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# EXPORTS AND TOURISM DEMAND: EVIDENCE OF A STRONG LINK DISRUPTED BY PANDEMIC RESTRICTIONS*

## İhracat ve Turizm Talebi: Pandemi Döneminde Zayıflayan Güçlü Bir Bağ

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**Keywords:** Tourism-Trade Nexus, Exports and Tourism Demand, Tourism Demand Function, Panel Data Analysis.

**JEL Codes**: F14, Z30, C13

### Abstract

This study empirically examines the relationship between inbound tourism demand and foreign trade for Türkiye by employing panel data analysis to estimate a tourism demand function that incorporates an export variable alongside conventional determinants. The results reveal that a 10% increase in exports corresponds to a 2.11% rise in tourist arrivals. This positive linkage is attributed to strengthened interpersonal networks, enhanced transportation infrastructure, and greater destination visibility fostered by trade relations. However, this link does not follow a linear pathway. While exports robustly impact tourism under normal conditions, the influence vanishes during crises with mobility restrictions. COVID-19 restrictions caused a structural break for the tourism-trade nexus of Türkiye. The insignificant export-pandemic interaction term employed in the econometric model proves that trade loses its stimulating effect on tourism during international mobility crises. Key findings also highlight that GDP and population size of source countries are the primary determinants of Türkiye's tourism demand, and exports exert a larger effect than relative prices. Results suggest that policymakers should adopt alternative strategies independent from international mobility conditions to sustain the tourism sector in such shocks, and export promotion may be more effective than price competitiveness strategies in stimulating demand.

**Anahtar Kelimeler:** Turizm ve Ticaret İlişkisi, İhracat ve Turizm Talebi, Turizm Talep Fonksiyonu, Panel Veri Analizi

**JEL Kodları:** F14, Z30, C13

### Öz

Bu çalışma geleneksel değişkenlerin yanında ihracat değişkeni içeren turizm talep fonksiyonunu panel veri analizi ile tahmin ederek, Türkiye'ye yönelik turizm talebi ve dış ticaret ilişkisini ampirik olarak incelemektedir. Sonuçlar; ihracattaki %10'luk artışın ülkeyi ziyaret eden turist sayısını %2.11 artırdığını göstermektedir. Bu pozitif ilişki ticaret bağları sonucunda gelişen; kişiler arası bağlara, ulaşım altyapısına ve destinasyon bilinirliğine bağlanmaktadır. Ancak bu bağlantı doğrusal bir patika izlememektedir. İhracat normal zamanlarda turizmi güçlü bir şekilde etkilese de bu etki hareketliliğin sınırlandığı kriz durumlarında ortadan kalkmaktadır. COVID-19 kısıtlamaları Türkiye'nin turizm ve ticaret bağlantısında yapısal bir kırılmaya neden olmuştur. Ekonometrik modelde yer alan istatistiksel olarak anlamsız ihracat ve pandemi etkileşim değişkeni ticaretin uluslararası hareketliliğin sınırlandığı krizlerde turizmi canlandıramadığını kanıtlamaktadır. Temel bulgular ayrıca kaynak ülke GSYİH'si ve nüfusunun Türkiye'ye yönelik turizm talebinin birincil belirleyicileri olduğunu ve ihracatın göreli fiyatlara göre talep üzerinde daha büyük etkiye sahip olduğunu göstermektedir. Sonuçlar bu tip şok durumlarında politika yapıcıların turizm sektörünü desteklemek için uluslararası mobilite koşullarından bağımsız stratejiler geliştirmelerini ve ihracat teşviklerinin fiyat rekabetçiliğine yönelik stratejilere kıyasla talebi uyarmada daha etkili olduğunu ileri sürmektedir.

* A study conducted for the Central Bank of the Republic of Türkiye titled "The Effects of Foreign Trade on Foreign Exchange Earnings: The Case of Tourism Sector" provided the empirical basis for this research. Original study has been intensively refined and elaborated with this manuscript.

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## 1. Introduction

The literature extensively documents the positive economic effects of tourism as a pivotal sector in generating foreign exchange earnings. By facilitating foreign currency inflows, improving living standards, augmenting tax revenues, and creating employment opportunities due to its labour-intensive characteristics, the sector significantly contributes to national economic development. Given the widespread consensus on the importance of economic diversification and the expansion of foreign exchange reserves, tourism is widely regarded as a viable mechanism to advance these objectives. As one of the fastest-growing industries worldwide, it has become a key policy instrument to foster development in numerous countries (Matthew et al., 2018). When foreign exchange revenues derived from tourism are allocated toward the importation of capital goods or necessary production inputs, the sector functions as an effective financing mechanism for a country's import expenditures, which contribute to broader economic welfare (Balaguer and Cantavella-Jorda, 2010). Since tourism directly influences regional development, policies enhancing tourism infrastructure generate spillover effects and cause growth not only in tourist destinations but also across broader regions (Jovanovic and Ilic, 2016). Furthermore, taxation of tourism is particularly advantageous for developing countries facing budget constraints and seeking to reduce their dependence on other tax sources (Gooroochurn and Sinclair, 2005).

Given tourism's substantial economic contributions, understanding the determinants of tourism demand, which is defined as consumers' willingness and capacity to purchase tourism services at specified prices and time periods, is critical. This demand is shaped by both quantifiable and non-quantifiable factors (Dwyer et al., 2020). One of the tools employed to assess the impact of these factors on tourism demand is the demand function, which mathematically expresses the relationship between the factors and the quantity of tourism demand (Lim, 2006). Although various studies have extensively examined the impact of determinants such as income levels, transportation costs, relative prices, exchange rates, and consumer preferences on tourism demand, the relationship between tourism demand and foreign trade remains comparatively underexplored in the literature.

The main arguments regarding the ways in which foreign trade and, particularly, exports enhance tourism demand for a location can be grouped into three parts. First, trade between two countries facilitates the formation of various networks among their residents. Second, the realization of foreign trade necessitates the presence of well-developed transportation and communication infrastructures, which are also crucial for the tourism sector. And last, foreign trade activities increase international recognition of the participating countries. (Suresh and Tiwari, 2017).

The determinants of tourism demand are predominantly characterized by economic and demographic factors. Economic conditions, especially the income levels of prospective tourists, constitute the primary driver of tourism demand. Empirical research demonstrates a positive correlation between higher income levels and increased tourism demand, as greater disposable income enhances individuals' propensity to travel (Wakimin et al., 2018; Pinjaman and Pawan, 2021). Additionally, the price elasticity of tourism services plays a critical role since regions that offer competitive prices are more likely to attract tourists (Rodriguez et al., 2018). In this framework, macroeconomic stability and growth are essential for nurturing a beneficial environment for tourism (Darani and Asghari, 2018; Momanyi, 2023). As for the demographics,

a larger population in the sending country typically results in a higher number of tourists traveling abroad. Research shows that population factor has a strong correlation with the number of tourists visiting other countries which confirms that as the population increases the likelihood of outbound tourism increases as well (Fida, 2023). This phenomenon is particularly evident in countries with growing middle classes where increased disposable income allows more individuals to travel internationally (Bobi and Cimpoeru, 2021).

A salient finding within this emerging body of research suggests that trade openness exerts a positive influence on tourism demand. Enhanced trade activities correlate with improved international tourism performance, as trade relations tend to generate heightened destination awareness and stimulate tourist interest among potential visitors (Darmawan et al., 2020). The facilitation of goods and services through trade can create a more favourable environment for tourism. In this context, increase in foreign trade between locations strengthens economic ties and visibility of the tourism destination in global markets. Notably, the literature demonstrates that foreign trade can serve as a catalyst for tourism by reducing operational costs and promoting consumer awareness of tourism services in other countries (Mudiyanselage et al., 2022). This relationship is reciprocal; as tourism grows, it can also stimulate trade by increasing demand for local products and services among foreign visitors (El- Sahli, 2017).

Studies that examine the influence of foreign trade on tourism are a growing area in the literature. Tourism demand has been analysed in studies through various econometric models that incorporate diverse macroeconomic variables. However, it is clear that using comprehensive models that account for the relation between tourism and trade to provide more valid estimates of demand is a necessity. With that in mind, ranking the factors that affect tourism demand for a location is highly important. A comprehensive understanding of the determinants most significantly influencing tourism demand enables policymakers and industry stakeholders to optimize resource allocation and strategic prioritization. The identification of key demand drivers facilitates the development of targeted interventions to enhance the most impactful factors, which helps to maximize a country's visitor attraction potential and tourism revenue generation. Thus, establishing a hierarchical ranking of these determinants supports the formulation of precise strategies. For example, should economic variables such as income levels emerge as predominant, marketing initiatives could be tailored to higher-income demographics or premium tourism experiences. Conversely, if transportation infrastructure and accessibility prove more influential, strategic investments could be directed toward improving destination connectivity. This analytical framework additionally fosters cross-sectoral collaboration, particularly between tourism and trade sectors, which are the central focus of this research. Such a holistic approach can lead to more integrated policies that enhance overall tourism performance

This study, which aims to examine the relationship between exports and inbound tourism demand for Türkiye, with a particular focus on whether this linkage remains robust during periods of severe economic disruption like the COVID-19 pandemic, is innovative in several aspects. While existing theoretical frameworks suggest that exports can stimulate tourism through various channels such as business travels, cultural exchanges, and enhanced destination visibility, the empirical validity of this relationship in emerging market contexts, especially under crisis conditions, remains insufficiently explored (Massidda and Mattana, 2012). Türkiye presents a compelling case for this investigation due to its dual reliance on tourism and exports as the main drivers of economic growth.

This study strives to estimate whether a statistically significant and economically meaningful relationship exists between Türkiye's export activity and its inbound tourism demand during stable non-crisis periods. Also, the study attempts to evaluate the resilience of this relationship during the COVID-19 pandemic, when unprecedented mobility restrictions and global travel disruptions disproportionately affected tourism relative to trade. Specifically, the study aims to quantify the extent to which the tourism-trade nexus weakens or collapses under crisis conditions.

The findings have important implications for both theory and policy. Theoretically, they contribute to the broader literature on the interconnectedness of trade and tourism by highlighting how a contextual factor like an external shock may mediate this relationship. From a policy perspective, the results can inform the design of more resilient tourism and trade strategies, particularly in emerging economies vulnerable to global disruptions. If the link between trade and tourism proves to be fragile during crises, policymakers may need to prioritize alternative demand drivers, such as concentrating on domestic tourism, to mitigate the sector's vulnerability to crises.

By focusing on Türkiye's experience during the pandemic, this study provides timely insights into how economies heavily reliant on both tourism and trade can navigate future crises. The analysis not only tests the generalizability of the hypothesis that exports influence tourism in emerging market settings but also offers a framework for understanding how different types of shocks may asymmetrically affect connected economic sectors. Ultimately, the research aims to bridge an important gap in the literature by providing empirical evidence on the stability and crisis resilience of the relation between foreign trade and tourism in a policy relevant context.

In addition to these primary objectives, the study has been designed to fill other gaps in the literature. Firstly, the number of studies examining tourism demand characteristics for Türkiye using a traditional demand function is quite limited. While Aslan et al. (2008), Kaya and Canlı (2013), Özcan (2015), and Karaoğlu (2019) have estimated tourism demand functions for Türkiye, researchers did not include foreign trade variables among the independent variables. Only the study by Görmüş and Göçer (2010) incorporated foreign trade as a dependent variable in the demand function. However, the authors' analysis is limited to the years 2000 to 2006, which is a period that no longer reflects Türkiye's current macroeconomic and foreign trade landscape. Additionally, the dummy variables they used are the events that are now outdated. An extraordinary event like COVID-19, which severely impacted global tourism demand, highlights the need to reexamine the connection between tourism and trade.

And secondly, this study aims to rank the factors that affect tourism demand towards Türkiye by their impact. Few studies in the relevant literature focused on this area. And as to our knowledge, the ones that did so have not incorporated foreign trade variables into their models. For instance, Akay et al. (2016) reported that the national income of source locations is the most significant variable in explaining tourism demand, followed by the exchange rate deviations. Cankurt and Subaşı (2016) did not explicitly rank the factors affecting tourism demand but made clear that the economic factors are the leading ones. Likewise, Ulucak et al. (2020) ranked economic factors as the most influential. According to their study, the per capita income of both the origin country and Türkiye, along with the relative exchange rate, were the most significant positive determinants of tourism demand. Thus, while there are multiple studies that analyse numerous factors influencing tourism demand, few have systematically ranked

these factors, and even fewer have integrated foreign trade variables into their models. This lack of research in the field underlines the significance of this study. Because the incorporation of foreign trade variables is crucial as it recognizes the mutual interaction of tourism and exports. Prior studies, such as the one by Tatoğlu and Gül (2019), have acknowledged the relationship between tourism and international trade and noted a positive correlation between them. But the researchers did not delve deeply into how these trade variables can be systematically integrated into a tourism demand model. Moreover, our approach of ranking the factors affecting tourism demand provides a structured framework that can guide policy makers and stakeholders in the tourism sector. While some studies have identified key determinants such as income levels, exchange rates and security concerns, they often lack a comprehensive ranking based on empirical evidence.

## 2. Literature Review

### 2.1. The Link Between Foreign Trade and Tourism Demand

The literature presents two primary arguments regarding the link between tourism and international trade. The first argument posits that tourism drives and gives momentum to foreign trade activities. The core rationale behind this argument is that the tourists identify potential trade opportunities in the countries they visit and subsequently capitalize on these opportunities after their vacation. Tourists may also recognize that certain goods or services from the countries they visit could be marketed in their own countries, and this may facilitate cross-border trade. The second argument suggests that trade mainly fosters tourism. Existing trade relations between countries stimulate tourist flows by ensuring the accessibility of familiar products or services from the tourists' home country in the destination country, thus supporting tourism activities. Also, individuals who visit a region for trade purposes often share their experiences with their family and friends, and this mobility potentially fosters touristic activities. Because previous visits to a region or recommendations from family and friends significantly boost tourist visits to that region (Kumar et al., 2015).

The hypothesis that trade fosters inbound tourism demand suggests that existing commercial relationships between countries stimulate subsequent tourism flows through multiple channels. At its core, this framework suggests that international trade acts as a catalyst for tourism development by reducing informational asymmetries, enhancing destination familiarity, and improving cross-border infrastructure. The hypothesis challenges conventional tourism demand models by emphasizing how economic integration precedes and facilitates travel mobility rather than merely responding to it. Trade relationships necessitate frequent visits and logistical coordination, and they help to establish travel corridors between partner countries. Trade partnerships often align with shared cultural attributes that lower psychological barriers to tourism. The presence of familiar products or services in destination markets further enhances tourist comfort (Shahbaz et al., 2015; Luo et al., 2022).

From this perspective, the main driver of inbound tourism of a country in which trade relations play a role is through exports. The literature provides compelling evidence that a country's exports can stimulate its inbound tourism demand through mechanisms such as increased international visibility, positive cultural exchange, and the promotional effect of exporting high-value commodities, products, and services (Easton, 1998; Bae et al., 2017).

Export activities boost domestic product demand and enhance the country's international image, and stimulate inbound tourism. They generate positive externalities that enhance a nation's international image and stimulate demand through improved destination perception (Tsounis et al., 2022). Likewise, exports of cultural products can influence tourism significantly, by narrowing the bridge of cultural gaps and generating interest in a country's cultural offerings (Chen et al., 2023).

By contrast, international tourism theoretically enhances the visibility of local products in global markets, therefore increasing import demand. Business travel, which constitutes about 15% of global tourism, significantly facilitates export and import flows. The rise in business travel fosters greater trade volume and tourism activity (Suresh and Tiwari, 2017). Assuming a causal relationship where trade influences tourism, business trips are crucial for developing trade relations by identifying opportunities that lead to further visits from other traders. Over time, these commercial travels can evolve into tourism-oriented trips as consumer interest increases (Bahar and Baldemir, 2008). The notion that international travel influences trade is referred to as the Marco Polo Effect. Since Marco Polo's journey between Europe and Asia, the first recorded business trip in the world, opened new trade routes and strengthened economic ties between countries. According to this effect, successful business trips can prompt additional traders to visit and establish new relationships, and they may also transform into recreational trips if accompanied by family or friends. Furthermore, imported products can spark consumer interest in their countries of origin. However, analysing the interaction between trade and tourism necessitates consideration of the dramatic changes in the global trade system and the process of globalization. The gradual removal of global trade barriers and restrictions on cross-border mobility over the years has catalysed the development of international trade and tourism. Similarly, significant improvements in global communication and advancements in tourism infrastructure have intensified the interaction between these sectors (Kulendran and Wilson, 2000; Santana-Gallego et al., 2015).

### 2.2. Economic and Demographic Determinants of Tourism Demand

Existing research consistently identifies economic factors like income levels and relative prices as the most critical determinants of tourism demand. Empirical evidence robustly demonstrates that higher national income in origin countries positively correlates with increased outbound tourism flows. This relationship stems from the fundamental tendency of economic agents to allocate greater discretionary spending to travel when disposable incomes rise (Stepchenkova and Eales, 2010). The use of panel data analysis is prevalent in this context, allowing researchers to assess the link between income and tourism demand across multiple countries and time periods (Nugraha and Naylah, 2023). Pricing has been found as another critical economic factor affecting tourism demand. Research indicates that fluctuations in tourism prices, like accommodation and transportation costs, significantly impact consumer behaviour. For example, studies utilizing econometric models have demonstrated that tourism demand is sensitive to price changes since higher prices generally lead to decreased demand. This relationship makes it clear that the importance of price competitiveness in attracting tourists is crucial, and destinations must monitor their prices relative to their alternatives (Sauer et al., 2021). As an example, a study conducted by Ghosh (2021) on inbound international

tourism demand in Australia highlighted that both local and global economic policy uncertainties, which often affect pricing, play a significant role in shaping tourism demand.

Another important economic factor ranked as important to affect tourism demand for a particular location in the literature is exchange rates. Alleyne et al. (2020), conducted a disaggregated analysis of tourism demand and found that fluctuations in real effective exchange rates significantly affect tourist arrivals, particularly in the context of the United States. The study utilized multivariate conditional volatility regressions modelling to assess the relationship between exchange rate volatility and tourism demand, and the results showed that a stronger domestic currency typically leads to decreased inbound tourism as it makes travel more expensive for foreign visitors. Additionally, Kuo et al. (2012), employed a dynamic Almost Ideal Demand System approach to model Japanese tourism demand for Asian destinations and found that exchange rate changes significantly impact tourists' expenditure patterns. Similarly, relative prices between the origin country and the tourist destination are also critical in determining tourism demand. In this regard, price competitiveness is vital since tourists tend to switch to alternative and cheaper destinations when faced with higher relative prices. An increase in relative prices could lead to a significant decline in tourist arrivals (Mangion et al., 2005). Zhang's analysis of Chinese inbound tourism concluded that relative prices, which are basically the prices standardized by exchange rates, serve as a robust proxy for tourism pricing (Zhang, 2019). On the other hand, some studies have integrated both relative and alternative prices into their analyses. For instance, the research by Esquivias et al. (2021) utilized an ARDL model to investigate the roles of income, relative price competitiveness, and substitution prices in determining tourism demand towards Indonesia. The findings indicate that both exchange rates and relative prices significantly impact tourism demand.

Demographic characteristics such as the population of tourist sources play a major role in determining the level of tourism demand. Li et al. (2019) utilized a panel smooth transition regression approach to analyse how demographic structures affect outbound demand. The study revealed that demographic factors such as median age and population significantly influence travel patterns. Authors underlined that understanding the demographic composition of potential tourists is essential for predicting tourism demand. Krasniqi (2023) concluded that the strong positive correlation between the population of source countries and outward tourism demand for the receiving countries makes demography the most important factor for estimating tourism demand. The analysis revealed that an increase in the population of a country of origin goes hand in hand with a corresponding increase in tourist arrivals to the destination country.

According to the studies conducted to explore tourism and trade dynamics in Türkiye, the most critical factors affecting tourism demand have been those that have economic and demographic characteristics. For instance, Ulucak et al. (2020) used a gravity model to analyse the dynamics of tourism demand in Türkiye. The study incorporated the KOF globalization index to assess how globalization influences tourism development. The findings indicate that both economic factors, like income levels, exchange rates, and globalization, significantly impact demand. Keskin (2019) applied the Seemingly Unrelated Regression Method to estimate tourism demand for Türkiye from selected countries over a 17-year time period. This method allows for the simultaneous estimation of multiple equations and helps to capture the interdependencies among different tourist source markets. The results of the study reveal that the economic conditions in source countries are the most important factors affecting tourism demand for Türkiye. In a study by Ağazade (2021), a two-stage system generalized method of

moments model was employed to estimate the impact of various factors on tourism demand. The study found that income levels and exchange rates positively influence demand, while terror threats have a significant negative impact particularly in the short term. Altin and Uysal (2014) developed an economic sentiment indicator and incorporated it into their analysis of tourism demand determinants for Türkiye. Using ARIMA and ARDL bound test approaches, the study found that the economic sentiment along with traditional variables such as exchange rates and interest rates significantly influence tourism demand. The study concludes that analysing the consumer sentiment of tourists is a valuable tool to employ for predicting tourism trends.

### 2.3. Tourism-Trade Nexus

Among the studies examining the nature and strength of the connection among tourism and international trade, Kadir and Jusoff (2010) analysed Malaysia, and Fry et al. (2010) focused on South Africa using cointegration and causality tests. Both studies found that increases in exports, imports, and total foreign trade led to higher revenues in the tourism sector. In research specifically addressing Türkiye, some studies identified a one-way causality from foreign trade to tourism demand (Çalışkan et al., 2010; Terzi and Tütüncü, 2010), while other studies found a bidirectional causality between the two variables (Özcan and Yorgancılar, 2016; Tandoğan and Genç, 2016). A recent study conducted by Ölmez and Tarakçı (2024) investigated the causality from trade variables to international tourist influx for the twenty most visited countries worldwide, and it was found that for four countries, causality runs from trade to tourist arrivals, and for three countries, causality runs from tourist arrivals to trade. On the other hand, bidirectional causality was found for only one country, which suggests that both tourism and trade stimulate each other.

Although numerous papers estimate the aspects affecting tourism demand for specific locations using tourism demand functions, there are very few studies that include variables related to foreign trade in these functions to measure the link between foreign trade and tourism demand. Habibi et al. (2009) conducted a study estimating tourism demand for Malaysia and found that a 1% increase in exports corresponded to a 0.20% rise in demand, indicating a positive relationship between the variables. Similarly, Leitao (2010) estimated the tourism demand function for Portugal and concluded that a 1% increase in total foreign trade increased tourist arrivals by 0.118%. Surugiu et al. (2011) included the foreign trade variable in their tourism demand function for Romania, and they found it positive and statistically significant at the 1% level. The study concluded that a 1% increase in foreign trade was accompanied by a 0.466% increase in tourist arrivals. Chaisumpunsakul and Pholphirul (2018) examined Thailand's tourism demand function using three models incorporating total trade, export, and import variables to assess the impact of foreign trade. They reported that a 1% increase in total foreign trade raises tourist arrivals by 0.080%. The study by Karimi et al. (2015) suggests that trade openness is a critical factor influencing international tourism demand. The authors conducted a cointegration analysis to demonstrate that FDI, real exchange rates, inflation, and trade openness can effectively predict international tourism demand for ASEAN countries. Their findings suggest that enhancing trade openness can lead to increased tourist arrivals and which helps to foster economic growth through the tourism sector. Wong and Tang (2015) investigated the connection between tourism demand and trade openness in Singapore. The

authors utilized multiple causality tests to analyse both aggregate and country-level data and found a significant positive correlation between increased international trade and tourism demand. Their findings suggest that as trade activities expand, they enhance the accessibility and attractiveness of Singapore as a tourist destination. This relationship shows the importance of trade liberalization in fostering tourism growth and authors argued that policies promoting trade openness could effectively stimulate the tourism sector and contribute to economic development in small open economies. Similarly, Golembski and Majewska (2018) utilized a gravity model to analyse the effects of transport infrastructure on international inbound tourism in Poland. Researchers found that trade agreements and partnerships significantly enhance tourism flows by improving transportation links and reducing travel costs. The analysis suggests that countries with stronger trade ties tend to experience higher levels of traveller flows, and this tendency may be utilised as a mechanism to magnify demand.

Even though there are relatively few studies estimating tourism demand for Türkiye using tourism demand function, these studies typically did not include variables related to foreign trade (Aslan et al., 2008; Kaya and Canlı, 2013; Özcan, 2015; Karaoğlu, 2019). Inclusion of foreign trade variables in the tourism demand function for Türkiye appears to be rare. One notable exception is the study conducted by Görmüş and Göçer (2010), where tourism demand for Türkiye from 32 selected countries during the period 2000-2006 was analysed. According to their findings, the foreign trade variable exhibited a positive and statistically significant relationship with tourism demand. Since this study has a temporal scope and includes the data from 2000 to 2006, we address the necessity to revise Türkiye's tourism demand dynamics given the significant structural shifts in its macroeconomic conditions and foreign trade patterns the country has experienced in subsequent years.

In contrast with these findings, the hypothesized causal relationship between foreign trade expansion and tourism demand growth remains contested in the literature. Other researchers provided counter-evidence regarding the issue. In their seminal work, Shan and Wilson (2001) found a two-way causality between international travel and trade in China which indicates a bidirectional relationship rather than a simple causal link. Ozer Balli et al. (2019) observed that export volume does not have a robust causality link with tourism demand for several of New Zealand's trading associates, especially for wealthier countries like Japan and the United States. Instead, they found that airline seat capacity was a more important factor in determining tourism demand for these particular countries. These findings suggest that the repercussions of foreign trade are context-dependent, and may be influenced by factors such as economic development, geographical distance, and transportation infrastructure.

Despite the well-established emphasis on economic determinants in shaping tourism demand, the potential influence of foreign trade remains rather underexplored in empirical research. While studies consistently prioritized conventional indicators, few integrated foreign trade dynamics into their analytical frameworks. Our research addresses this gap by explicitly including exports as a determinant of tourism demand. Also, we aim to determine whether the tourism-trade nexus follows a linear relationship across all periods or undergoes substantial shifts during exogenous shocks like the COVID-19 pandemic, which may decouple trade activity from tourism demand.

## 3. Data and Methodology

The research model developed in this study investigates the relationship between tourism and exports using a tourism demand function. The methodological framework of the model draws from previous studies by Leitao (2010), Surugiu et al. (2011) and Chaisumpunsakul and Pholphirul (2018). Equation 1 shows the demand function utilised in this study.

$$\begin{aligned} log(TUR)i,t_{i,t} &= \beta 0 + \beta 1 log(Export)i,t + \beta 2(RP)i,t + \beta 3 log(GDP)i,t \\ &+ \beta 4 log(POP)i,t + \beta 5 log(TURt-1)i,t + \beta 6(Pandemic)t \\ &+ \beta 7(Pandemic * log(Export))i,t + \varepsilon i,t \end{aligned} \quad (1)$$

All independent variables in the regression equation are expressed in logarithmic form, except for the variable related to relative prices which is an index number and has a base value of 100, along with dummy variables. The dependent variable measures the logarithm of tourist arrivals to Türkiye from country i in year t. $\beta_0$ represents the constant term in the model, while $\varepsilon_{i,t}$ denotes the error term. The exports represents the logarithm of the sum of exports between Türkiye and country i in year t.

The primary focus of this research is to analyse the relationship between tourism demand and exports which is the principal explanatory variable in the model. However, additional control variables, widely acknowledged in the literature for their impact on tourism demand, have been incorporated into the equation. One such control variable is $(RP)_{i,t}$ which assesses the influence of price level disparities between Türkiye and country i on tourism demand in year t. The variable was calculated using following formula:

$$RP_{i,t} = \frac{CPI_{Turkey}}{CPI_{Country\ i}} \quad (2)$$

Since literature states that the products of the sector follow the law of demand (Han et al., 2006; Nguyen, 2022), it was anticipated that an increase in the overall price level would negatively impact tourism demand for Türkiye, reflected by negative $\beta_2$ coefficients. The variable $\log(GDP)_{i,t}$ substitutes the logarithm of country i's GDP per capita in year t. Since tourism is typically considered a normal good (Crouch, 1992; Smeral, 2012), higher GDP levels among origin countries were expected to positively influence tourism demand, indicated by positive $\beta_3$ coefficients. $\log(Population)_{i,t}$ denotes the logarithm of country i's population in year t. Reflecting the viewpoint that a hike in the population of countries of origin enhances tourism demand for a specific location (Hanafiah and Harun, 2010; Khan, 2020), it was anticipated that a higher population in country i would positively affect tourism demand for Türkiye, as revealed by positive $\beta_4$ coefficients. $\log(TUR_{t-1})_{i,t}$ represents the logarithm of tourist arrivals to Türkiye from country i in year t-1. Including lagged dependent variables in regression serves to gauge the impact of habitual travel patterns on tourism demand. (Witt and Martin, 1987).

The $(Pandemic)_t$ variable functions as a dummy variable assigned the value of 1 during the years 2020 and 2021, encompassing the period of the COVID-19 pandemic. Its inclusion in the research aims to appraise the pandemic's impact. Given the significant reduction in international mobility and the contraction of the tourism sector during the epidemic, it was anticipated that the coefficient $\beta_6$ associated with this dummy variable would be negative.

The variable $(Pandemic*\log(Export))_{i,t}$ is another dummy variable employed to evaluate how changes in exports during the pandemic years of 2020 and 2021 affected tourism demand

for Türkiye. The dummy explicitly isolates the COVID-19 pandemic as an exogenous shock to test if the export-tourism relationship deviates from its pattern when confronted with extreme mobility restrictions. In this regard, the interacting dummy serves as a test for structural instability during shocks.

The time span is limited over the period 2011-2022 to evaluate the tourism demand function for Türkiye. Since the study mainly targets to estimate the impact of exports on tourism demand, the sample was limited to the 20 most prominent partners in Türkiye's foreign trade during the examined period. Table 1 shows the top 20 trade partners of Türkiye for the period 2011 to 2022 and the shares of these countries in Türkiye's foreign trade.

**Table 1. Sample Countries and Their Share in Türkiye's Foreign Trade (2011-2022)**

| Rank | Country | Share (%) | Rank | Country | Share (%) |
|---|---|---|---|---|---|
| 1 | Germany | 9,61 | 11 | UAE | 2,25 |
| 2 | Russia | 7,70 | 12 | The Netherlands | 2,07 |
| 3 | China | 7,05 | 13 | Switzerland | 1,92 |
| 4 | USA | 5,47 | 14 | India | 1,91 |
| 5 | Italy | 5,12 | 15 | South Korea | 1,87 |
| 6 | United Kingdom | 4,19 | 16 | Belgium | 1,81 |
| 7 | France | 3,84 | 17 | Romania | 1,69 |
| 8 | Spain | 3,06 | 18 | Polond | 1,60 |
| 9 | Iraq | 3,04 | 19 | Israel | 1,46 |
| 10 | Iran | 2,71 | 20 | Ukraine | 1,41 |

**Source:** Constructed by the authors by using IMF Direction of Trade statistics.

Tourist arrival statistics for Türkiye from its trade partner countries were sourced from the CBRT database. Data on total nominal exports between Türkiye and these trade partners were gathered from the International Monetary Fund's Direction of Trade portal and presented in millions of US dollars at current prices. GDP data for Türkiye's trade partners were obtained from the World Bank Database, calculated by using Purchasing Power Parity (PPP) and denominated in US Dollars. Annual Consumer Price Index (CPI) values and total population statistics for Türkiye and its trade partners were also extracted from the World Bank database.

## 4. Empirical Findings

Panel data analysis can be conducted using both static and dynamic models. Dynamic models like the Arellano-Bond GMM method (Arellano and Bond, 1991) require lagged variables as instruments, and that can lead to overfitting and weak instruments in small samples (Piper, 2015). Since our dataset covers only 11 years, we deemed dynamic models inapplicable for our research. Static models such as Fixed Effects, Random Effects, and Hausman-Taylor methods examine contemporary relationships between variables, and they are ideal for assessing immediate impacts. Hausman-Taylor method allows estimation of time-invariant variables even when some regressors are correlated with individual effects. But this estimator demands knowledge of which variables are correlated or uncorrelated with unobserved effects, and that is often arbitrary (Baltagi et al, 2003). Hence, we decided to choose between Fixed and Random Effect estimators. Random Effects assumes unobserved individual effects, like country-specific effects are uncorrelated with the independent variable. But if unobserved effects such as cultural ties and historical relationships are correlated with the independent variable, estimates become

biased and inconsistent (Baltagi, 2008). On the other hand, Fixed Effects controls for unobserved heterogeneity and produces unbiased estimates even if unobserved effects correlate with regressors. The main disadvantage of this method is that factors like geographic distance or historical ties are absorbed by the estimator and cannot be analysed (Collischon and Eberl, 2020).

Thus, we decided to use the Fixed Effects method since the geographical distance between Türkiye and source countries is not included in the research model, and the method provides estimators by controlling time-invariant regressors. But to prove the robustness of this choice, the Hausman test (Hausman, 1978) was executed to select between the Fixed Effects and Random Effects methods. This test's null hypothesis posits that the differences among the parameters are not systematic, which indicates that the convenient estimator for the model is the Random Effects method. Conversely, the alternative hypothesis suggests that the differences among the parameters are systematic, which favours the use of the Fixed Effects method as the appropriate estimator.

Based on the test result, the chi-square probability value (p) from the Hausman test was found to be 0.001, which is less than the significance level of 0.05. Therefore, we rejected the null hypothesis with a 1% margin of error, which means that the differences among the parameters are systematic. Consequently, the Random Effects method is deemed inconsistent for the model, and the appropriate estimator chosen is the Fixed Effects method.

The findings of the analysis conducted using the Fixed Effects method for the model are presented in Table 2.

**Table 2. Results of Panel Data Analysis**

| **Independent Variables** | **Dependent Variable: $log(TUR)_{i,t}$** | | | | | | |
|---|---|---|---|---|---|---|---|
| $log(Export)_{i,t}$ | 0.135<br>(0.267) | 0.198<br>(0.159) | 0.227<br>(0.137) | 0.237<br>(0.122) | 0.236<br>(0.122) | 0.234**<br>(0.044) | 0.211*<br>(0.073) |
| $(RP)_{i,t}$ | | -0.047<br>(0.369) | -0.028<br>(0.666) | -0.067<br>(0.362) | -0.053<br>(0.470) | -0.084<br>(0.135) | -0.091<br>(0.107) |
| $log(GDP)_{i,t}$ | | | -0.188<br>(0.623) | -0.100<br>(0.798) | -0.112<br>(0.775) | 0.750**<br>(0.014) | 0.821***<br>(0.008) |
| $log(POP)_{i,t}$ | | | | 1.349<br>(0.260) | 1.315<br>(0.272) | 4.205***<br>(0.000) | 4.269***<br>(0.000) |
| $log(TUR_{t-1})_{i,t}$ | | | | | 0.000<br>(0.216) | 0.000<br>(0.231) | 0.000<br>(0.160) |
| $(Pandemic)_t$ | | | | | | -1.026***<br>(0.000) | -2.083***<br>(0.010) |
| $(Pandemic*log(Export))_{i,t}$ | | | | | | | 0.125<br>(0.185) |
| Constant | 11.956***<br>(0.000) | 11.507**<br>(0.000) | 13.183***<br>(0.000) | -11.793<br>(0.600) | -11.158<br>(0.619) | -71.321***<br>(0.000) | -73.000***<br>(0.000) |

**Note:** ***, ** and * symbols refer to 1%, 5% and 10 % significance levels.

Analysis was initially employed for exploring the relationship between the dependent variable, which is tourist arrivals, and the main explanatory variable, exports. Subsequently, regression was conducted with the inclusion of supplementary control variables outlined in the study. According to the findings, the coefficient of the exports is 0.211 in the final specification

of the model. The estimator for this variable is statistically significant at the 10% level. Thus, a 10% rise in exports between Türkiye and its trade partners correlates with a 2.11% increase in the total number of tourists visiting Türkiye. This result supports the link between tourism and trade observed in prior studies and may likely arise from stronger business ties and heightened destination visibility through commercial networks. Likewise, improved transportation and logistical linkages like expanded flight routes or shipping connections due to trade growth may reduce travel costs and barriers, which stimulate tourism flows.

Among the control variables, the coefficient for the $(RP)_{i,t}$ variable reflecting relative price differences between countries was determined to be -0.091, but not significant. This may reflect limited within-country variation in prices or measurement challenges. While we cannot rule out a null effect, the point estimate is economically non-negligible, and we retain the variable given its theoretical importance. In this regard, we argue that a 10% increase in the level of relative prices in Türkiye coincides with around a 0.91% decrease in the total number of tourists visiting the country. This outcome supports the validity of the general law of demand in tourism for Türkiye.

The coefficient for the income variable was estimated as 0.821 and is statistically significant at the 1% level. This implies that a 10% rise in the incomes in the country of origin leads to a 9.12% increase in tourist arrivals to Türkiye. The fact that the demand elasticity is less than unity suggests that tourism demand for Türkiye is income-inelastic. This could reflect that Türkiye is perceived as a mid-range or non-luxury destination, where tourism growth does not fully keep pace with rising incomes in origin countries. Alternatively, it may indicate that higher-income tourists prefer more exclusive destinations, while the country continues to attract a steady but not proportionally expanding share of travellers as incomes rise.

The coefficient for the population variable was estimated as 4.269, which indicates that a 10% increase in the population of the country of origin leads to a 42.69 % surge in tourist arrivals. This strong positive effect, significant at the 1% level, aligns with the expectation that larger populations naturally generate more potential tourists. The magnitude of the coefficient suggests that Türkiye is a highly attractive destination for a broad demographic, possibly due to its affordability, cultural appeal, and geographic accessibility. This finding is consistent with studies showing that population growth in source markets is a key driver of tourism demand, particularly for mass-market destinations.

On the other hand, the coefficient for the lagged tourist arrivals variable was found to be statistically insignificant, with a point estimate close to zero. This suggests that past tourist flows do not significantly influence current arrivals, which contrasts with some tourism demand models where persistence through habit formation or network effects plays a role (Witt and Martin, 1987; Song et al., 2003). The absence of lag dependence may imply that Türkiye's tourism demand is primarily driven by contemporary economic factors which are included in the model.

The coefficient of the pandemic dummy variable, which took the value of 1 in 2020 and 2021, when the effects of the COVID-19 epidemic were heavily felt, took the value of -2.083 and came up as significant at the 1% level. This indicates that the COVID-19 pandemic led to a substantial decline in tourism demand for Türkiye. Additionally, the interaction term is used to assess the supplementary effect of changes in foreign trade on tourism demand for Türkiye

during the Covid-19 period, yielding a coefficient of 0.120. However, this coefficient was not statistically significant.

The interaction term between exports and the pandemic dummy yields a positive coefficient, which suggests that exports continued to support tourism demand during the crisis, consistent with theoretical expectations. However, the effect is statistically insignificant. This finding indicates that the relationship lacked robustness in pandemic disruptions. While the nominal directionality aligns with pre-crisis trends, the absence of significance implies that mobility restrictions effectively decoupled the export-tourism nexus during this period. The results show that while exports typically drive tourism demand, this relationship weakens significantly during extreme shocks that limit travel mobility.

When we compare the variables based on their impact on tourism demand, it can be seen that the leading factor is income in the country of origin, and it is followed by the population of the source countries. The significance and magnitude of the coefficient of the export variable are larger than the variable, which is the proxy of relative prices. This may be the result of Türkiye's positioning as a low and mid-cost tourism destination. Most interestingly, Türkiye's export activity exhibits a robust positive relationship with tourism inflows, which reinforces the idea that foreign trade stimulates tourism and highlights the role of commercial linkages in driving travel flows. These findings advocate for Türkiye to strategically prioritize trade partnerships with high-income and populated countries to bolster tourism growth resilient to crises, rather than focusing on short-term price competitiveness.

## 5. Conclusion and Policy Suggestions

This study utilizes panel data analysis to empirically examine the relationship between inbound tourism demand and foreign trade for Türkiye. The econometric framework specifically estimates a tourism demand function that incorporates a foreign trade-related variable along with conventional determinants. The analysis of the model indicates that a 10% increase in exports between Türkiye and its trading partners results in a 2.11% increase in the total number of tourists visiting Türkiye.

The results illustrate that exports, which serve as the key explanatory variable, exert a statistically significant positive influence on Türkiye's tourism demand. This finding corroborates earlier work by Chaisumpunsakul and Pholphirul (2018), Surugiu et al. (2011), and Habibi et al. (2009). The observed relationship suggests that bilateral trade relations stimulate tourism demand through strengthening interpersonal networks between trading countries, developing transportation and communication infrastructure critical for tourism mobility, and enhancing Türkiye's international visibility as a destination.

The assessment of the tourism demand function points out that the price elasticity of tourism demand for Türkiye is less than one, which is the case of inelasticity. These findings support the established view that price elasticity of tourism demand tends to be lower in developing economies relative to their developed counterparts (Eilat and Einav, 2004). This outcome positions Türkiye as a developing country with price competitiveness in international tourism since the country is minimally affected by price fluctuations. The income elasticity of demand, while close to one, is also inelastic. Gunter and Smeral (2016) observed that before the 2000s, the income elasticity coefficient of tourism demand was significantly higher than one for

many global tourist destinations. However, since the mid-2000s, this elasticity has been declining steadily. Authors attribute this trend to an increase in saving tendencies due to precautionary measures, as the global economic slowdown has heightened uncertainties about the future. In such an environment, consumers face liquidity constraints and prioritize basic needs over luxury goods like tourism. This trend has resulted in tourism demand's income elasticity falling below one. Additionally, the study concludes that an increase in the population of source countries raises the number of tourists traveling to Türkiye, whereas consumer habits do not significantly impact Türkiye's tourism demand.

But most importantly, this study provides critical insights into the dynamics between Türkiye's exports and inbound tourism demand with a special focus on crisis conditions. For this purpose, a dummy variable for the pandemic period and an interacting dummy of exports and pandemic are employed. The negative and statistically significant coefficient of the pandemic dummy variable captures the effect of COVID-19 mobility restrictions on Türkiye's tourism demand. This dummy, which shows the severity of the pandemic's impact on the tourism demand for Türkiye, isolates other economic factors and solely quantifies pandemic-related barriers on tourism like border closures and quarantine mandates. The significance of this dummy also confirms that the pandemic caused a structural break in Türkiye's tourism demand function. Unlike temporary fluctuations, this shock permanently altered the sector's responsiveness to traditional drivers like income, population, relative prices, etc.

The interacting dummy regarding exports during the COVID-19 period has a positive sign, which aligns with the hypothesis that exports foster tourism demand. But the variable lacks significance. The coefficient statistically demonstrates that the marginal effect of exports on tourism demand vanished during the pandemic period, and exports failed to stimulate tourism demand. From this context, it can be argued that the link between exports and tourism does not follow a linear pathway but could be distorted by exogenous shocks.

All these results support the idea that exports stimulate tourism during stable periods by showing a robust and positive relationship. Yet, this linkage weakens during exogenous shocks characterized by mobility restrictions. The dynamics of Türkiye's exports and tourism during the pandemic period highlight the fragility of this theoretical linkage under exogenous shocks. While exports demonstrated resilience, declining only marginally from 181 billion USD (2019) to $170 billion (2020) before surging to $225 billion in 2021, tourism demand collapsed catastrophically and decreased from 45 million annual visitors in 2019 to 13 million in 2020. Tourist arrivals recovered to just 24 million, which is far below the pre-crisis annual average of 34 million and failed to converge to its historical trend even by 2022, despite partial easing of restrictions in 2021. This asymmetry aligns with our econometric findings, which reveal that exports failed to stimulate tourism demand during the crisis. The persistent mobility constraints disrupted the trade-tourism link.

Within this framework, the COVID-19 pandemic served as a natural experiment and revealed that while Türkiye's exports demonstrated resilience, inbound tourism demand was severely impacted and recovered only partially. This asymmetry emphasizes the conditional nature of the tourism-trade channel since commercial activities can stimulate tourism only when paired with functional global mobility. The findings challenge assumptions of linear complementarity and instead emphasize the vulnerability of tourism to Black Swan events like geographical conflicts or pandemics that do not equally constrain trade.

Our findings clearly show that the GDP of source countries ranks as the most significant determinant of the tourism demand towards Türkiye. In other words, there is a strong correlation between the economic prosperity of these nations and their citizens' propensity to travel abroad. This conclusion aligns with existing literature, which emphasizes income as a critical driver of tourism demand since higher GDP levels facilitate greater disposable income for potential travellers. Following GDP, the population size of the source countries emerges as the second most influential factor. A larger population not only increases the number of potential tourists but also reflects a demographic structure that may be more inclined to travel internationally.

Interestingly, our analysis indicates that exports have a higher substantial influence on demand than relative prices for Türkiye, and price differentials rank third in this hierarchy. These findings challenge traditional views that prioritize price competitiveness as a primary driver of tourism. Though this study advocates that factors such as trade relations and economic openness significantly influence travel patterns. In addition, this insight suggests that strategies based on currency depreciation may not be the most effective approach to enhance tourism demand. Instead, it is imperative for the country to leverage its foreign trade dynamics as a strategic tool to stimulate tourism. By expanding its trade hinterland, Türkiye can foster stronger economic ties with potential tourist-generating markets, and this enables the flow of visitors to increase. In other words, as Türkiye's level of openness through international trade rises, tourism demand for the country is positively affected. In this context, expanding liberal trade policies and reducing restrictions on foreign trade will act as a catalyst for tourism demand.

The robust link between exports and tourism demand during stable periods gives a compelling rationale for policymakers to allocate government subsidies to initiatives that promote exports. Since these policies not only magnify exports but also cause a rise in tourism demand as an externality. Policymakers should also design cross-sectoral incentives that simultaneously boost export activity and tourism visibility. For example, Türkiye's thriving export industries could be leveraged in international tourism, which creates a feedback loop where trade success enhances destination appeal. Türkiye's cultural exports, like globally successful television shows and movies, give the country critical soft power to penetrate targeted source markets. Also, prioritizing infrastructure projects that serve both trade and tourism purposes, such as expanding cargo and passenger airports or developing new trade corridors through trade agreements, would be a sound idea. These approaches would maximize the multiplier effects of export growth on tourism.

Given the central idea of this research that exports fail to boost tourism demand during crises with strict mobility restrictions, policymakers should adopt alternative strategies independent from international mobility conditions to sustain the sector. In order to support businesses during such crises, local tourists may be incentivised through tax deductions like temporary exemptions of VAT. For instance, the government of Thailand applied a campaign called "We Travel Together" during COVID-19 that subsidised accommodation, air travel, and other amenities for Thai tourists and received favourable appraisal by locals (Dalferro, 2022).

Since Türkiye's tourism demand is critically determined by population size and income levels of the source countries, to leverage demand, policymakers should adopt segmented strategies that target high-income, low-population markets for premium experiences and that target highly populated developing markets for mass tourism. By aligning policies with the

population and income characteristics of origin countries, Türkiye can optimize arrivals, maximize revenue per tourist, and reduce reliance on any single market.

While this study provides valuable insights into the export-tourism nexus in Türkiye, certain limitations should be acknowledged. Firstly, the analysis focuses primarily on aggregate exports and tourism data, and this may mask variations between sectors. For instance, to see whether cultural exports generate stronger tourism spillovers than industrial goods would provide important results for the efficiency of the link between trade and tourism for Türkiye. Secondly, tourism demand was proxied by tourist arrivals, and that neglects the economic value of those arrivals. Using tourist expenditures of the respective trading partners would yield more accurate estimates of the demand characteristics. However, this data is not disseminated for Türkiye. And thirdly, findings are conditioned on Türkiye's unique position as a middle-income economy. Replicating this analysis in structurally distinct economies like small island tourism states, which depend solely on tourism, might give different results. Future studies could extend this work by disaggregating exports by sectors to identify high-synergy industries for targeted policy interventions and replicating the study across other developing economies to disentangle Türkiye-specific effects from broader patterns. Moreover, comparing crisis impacts in economies with varying degrees of export diversification and tourism dependency would offer empirically tested guidance for policy formulation.

**Declaration of Research and Publication Ethics**
This study which does not require ethics committee approval and/or legal/specific permission complies with the research and publication ethics.

**Researcher's Contribution Rate Statement**
The authors declare that they have contributed equally to the article.

**Declaration of Researcher's Conflict of Interest**
There are no potential conflicts of interest in this study. All opinions and views presented in this study are solely attributable to the authors and do not reflect the views of the affiliated institutions.

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