.org/10.1016/j.kjss.2017.06.007

Chang, T., Gupta, R., Lotz, R. I., Kengne, B. S., Smithers, D., & Trembling, A. (2015). Renewable Energy and Growth: Evidence From Heterogeneous Panel of G7 Countries Using Granger Causality. *Renewable and Sustainable Energy Reviews* 52, 1405 - 1412. https://doi.org/10.1016/j.rser.2015.08.022

Çalışkan, U., Saltik, I. A., Ceylan, R., & Bahar, O. (2019). Panel Cointegration Analysis of Relationship Between International Trade and Tourism: Case of Turkey and Silk Road Countries. *Tourism Management Perspectives* 31, 361-369. https://doi.org/10.1016/j.tmp.2019.07.003

Durusu-Çiftçi, D. (2019). The Finance-Growth Nexus in the High Performance Asian Economies: A Bootstrap Panel Causality Analysis. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi* 33(2), 495-514. https://dergipark.org.tr/en/pub/atauniiibd/issue/44281/479865

Easton, S. T. (1998). Is Tourism Just Another Commodity? Links Between Commodity Trade and Tourism. *Journal of Economic Integration* 13(3), 522 - 543. https://doi.org/10.11130/jei.1998.13.3.522

Emirmahmutoglu, F. & Kose, N. (2011). Testing for Granger causality in heterogeneous mixed panels. *Economic Modelling* 28(3), 870-876. https://doi.org/10.1016/j.econmod.2010.10.018

Fischer, C., & Gil-Alana, L. A. (2009). The Nature of The Relationship Between International Tourism and International Trade: The Case of German Imports of Spanish Wine. *Applied Economics* 41(11), 1345 - 1359. https://doi.org/10.1080/00036840601019349

Fry, D., Saayman, A., & Saayman, M. (2010). The Relationship Between Tourism and Trade in South Africa. *South African Journal of Economics* 78(3), 287 - 306. https://doi.org/10.1111/j.1813-6982.2010.01245.x

Gil-Alana, L. A., & Fischer, C. (2010). International Travelling and Trade: Further Evidence for The Case of Spanish Wine Based On Fractional Vector Autoregressive Specifications. *Applied Economics* 42(19), 2417 - 2434. https://doi.org/10.1080/00036840701858083

Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica* 37(3), 424-438. https://doi.org/10.2307/1912791

Kadir, N., & Jusoff, K. (2010). The Cointegration and Causality Tests for Tourism and Trade in Malaysia. *International Journal of Economics and Finance* 2(1), 138 - 146. https://doi.org/10.5539/ijef.v2n1p138

Kar, M., Nazlioglu, S., & Ağır, H. (2011). Financial Development and Economic Growth Nexus in The MENA Countries: Bootstrap Panel Granger Causality Analysis. *Economic Modelling* 28(1-2), 685 - 693. https://doi.org/10.1016/j.econmod.2010.05.015

Keum, K. (2011). International Tourism and Trade Flows: A Causality Analysis Using Panel Data. *Tourism Economics* 17(5), 949 - 962. https://doi.org/10.5367/te.2011.0054

Khan, H., Toh, R. S., & Chua, L. (2005). Tourism and Trade: Cointegration and Granger Causality Tests. *Journal of Travel Research* 44(2), 171-176. https://doi.org/10.1177/0047287505276607

Kulendran, N., & Wilson, K. (2000). Is There a Relationship Between International Trade and International Travel?. *Applied Economics* 32(8), 1001 - 1009. https://doi.org/10.1080/000368400322057

Lee, C. G. (2012). Tourism, Trade, and Income: Evidence From Singapore. *Anatolia* 23(3), 348 - 358. https://doi.org/10.1080/13032917.2012.701596

Leitao, N. C. (2010). Does Trade Help to Explain Tourism Demand? The Case of Portugal. *Theoretical and Applied Economics* 17(3), 63 - 74. https://store.ectap.ro/articole/451.pdf

Madaleno, A., Eusébio, C., & Varum, C. (2017). Exports and Tourism: Testing the Causality. *International Journal of Hospitality & Tourism Administration* 18(4), 444 - 458. https://doi.org/10.1080/15256480.2017.1289140

Massidda, C., & Mattana, P. (2013). A SVECM Analysis of the Relationship Between International Tourism Arrivals, GDP and Trade in Italy. *Journal of Travel Research* 52(1), 93– 105 . https://doi.org/10.1177/0047287512457262

Nazlioglu, S., Lebe, F., & Kayhan, S. (2011). Nuclear Energy Consumption and Economic Growth in OECD Countries: Cross-Sectionally Dependent Heterogeneous Panel Causality Analysis. *Energy Policy* 39(10), 6615 - 6621. https://doi.org/10.1016/j.enpol.2011.08.007

Pesaran, M. H. (2004). General diagnostic tests for cross section dependence in panels. Available at SSRN 572504. https://dx.doi.org/10.2139/ssrn.572504

Pesaran, M. H. (2007). A Simple Panel Unit Root Test in the Presence of Cross-Section Dependence. *Journal of Econometrics* 22(2), *265-312.* https://doi.org/10.1002/jae.951

Pesaran, M.H. & Yamagata, T. (2008). Testing slope homogeneity in large panels. *Journal of Econometrics* 142(1), 59-93. https://doi.org/10.1016/j.jeconom.2007.05.010

Santana M, Ledesma FJ, Pérez JV (2010a) On the relationships between trade and tourism. In: The economics of sustainable tourism, routledge critical studies in tourism, business and management. Routledge, pp 92–107. https://doi.org/10.4324/9780203842331

Santana-Gallego, M., Ledesma-Rodrigues, F., & Perez-Rodriguez, J. V. (2011a). Tourism and Trade in Small Island Regions: The Case Of The Canary Islands. *Tourism Economics* 17(1), 107 - 125. https://doi.org/10.5367/te.2011.0029

Santana-Gallego, M., Ledesma-Rodríguez, F., & Pérez-Rodríguez, J. V. (2011b). Tourism and Trade in OECD Countries. A Dynamic Heterogeneous Panel Data Analysis. *Empirical Economics* 41, 533 - 554. https://doi.org/10.1007/s00181-011-0477-9

Shan, J., & Wilson, K. (2001). Causality Between Trade and Tourism: Empirical Evidence From China. *Applied Economics Letters* 8(4), 279 - 283. https://doi.org/10.1080/13504850175010411 4

Suresh, K.G., Gautam, V., & Kumar, M. (2011). Analysing The Relationship Among Tourism, Trade, and Economic Growth in Indian Perspective. *Journal of International Business and Economy* 12(1), 1-11. https://doi.org/10.51240/jibe.2011.1.1

Suresh, K. G., & Tiwari, A. K. (2018). Does International Tourism Affect International Trade and Economic Growth? The Indian Experience. *Empirical Economics* 54, 945 - 957. https://doi.org/10.1007/s00181-017-1241-6

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of econometrics*, *66*(1-2), 225-250. https://doi.org/10.1016/0304-4076(94)01616-8

Tsui, W. H., & Fung, M. K. (2016). Causality Between Business Travel and Trade Volumes: Empirical Evidence from Hong Kong. *Tourism Management* 52, 395-404. https://doi.org/10.1016/j.tourman.2015.07.010

World Tourism Organization (UNWTO). (2020). International Tourism Highlights, https://www.e-unwto.org/doi/epdf/10.18111/9789284422456

World Tourism Organization (UNWTO). (2022). World Tourism Barometer, 20(1), 1-12. https://www.seco.admin.ch/dam/seco/de/dokumente/Standortfoerderung/Tourismus/Newsletter/NewsletterFeb22/UNWTO_Barom22_01_January.pdf.download.pdf/UNWTO_Barom22_01_January.pdf

World Travel & Tourism Council (2021). Travel & Tourism Economic Impact 2021. https://wttc.org/Portals/0/Documents/Reports/2021/Global%20Economic%20Impact%20and%20Trends%202021.pdf

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