



Tourism Revenues and Energy Prices: A Dynamic Panel Analysis

Turizm Gelirleri ve Enerji Fiyatları: Dinamik Panel Veri Analizi

Arzu ALVAN 
H. Ali AKER 

Business Administration, Cyprus
Science University, Faculty of
Economics, Administrative and
Social Sciences, Girne, KKTC



ABSTRACT

The literature rarely studies tourism revenues and crude oil prices. There are few studies that focus on which countries, like China, Germany, Spain, France, the United Kingdom, Italy, Mexico, Thailand, Turkey, and the United States, are the most popular destinations with tourists, many of which are located on the European continent. In light of this perspective, this study provides insight into the period between 2010 and 2019. The purpose of this study is therefore to examine how crude oil prices affect tourism revenue. For the analysis, a dynamic panel data technique is used. Two econometric models were used for the empirical part of this study. One of these models includes tourism revenues as the dependent variable, whereas the other model includes only travel tourism revenues. According to the results, oil prices are significantly and positively associated with tourism revenues. Oil prices have a less significant effect on travel tourism revenues than they do on total tourism revenues, which include international passenger travel, but they are more significant if they affect only travel tourism revenues. Using the findings for tourism policy and management, strategies can be developed to manage oil price impacts on tourism.

Jel Codes: Z30, Z31

Keywords: Brent crude oil prices, dynamic panel data analysis, tourism receipts, travel-only tourism receipts

Öz

Turizm gelirleri ve ham petrol fiyatları literatürde nadiren çalışılmaktadır. Çin, Almanya, İspanya, Fransa, Birleşik Krallık, İtalya, Meksika, Tayland, Türkiye ve Amerika Birleşik Devletleri gibi çoğunun turistlerin en çok tercih ettiği ülkeler arasında yer aldığı ülkelerin dahil edildiği bir araştırmaya nadiren rastlanmaktadır. Avrupa kıtası, bu çalışmada ele alındığı şekliyle. Çalışma bu bulgu ile son bulmaktadır. Bu bakış açısıyla bu çalışma, 2010–2019 yılları arasındaki döneme ışık tutmaktadır. Sonuç olarak, çalışmanın temel amacı, ham petrol fiyatlarının turizm gelirleri üzerindeki etkilerini incelemektir. Analizlerde dinamik panel veri tekniği kullanılmıştır. Sonuçlar, petrol fiyatlarının turizm gelirleri üzerinde anlamlı ve pozitif bir etkiye sahip olduğunu göstermektedir. Bulguların turizm politikası ve yönetimi için çıkarımları vardır ve petrol fiyatlarının turizm üzerindeki etkilerini yönetmek için stratejiler geliştirmek için kullanılabilir. Bu çalışmanın ampirik kısmı iki ekonometrik model kullanılarak gerçekleştirilmiştir. Bu iki model bağımlı değişken olarak turizm gelirlerini içerirken, diğer model sadece seyahat turizmi gelirlerini içermektedir. Petrol fiyatlarının seyahat turizmi gelirleri üzerindeki etkisi, uluslararası yolcu seyahatlerini içeren toplam turizm gelirleri üzerindeki etkisinden daha az, ancak sadece seyahat turizmi gelirlerini etkiliyorsa daha anlamlıdır.

JEL Kodları: Z30, Z31

Anahtar Kelimeler: Brent ham petrol fiyatları, seyahat turizmi gelirleri, turizm gelirleri, dinamik panel veri analizi

Received/Geliş Tarihi: 16.12.2022

Accepted/Kabul Tarihi: 23.03.2023

Publication Date/Yayın Tarihi: 28.04.2023

Corresponding Author/Sorumlu Yazar:
Arzu ALVAN
E-mail: alvanarzu@gmail.com

Cite this article as: Alvan, A., &
Aker, H. A. (2023). Tourism revenues
and energy prices: A dynamic panel
analysis. *Trends in Business and
Economics*, 37(4), 226–236.



Content of this journal is licensed
under a Creative Commons
Attribution 4.0 International
License

Introduction

Tourism is always affected by the macroeconomic environment. There can be direct effects, such as fewer people traveling due to a recession, or indirect effects, such as fuel prices rising and raising travel costs. Macroeconomic events can affect the tourism industry in either case. Macroeconomic variables have been extensively discussed in the literature in relation to tourism development. Adapting

strategies to macroeconomic events and implementing mitigation measures is a requirement for governments and industries. Tax breaks and government subsidies may be used in some cases to encourage travelers. Adapting marketing strategies to different customer segments may be necessary in other cases.

The oil price spike during and after the pandemic significantly affected tourism revenues. Increasing transportation costs have also affected the tourism sector. This has caused many destinations to become less attractive to those looking to take a vacation or travel. As a result, many businesses have had to close or reduce their services due to a lack of demand. Likewise, many people have had to cancel or postpone their trips due to the financial burden. China, Germany, Spain, France, the United Kingdom, Italy, Mexico, Thailand, Turkey, and the United States are the top tourist destinations on the European continent, but there is very little research that examines these locations. In this study, the period between 2010 and 2019 is examined for these countries. The purpose of the study was to analyze the economic and social impacts of tourism in the top tourist destinations in Europe. The results of the study will help guide future decisions about tourism in the region.

Except for the United States, the countries included in the study are largely energy-importing countries. There is concern that Brent oil prices may increase costs in a variety of sectors, from manufacturing to tourism in these countries. Energy prices have a cost-increasing effect on the Turkish economy in service sectors, manufacturing, tourism, and so on, according to Beşel's study (Beşel, 2017). The price of Brent Crude Oil and the number of tourists arriving in the studied countries were the variables used in the econometric part of the study. Two different models were tested in the econometric part in which travel-only receipts and tourism receipts were dependent variables.

Additionally, price increases in the economy result in cost increases. The impact of these factors on income is dynamic. Due to the fact that dynamic panel data analysis was used in the study. Based on the possibility of internality between the variables being analyzed, the dynamic panel estimation technique can prevent the problem from occurring. This technique can provide reliable results while eliminating the endogeneity problem. In addition, dynamic panel estimation is a powerful tool to capture the effect of market prices on incomes over time (Akimov et al., 2009).

We can see in Figure 1 how global Brent crude oil prices and jet fuel prices are moving in parallel. Most travelers prefer to travel by airplane. Fuel is an important expense item for airlines. It is expected that crude oil prices will be in line with aviation fuel prices, which are the raw materials for aviation fuel. Airline companies buy and store fuel in advance, so new price increases do not reflect immediately on flight prices (Vogel, 2021). The delayed occurrence of airline flight costs is also seen in Figure 1. In the aforementioned study, we therefore applied dynamic panel data analysis based on this fact. This would enable us to determine the current effects of previous price increases.

As depicted in Figure 2, Europe's energy consumption between 1990 and 2011 can be divided into 14 types. There is a remarkably high energy consumption in the airline industry (between 10% and 15%). Considering tourism at a global level requires examining it from two different perspectives. Tourism on the domestic and international levels. Domestic tourism is generally easier to manage, as the government has greater control over it. International tourism, on the other hand, is more difficult to manage due to the need to coordinate with other countries. Therefore, it is important for governments to consider the effect of international tourism on energy consumption when formulating policies. The majority of tourists travel from developed countries to developing countries. Travel from European countries to other countries accounts for more than half of all global tourism. This leads to an increase in the demand for energy resources, which is a major contributor to global climate change. Therefore, governments must consider the impact of international tourism on energy consumption and the environment when formulating policies to ensure sustainable practices (Becken, 2011a). Consequently, oil prices affect both travel destination countries and travel source countries. US\$1.86 trillion accounted for 6% of total global trade in 2019, making global tourism one of the largest global trade revenue generators. The Covid-19 pandemic has had a drastic impact on this industry, with the World Tourism Organization estimating a 60–80% decrease in international tourist arrivals in 2020. This has had a major effect on both economies and jobs, with millions of people being affected by the downturn in the industry (World Trade Organization, 2020). Nonetheless, more than 6% of all refined oil production in the world goes to the aviation industry alone (Becken, 2011a). As of 2019, commercial airlines were consuming 95 billion gallons of fuel globally, an all-time high. The Coronavirus pandemic, however, resulted in fuel

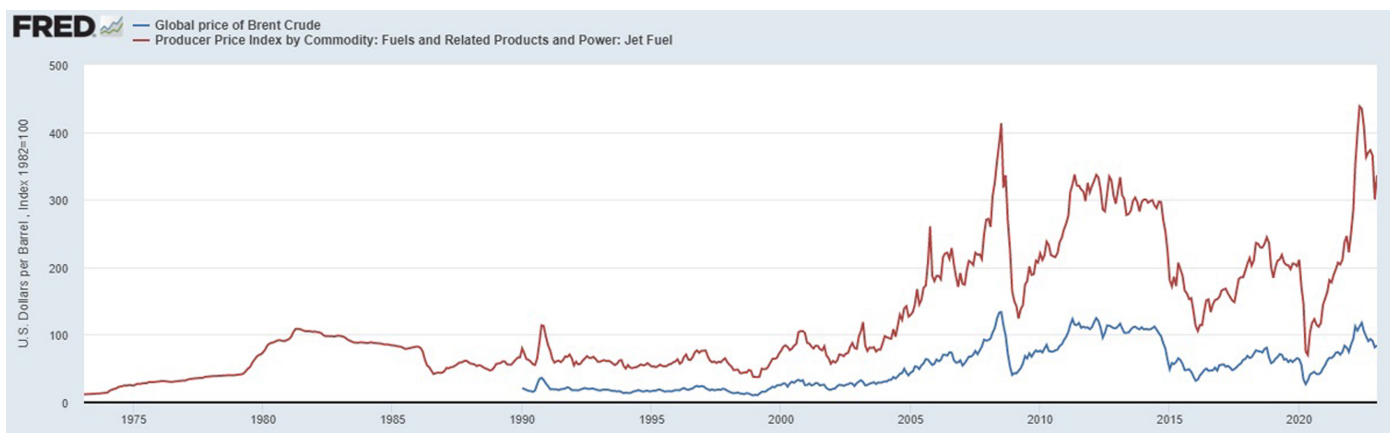


Figure 1. Global Price of Brent Crude Oil and Producer Price Index of Jet Fuel. Source: <https://fred.stlouisfed.org/series/POILBREUSDM#>

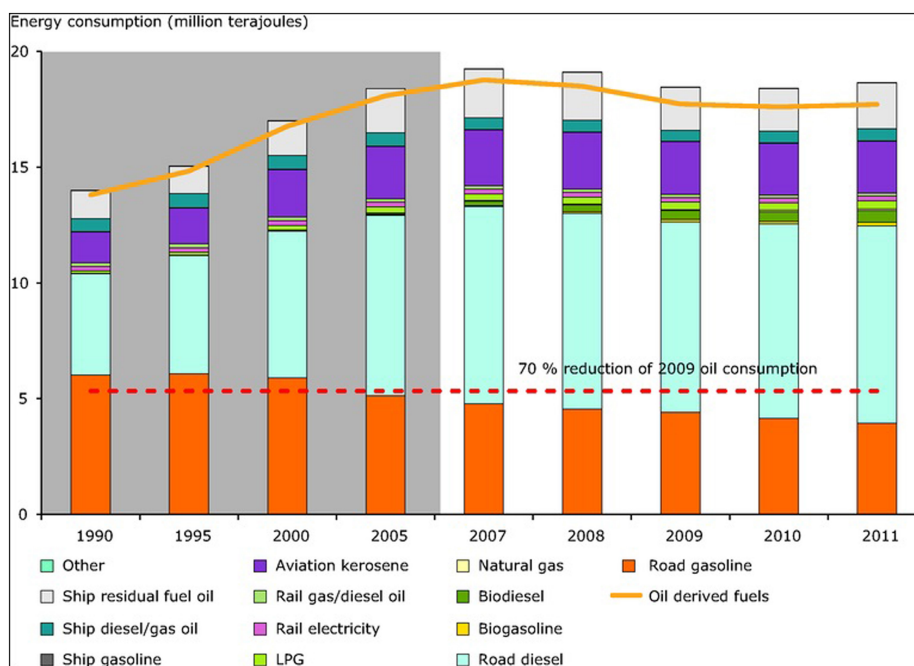


Figure 2. Energy Consumption by Type, EU. Source: <https://www.eea.europa.eu/data-and-maps/figures/term-01-transport-final-energy-1>

consumption falling to 52 billion gallons in 2020, only to reach 57 billion gallons in 2021. This decrease in consumption is expected to continue, as the aviation industry recovers slowly and more fuel-efficient aircraft are produced. The pandemic has also forced airlines to re-evaluate their business models, leading to more efficient use of fuel.

A rise in tourism oil prices greatly narrows the operations in the sector when viewed from the cost perspective. Oil price increases, for example, have considerably reduced New Zealand's tourism industry's value. (Becken, 2011a).

For this purpose, in the second part of the study, there is a section on the literature review, which reviews studies that deal with the relationship between macroeconomic variables and tourism. Afterward, a brief explanation is provided of the data and method to be used in the econometric analysis. The third part of the study presents the results and interpretations of the dynamic panel data analysis, and the fourth part evaluates and discusses these results according to the study's objectives.

Literature

As a general matter, the literature related to tourism discusses both its macroeconomic role and contribution to growth, as well as its impact on fluctuations in energy prices, especially oil prices. Although tourism is important for collecting foreign currencies, it can also negatively affect economies due to the rise in oil prices, as it is heavily dependent on foreign currency collection. With declining oil prices and inflationary effects, the revenue of the tourism sector follows an increasing trend in terms of its share of the global economy. The tourism sector has a positive effect on the economy by generating employment opportunities, foreign exchange, and other economic benefits. It can also contribute to economic and social development through taxation and investment in infrastructure. However, it is important to remember that the tourism sector is also vulnerable to external shocks such as natural disasters and political unrest.

As Lennox concluded in his study, the global oil supply will not be able to meet the rapidly increasing global demand without a significant increase in oil prices. As Lennox concluded in his study, the global oil supply will not be able to meet the rapidly increasing global demand without a significant increase in oil prices. The two-stage general equilibrium model is used in the empirical part of the study to measure the long-term economic effects of the persistent decline in global oil supply. Tourism exports are disproportionately affected by income and price effects, based on the results of the study. Different segments of the inbound tourist market experience different impacts. There are several important factors that affect the farthest markets, but distance is one of them. (Lennox, 2012).

According to this study, oil prices, exchange rates, and inflation in Pakistan have asymmetric effects on tourism demand based on an asymmetric cointegration model and a dynamic multiplier model developed by Shin, Y., Yu, B., and Greenwood-Nimmo, M. In addition to CO₂ emissions, institutional quality, oil prices, exchange rate, inflation, and tourism demand, the non-linear autoregressive distributed lag (NARDL) boundary test examined the possibility of cointegration among these variables (Shin et al., 2014). There is evidence that ignoring intrinsic nonlinearities may lead to incorrect conclusions. Tourism demand is negatively impacted by CO₂ emissions over the long term, whereas institutional quality is positively impacted by tourism demand, according to the predicted NARDL model. Moreover, the study's findings indicate a long-run asymmetric relationship between oil prices, exchange rates, inflation, and tourism demand (Meo et al., 2018).

Spanish tourism and indirect effects of peak oil on the economy are explored in Logar and Van Den Bergh's study. Different scenarios are created for oil and fossil fuel price increases, as well as the inflationary effects they will have. With the help of Tourism Satellite Accounts and extended input-output tables, these scenarios provide context for an input-output analysis (I/O). Three

steps are involved in the analysis: (1) applying an I/O price model to predict the increase in oil and other fossil fuel prices in Spain that will lead to a price increase in tourism services; (2) assessing how price changes will affect tourism demand; and (3) using an I/O demand model to estimate the impact of change in demand on the national economy. Among the air, water, road, and rail transport sectors, the tourism-related shares have seen the largest decline in output due to declining tourism demand. Following this are activities related to tourism agencies, rest areas, cultural activities, and hotels. A decrease in gross domestic product (GDP) of between 0.08% and 0.38% may lead to indirect and direct job losses ranging between approximately 20,000 and 100,000, depending on the oil price scenario adopted (Logar & Van Den Bergh, 2013).

Many empirical studies that examine oil price shocks in oil-exporting countries do not distinguish between different types of shocks, assuming that shocks and macroeconomic variables are linearly related. Additionally, it is assumed that oil-exporting countries respond homogeneously to oil price shocks. Based on a vector autoregression (VAR) model with price shocks estimated using the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) method, Moshiri examines the nonlinear effects of oil price shocks on macroeconomic performance. Two main interest rate variables are oil price shocks and economic growth, as well as intermediate variables such as investment, exchange rate, and inflation rate. For the period 1970–2010, nine major oil-exporting countries were included in the sample, six developing countries and three developed countries. There is a difference in the responses of oil-exporting countries to oil shocks among all of them. Development countries that export oil suffer from asymmetrical effects from oil shocks; lower oil prices lead to significant income cuts and stagnation in the economy, whereas higher oil prices and accompanying higher incomes do not lead to sustainable economic growth; in oil-exporting developed countries, it does not have a significant impact on economic growth. It appears that heterogeneous responses to oil price shocks in oil-exporting countries can also be explained by differences in their institutional quality, especially government activity (Moshiri, 2015).

According to Hassani et al., oil price volatility impacts tourism-related economic activities by driving up oil prices. In the analysis itself, perspectives on time, frequency, and information theory domains are considered. Using time domain, frequency domain, and converging cross-maps (CCM), this document analyzes causality for the USA as well as nine European countries. In contrast to parametric approaches, the CCM approach is non-parametric and is therefore not constrained by assumptions. A successful and demonstrative application of an advanced method and the identification of important causal links between oil prices and tourist arrivals contribute to existing research (Hassani et al., 2021).

Oil prices and tourism revenues have been studied by Hesami et al. (2020). The study found a cointegration between oil prices and tourism revenues. This study found that oil prices have a unidirectional effect on tourism revenues based on a Granger causality analysis (Hesami et al., 2020).

Inbound tourism contributes to economic growth in various countries that are dependent on tourism as an export item. The tourism-led growth hypothesis (TLGH) contributes to this literature for various countries that are dependent on tourism as

an export item (Deng et al., 2014; Gunduz et al., 2009). Oil price shocks, however, negatively affect economic growth for countries that are not exporters of crude oil (Jiménez-Rodríguez & Sánchez, 2005). Furthermore, countries' dependency on energy cannot be ignored as it contributes to economic growth significantly. This has caused devastating effects on the developed economies by using energy as a weapon of political control. (Faisal et al., 2021). By using Computable General Equilibrium (CGE) analysis, Becken and Lennox established an equilibrium model for tourism in light of future expectations of higher oil prices in their study. The purpose of their study is to explain tourism supply and demand in detail. They concluded that doubling oil prices would result in a general decrease in the balance of payments (Becken & Lennox, 2012). In his study, Becken discussed the dependence of tourism on oil. During his study, the author noted that an increase in oil prices may cause contractions in the tourism industry. Using non-fossil fuels and the green economy in the tourism industry as soon as possible will allow the sector to maintain its competitiveness (Becken, 2008). Additionally, Becken collected research findings regarding the relationship between tourism and oil from the literature. The study gives special attention to New Zealand (Becken, 2011b).

As a result of an increase in oil prices, Van Cranenburgh et al. claim that tourism will be negatively affected in multiple aspects by increasing the cost and changing consumer choice of destination, length of stay, and type of accommodation (Van Cranenburgh et al., 2014). As a result, a substantial increase in travel costs is likely to have major consequences for the tourism industry that extends beyond transportation. A previous study (Becken, 2011a), employing meta-analysis, asserts that the increase and scarcity of oil prices are going to change tourism and social life, leaving more remote destinations more vulnerable. Similarly, Al-Mulali et al.'s study on Malesia, an oil-exporting country, shows an asymmetric relationship (Al-Mulali, Gholipour, & Al-hajj, 2020). However, Chatziantoniou et al., utilizing a structural VAR model, found that oil price shocks on the demand side have no effect on tourism on the supply side (Chatziantoniou et al., 2013). This study investigated 19 randomly selected countries using an NARDL model. Several of these countries are also investigated in this study because they are the top 10 tourist destinations. Based on the exogenous factors of each country, the existence of the impact varies (Kisswani et al., 2020).

Hesami et al. contribute another viewpoint to the literature. For MENA countries, which are middle-east nations whose economies are primarily dependent on oil exports, the study examined the relationship between tourism receipts and oil prices. According to the study, rising oil prices are positively related to tourism receipts in the region (Hesami et al., 2020). Numerous studies have examined tourism and tourism-related topics on economies by using tourist arrivals as a variable in order to assess tourism's impact. As an example, one of the well-known studies about tourism's effect on the Maltese economy examined the subject using tourist arrivals rather than tourism revenues to avoid multicollinearity. (Katircioglu, 2009). Balaguer and Cantavella-Jordá, however, used tourism revenues as a variable to examine the same TLGH (Balaguer, 2002). Gunduz and Hatemi-j studied Turkey's hypothesis and faced multicollinearity problems in their model as well (Gunduz). Overall, both variables are used to evaluate tourism's impact on other variables. Tourist arrivals will be used as an independent instrumental variable for tourism receipts in this study.

Oil Prices and Travel Industry

Cruise ships carried 30 million passengers worldwide in 2019, according to the International Maritime Organization. From local coastal destinations to remote locations like Antarctica, cruises travel virtually everywhere in the world. It is possible for cruises to last for only a few days, but it is also possible for them to last for weeks or even months, as they usually travel across entire oceans or even around the world. In addition to air travel, road travel is another way to travel. Road transport in Organisation for Economic Co-Operation and Development (OECD) countries consumed 48.6% of total oil consumption in 2020, according to OECD Stats (2021). Travel is one of the most oil-sensitive industries, and on the other hand, tourism is a major consumer of refined petroleum. Further, there are concerns about “peak oil,” the point at which the rate at which petroleum is extracted reaches a level that is greater than it has ever been and begins to decline permanently.

According to Figures 3 and 4, oil accounts for the largest share of global energy consumption. A portion of the total oil demand is also consumed by the aviation industry, according to Figure 4.

Global energy consumption, 2000 to 2021

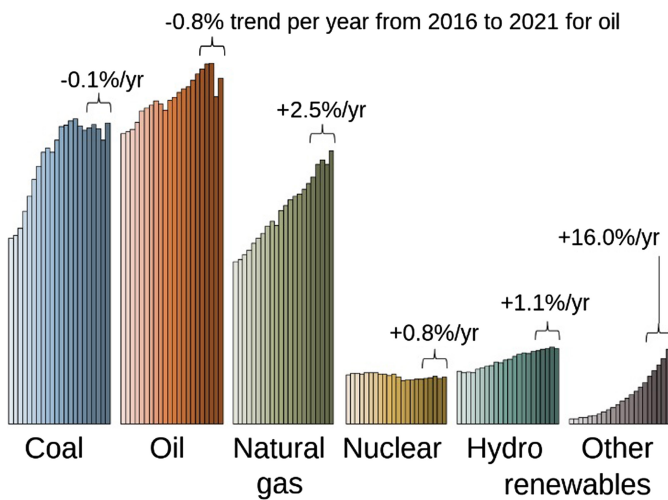


Figure 3. Global Energy Consumption. Source: https://en.wikipedia.org/wiki/World_energy_supply_and_consumption

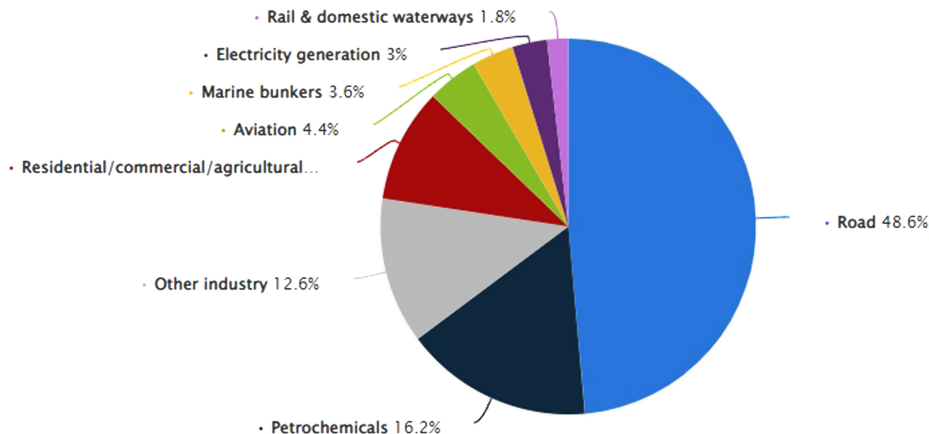


Figure 4. Distribution of Oil Demand by Sector (OECD, 2020). Source: <https://www.statista.com/statistics/307194/top-oil-consuming-sectors-worldwide/>

While planning for future years, the tourism industry should take into account the risk of increased costs due to rising oil prices. Tourism customers’ budgets are also impacted by higher oil prices, resulting in inflation and shrinking their budgets, which leads to changes in their consumption patterns. It is also possible that increasing oil prices will affect other sectors, resulting in unemployment and uneven income distribution, which could cause tourism to be perceived as a more luxurious service than it really is, narrowing the target market for tourism. Despite the fact that coal, natural gas, and renewable energy options are available, studies have shown that these resources contribute only a small amount of energy. (Becken, 2011a), particularly in the case of collective transportation, are not efficient enough.

Methodology

Data

The purpose of this study is to examine the effect of Brent Crude Oil Prices on tourism revenues and travel-only tourism revenues in the ten destinations that attract the most international tourists. For robust and effective results, we have selected the ten most visited non-oil-exporting countries. A dataset covering the period from 2010 to 2019 is used. In order to be as up-to-date as possible, we used data set between 2010 and 2019 to examine the most recent situation. Because of the global health problem, which started in 2020, the entire economy, particularly the tourism industry, ceased to function. In order to avoid including the Pandemic process, we used the years 2010–2019 as the last data before it, since there will be insufficient information during it. An analysis of dynamic panel data was conducted in the study. The research will involve two dynamic panel models covering 10 countries from 2010 to 2019. Sargan, Arrellano-Bond, and Hansen tests are performed to determine if the results are robust.

It is based on World Bank data. Two 10-country panels will be created for the period 2010–2019, as mentioned before. World Tourism Organization statistics indicate that these are the 10 countries with the highest number of international tourists (World Trade Organization, 2020)

Methodology

In our study, we used dynamic panel data analysis to eliminate the problem of the lagged model of the dependent variable being connected to the error term in static models. The models proposed by Anderson and Hsiao (1981) use instrumental variables

at different lagged levels. We adopted their suggestion and used two lagged levels of the independent variable as instruments to reduce the bias from lagged dependent variable. We also used the Arellano-Bond GMM estimator to estimate our dynamic panel data models. In other words, even though there is a correlation between the explanatory variables and the lagged variables, there is no relationship between them and the error term. Due to this, lagged instrumental variables can be used to estimate the model, but they may not be as efficient as other estimators (Arellano & Bond, 1991).

In the study, two econometric models were tested. Travel-only receipts are the dependent variable in one model, while tourism revenues are the dependent variable in the other. Travel tourism revenues only exclude international passenger transport, which makes it different from "travel tourism revenues only." Tourism revenue from international travel, which includes only expenses incurred by international tourists in the reporting economy, refers to the expenditures incurred by international tourists in the reporting economy. The passenger either purchases or receives goods and services free of charge for use or rendering on their behalf. All prepayments made in the country of destination must be included in these receipts. A dynamic panel data analysis is applied in the empirical part of the study, as described above. It is anticipated that the next phases of this study will shed light on the oil dependence of tourism passenger items and other revenues, largely from services.

Table 1 lists the sources from which the data for the variables in the study were obtained. As shown in Table 2, numerical data are provided for the variables used in the empirical part of the study.

Functional forms of the econometric models are represented as follows:

$$TR_t = f(OIL_t, ARR_t) \quad (1)$$

$$TO_t = f(OIL_t, ARR_t) \quad (2)$$

The dynamic panel data model to be investigated is demonstrated as follows:

$$\ln TR_t = \beta_0 + \beta_1 \ln TR_{t-1} + \beta_2 \ln OIL_t + \beta_3 \ln ARR_t + \psi_t \quad (3)$$

$$\ln TO_t = \lambda_0 + \lambda_1 \ln TO_{t-1} + \lambda_2 \ln OIL_t + \lambda_3 \ln ARR_t + \varepsilon_t \quad (4)$$

where in a period t , TR_t is the annual tourism revenue, TO_t is the annual travel only tourism revenue, OIL_t is Brent crude oil price, ARR is the number of tourists arrived to the country at each country. β_0 is the constant term of first model, $\beta_1, \beta_2, \beta_3$ are the elasticities of their variables respectively, ε_t is the error term of the first model, λ_0 is the constant term of second model, $\lambda_1, \lambda_2, \lambda_3$ are the elasticities of their variables respectively, ψ_t is the error term of the second model.

Table 1.
Data

Variable	Code	Unit	Source	Period
Tourism receipts	lnTR	USD	World bank data	2010–2019
Travel-only tourism receipts	lnTO	USD	World bank data	2010–2019
Tourist arrivals	lnARR	Unit	World bank data	2010–2019
Crude oil price	lnOIL	USD	World bank data	2010–2019

Dependent Variables:

TR_t ; represents the annual total tourism revenue of the country in current USD.

TO_t ; represents the annual travel-only tourism revenue which is international tourism receipts for travel items are expenditures by international inbound visitors in the reporting economy.

Travelers buy goods and services for themselves or on their behalf or they provide them without a quid pro quo, for use or distribution. Any other prepayments made for goods or services received in the destination country should also be included in these receipts. Additionally, they may include receipts from same-day visitors, unless they are of such significance as to warrant a separate classification. Carriage of travelers internationally is excluded, since it is covered under passenger travel items. All data are presented in current US dollars.

Empirical Results

This study examines the impact of Brent crude oil prices on tourism receipts in ten most visited countries. In this analysis, the years 2010–2019 are considered. A dynamic panel data analysis is applied to the data. Dynamic panel analysis requires more cross-sections (n) than years (t), so for ten countries, the maximum number of years must be less than. This is because there must be greater variation in cross-sectional data than in time-series data in order to obtain accurate results. Additionally, using more than one observation per cross-section may help to reduce the bias of the coefficients. As such, dynamic panel data analysis is a powerful tool that can be used to measure the impact of different variables over time. It is also useful for capturing the effect of both time-invariant and time-varying variables. These tests resulted in the following results:

Dynamic panel estimation shows a positive and significant relationship between one lagged tourism receipt value and its current value at 5%. Omri et al. found similar results. (Omri, Shahbaz, Chaibi, & Rault, 2015). According to the current study, the number of tourist arrivals and oil prices also play an important role in determining tourism receipts. As it is shown in Table 3, a significant 1% increase in oil prices has a 0.079% impact on tourism receipts. Also, tourist arrivals have a significant impact of 0.762% at a level of significance of 5%. Thus, an increase in oil prices of 1% translates to an increase in tourism receipts of 0.762% and an increase in tourist arrivals of 1% translates to an increase in oil prices of 0.079%. The results of this study suggest that oil prices and tourist arrivals are both important factors in determining the tourism receipts. Therefore, policies should be developed to both reduce the cost of oil and increase the number of tourists in order to maximize the tourism receipts.

Hence, the econometric model which infers that tourism receipts are dependent can be expressed as follows:

$$\ln TR_t = (0.348)\ln TR_{t-1} + (0.079)\ln OIL_t + (0.762)\ln ARR_t + \psi_t$$

Modeling the travel-only receipts as dependent can be done as follows:

$$\ln TO_t = (0.399)\ln TO_{t-1} + (0.087)\ln OIL_t + (0.695)\ln ARR_t + \varepsilon_t$$

In a similar way, there is a significant positive relationship between one lagged value of travel-only receipts and its current value at

Table 2. Tourism Receipts (TR, 1000 USD), Travel-only Tourism Receipts (TO, 1000 USD), and Tourist Arrivals by Country of Destination

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Crude Oil Price	79.609	111.264	111.570	108.555	98.969	52.316	43.638	54.124	71.335	64.300
France										
Tourism receipts	56178000	66133000	63975000	66054000	67402000	66441000	63557000	67717000	72518000	70776000
Travel only tr	46459000	55154000	53327000	56451000	58422000	58326000	55338000	59232000	65362000	63424000
Tourist arrivals	189826000	196595000	197522000	204410000	206599000	203302000	203042000	207274000	211998000	217877000
Spain										
Tourism receipts	58350000	67810000	62940000	68410000	71660000	62450000	66980000	75910000	81250000	79709000
Travel only tr	58348000	67809000	62936000	68414000	71656000	62449000	66982000	75906000	81420000	79611000
Tourist arrivals	93744000	99187000	98128000	103231000	107144000	109834000	115561000	121717000	124456000	126170000
United States										
Tourism receipts	1.61821E+11	1.78935E+11	1.95113E+11	2.13105E+11	2.22746E+11	2.30574E+11	2.28549E+11	2.33758E+11	2.41984E+11	2.39447E+11
Travel only tr	1.30315E+11	1.42197E+11	1.53921E+11	1.70981E+11	1.80264E+11	1.92602E+11	1.92866E+11	1.96468E+11	2.00722E+11	1.99365E+11
Tourist arrivals	162275000	147271421.9	1716229890.6	179309906.3	178311359.4	176864531.3	175261484.4	174291750	169324921.9	165478000
China										
Tourism receipts	45810000	48460000	50030000	51660000	44040000	44970000	44430000	38560000	40390000	49450000
Travel only tr	45814000	48464000	50028000	51664000	44044000	44969000	44432000	38559000	40386000	35832000
Tourist arrivals	133762000	135423000	132405000	129078000	128499000	133820000	141774000	153260000	158606000	162538000
Italy										
Tourism receipts	38430000	43270000	40940000	43830000	45560000	41415000	42423000	46719000	51602000	51910000
Travel only tr	38432000	43271000	40943000	43825000	45562000	39433000	40381000	44580000	49066000	49521000
Tourist arrivals	73225000	75866000	76293000	76762000	77694000	81068000	84925000	89931000	93228601.56	95399000
Turkey										
Tourism receipts	26318000	30302000	31566000	37984000	40028000	35648000	26505000	31993000	36791000	41415000
Travel only tr	22585000	25054000	25345000	27997000	29552000	26616000	18743000	22478000	25220000	29829000
Tourist arrivals	32997000	36769000	37715000	39861000	41627000	41114000	30907000	37970000	46113000	51747000
Mexico										
Tourism receipts	12628000	12458000	13320000	14311000	16606000	18729000	20619000	22467000	23802000	25847000
Travel only tr	11992000	11869000	12739000	13949000	16208000	17734000	19650000	21336000	22526000	24573000
Tourist arrivals	81953000	75732000	76749000	78100000	81042000	87129000	94853000	99349000	96497000	97406000
Thailand										
Tourism receipts	23796000	30924000	34565000	41765000	38451000	44851000	48459000	57057000	61383000	64371000
Travel only tr	20104000	27184000	30654000	37807000	34822000	41246000	44786000	52376000	56366000	59810000
Tourist arrivals	159366000	19230000	22354000	26547000	24810000	29923000	32530000	35592000	38178000	39916000
Germany										
Tourism receipts	49116000	53465000	51626000	55486000	58721000	50669000	52234000	55750000	59446000	58372000
Travel only tr	34557000	38928000	38054000	41283000	43277000	36895000	37476000	40011000	42895000	41779000
Tourist arrivals	26875000	28374000	30411000	31545000	32999000	34970000	35555000	37452000	38881000	39563000
United Kingdom										
Tourism receipts	3472000	38810000	4093000	4604000	51580000	5090000	47780000	47720000	48520000	50650000
Travel only tr	35168000	39067000	4118900	4658200	52665900	5194700	4875700	4818800	4994000	52529000
Tourist arrivals	30398000	31886000	32221000	33567000	35337000	36792000	39129000	41080000	40283000	40857000

Note: Authors calculations.

Table 3.
Regression Results of the Model in Which Tourism Receipts is
Dependent Variable (Intr)

Intr	Coefficient	Standard Error	t-value	p	95% CI
L	0.348	0.153	2.28	.023	0.049–0.648***
Inoil	0.079	0.027	2.95	.003	0.027–0.132***
Inarr	0.762	0.095	8.05	0	0.576–0.947***
Mean dependent variable	24.699 SD-dependent variable				0.611
Number of observations	80 Chi-square				

*** $p < .01$; ** $p < .05$.

1%. Travel-only receipts are affected by oil prices by 0.087% at the significance level of 1%. As it is in Table 4, travel-only receipts are at a significance level of 1%. In other words, when oil prices increase by 1%, travel-only receipts increase by 0.087%, while when tourist arrivals increase by 1% and travel-only receipts increase by 0.695%. The findings of this study have significant implications for policymakers and industry leaders. They can use the findings to make better-informed decisions about the tourism industry and its relation to oil prices. Additionally, it can be used to improve revenue forecasts for the tourism industry.

Hence, despite the fact that travel tourism revenues are less affected by oil prices than total tourism revenues, including international passenger travel, changes in oil prices are more significant for travel tourism revenues. It is primarily the cost of tickets purchased by travel companies that determine the difference between total tourism revenues and travel-only tourism revenues. A regression analysis of two models reveals that total tourism receipts are most sensitive to changes in crude oil prices, while other items of tourism are more sensitive to changes in crude oil prices. As a result of these findings, crude oil prices have a greater impact on total tourism facilities except for passenger items, although passenger items rely heavily on oil.

Table 4.
Regression Results of the Model in Which Travel-Only Receipts is
Dependent Variable (Into)

Into	Coefficient	Standard Error	t-value	p	95% Confidence Interval
L	0.399	0.15	2.66	.008	0.105–0.693***
Inoil	0.087	0.032	2.73	.006	0.025–0.15***
Inarr	0.695	0.167	4.16	0	0.368–1.023***
Mean dependent variable	24.584 SD-dependent variable				0.603
Number of observations	80 Chi-square				

*** $p < .01$.

We perform an Arellano-Bond test to determine the correlation between $Y_{it,t-1}$ (first difference between tourism receipts and travel-only receipts) and the idiosyncratic error term. This AR(1) coefficient represents the persistence or memory of the process that generated Y_{it} . The Arellano-Bond test is used to estimate the AR (1) coefficient and can be applied to a variety of panel-data models. An Arellano-Bond test can be used to test the hypothesis of no autocorrelation in the idiosyncratic error term. For the Arellano-Bond test, residual matrices are calculated to test for robustness. The null hypothesis states that the AR (1) coefficient is equal to zero, meaning that the errors are uncorrelated. If the test results reject the null hypothesis, then autocorrelation is present in the idiosyncratic error term. Robust estimation requires at least a 5% confidence interval from the AR1 test. It is recommended to use AR2 results whose confidence level is greater than 5% but not greater than 30% for more robust results. Therefore, it is important to use the AR2 test to determine the presence of autocorrelation in the data. If the AR2 test results are within the 5–30% range, then the autocorrelation is statistically significant.

Results of Arellano-Bond Test for Tourism Receipts (tr) Model:

Arellano-Bond test for AR(1) in first differences: $z = -2.00$ Pr > $z = 0.046$

Arellano-Bond test for AR(2) in first differences: $z = -1.45$ Pr > $z = 0.148$

Results of Arellano-Bond Test for Travel Only Tourism Receipts (to) Model:

Arellano-Bond test for AR(1) in first differences: $z = -1.88$ Pr > $z = 0.060$

Arellano-Bond test for AR(2) in first differences: $z = 0.04$ Pr > $z = 0.965$

Tourism receipts are affected by their first lag values, according to Arellano-Bond tests. According to dynamic panel results, tourism receipts one period delayed are significant in explaining energy consumption for both the panel and all units (countries), and the parameter sign is expected to be positive. Tourism receipts and travel-only tourism receipts are positively influenced by oil price elasticity and tourist arrivals. This implies that a decrease in the price of oil would lead to an increase in tourism receipts and that higher tourist arrivals would also increase tourism receipts. The findings of this research can help inform policy decisions related to tourism and energy consumption.

Conclusion and Recommendations

The diversified structure of the tourism industry has made it a significant contributor to economic growth in recent years. A similar effect is observed in the tourism industry as in other sectors of production. It aims to fill a gap in the literature since there are not many studies on the topic. Policymakers and stakeholders in the tourism sector will be able to use the results of this study to make better decisions.

The majority of tourists traveling around the world come from developed countries. As a tourist sender and a tourist attraction, the European Union region is one of the most developed regions in the world. This study aims to examine tourism revenues and travel-oriented tourism revenues in relation to oil, taking into account the region's average foreign energy dependence. For this purpose, we analyzed dynamic panel data using travel-only

receipts, tourism receipts, and number of tourist arrivals data from ten top tourism destinations, six of which are in the European Union region, between 2010 and 2019. Ten of the most visited tourist destinations are included in the data, such as France, Spain, the United States, Turkey, China, Italy, Mexico, Thailand, Germany, and the United Kingdom. Oil prices are more likely to affect tourism receipts than travel-only receipts, although tourism receipts are expected to reflect oil prices more strongly.

A number of studies in the literature support the empirical findings of the study. According to Lennox (2012), oil prices have a negative impact on tourism because they increase prices. Thus, oil prices increase tourism prices, which negatively affects the export-oriented tourism industry. These countries are subject to fluctuations in energy prices, which affect a variety of industries, including tourism. As a result, these countries are vulnerable to changes in oil prices and are affected by the volatility of the oil market. This implies that oil prices have a direct impact on the tourism sector in energy-importing countries. In their study, Logar and Van Den Bergh (2013) found a price elasticity of demand of -0.50% in the tourism sector. Therefore, an increase in prices of 1% will increase tourism demand by 0.5% . Tourism prices increase due to oil prices, according to the study. Policymakers should take seriously this positive interaction between the increase in energy prices and the increase in travel costs. Investments should be made in alternative and renewable energies, taxes should be imposed on air travel, which costs even more, and public transport should be improved. As well as these, eco-tourism investments should also be considered. These investments should be made in a way that would not burden the general public but would rather be subsidized by the government to ensure their sustainability. Furthermore, the environmental impact of these initiatives should also be taken into account.

With the world's transition to green energy in sight, if oil runs out in a not-too-distant future, it would be the right step for economies to have already made their transitions to green energy. Currently, it is imperative that the tourism sector, whose commitment and sensitivity to oil have been redefined in literature as well as in this study, is flexible enough to make the transition to green energy. This topic is rarely discussed in the literature. In order to make tourism more sustainable, we need to begin studying the use of green energy now. In the near future, there may be more empirical or theoretical studies on this topic. Consequently, tourism will be more competitive in the future as a result of this step.

A very wise move would be to invest as soon as possible in infrastructure to use fossil-free fuels, especially in international airline transportation. As a result of this study, policy makers should pay close attention to its results, since many of these countries have the highest tourist traffic and import the largest amounts of oil. Tourist revenue is a major source of income for these countries, and by understanding the impact of oil prices on tourism, policy makers can make better decisions regarding their economic strategies. Furthermore, understanding the relationship between oil prices and tourism can help countries plan their energy and tourism policies to ensure a more stable and prosperous economy. A policy consequence of the study may be: First, tourism investors should plan their business by accounting for oil price fluctuations, with the understanding that these changes will affect tourism prices. Second, governments should consider oil prices when setting tourism policies, such as taxation and subsidies, to

ensure the sustainability of their tourism industry. Finally, countries should invest in alternative energy sources to reduce their dependence on oil and ensure their economies are more resilient against oil price shocks. Politicians pay attention to movements in oil prices. To measure risks, the oil market fluctuations must be followed, in order to determine the risks. Various factors are considered when assessing oil sensitivity, such as national income, local reserves, input costs, and alternative energy sources. It is therefore possible to investigate the relationship between the tourism sector and macroeconomic variables during and after the pandemic in future studies. Economic growth can also be discussed during this period. Finally, this would provide an insight into the role of the tourism sector in the overall economic recovery. It could also help to identify strategies and policies to support the sector in order to ensure its sustainability. Additionally, the impact of the pandemic on the tourism sector could be evaluated in order to better understand the long-term implications.

Ethics Committee Approval: This study was approved by Ethics committee of Cyprus Science University (Approval No: December 7, 2022, Date: 2022/12.003).

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – A.A.; Design – A.A.; Supervision – A.A.; Resources – A.A.; Materials – H.A.A.; Data Collection and/or Processing – H.A.A.; Analysis and/or Interpretation – A.A.; Literature Search – A.A., H.A.A.; Writing – A.A.; Critical Review – A.A.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

Etik Komite Onayı: Bu çalışma için etik komite onayı Kıbrıs Bilim Üniversites'i'nden (Tarih: 7 Aralık 2022, Sayı: 2022/12.003) alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir – A.A.; Tasarım – A.A.; Denetleme – A.A.; Kaynaklar – A.A.; Malzemeler – H.A.A.; Veri Toplanması ve/veya İşlemesi – H.A.A.; Analiz ve/veya Yorum – A.A.; Literatür Taraması – A.A., H.A.A.; Yazıyı Yazan – A.A.; Eleştirel İnceleme – A.A.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazar bu çalışma için finansal destek almadığını beyan etmiştir.

References

- Akimov, A., Wijeweera, A., & Dollery, B. (2009). Financial development and economic growth: Evidence from transition economies. *Applied Financial Economics*, 19(12), 999–1008. [\[CrossRef\]](#)
- Al-Mulali, U., Gholipour, H. F., & Al-hajj, E. (2020). The nonlinear effects of oil prices on tourism arrivals in Malaysia. *Current Issues in Tourism*, 23(8), 942–946. [\[CrossRef\]](#)
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277–297. [\[CrossRef\]](#)
- Balaguer, J., & Cantavella-Jorda, J. (2002). Tourism as a long-run economic growth factor: The Spanish case. *Applied Economics*, 877–884.
- Becken, S. (2008). Developing indicators for managing tourism in the face of peak oil. *Tourism Management*, 29(4), 695–705. [\[CrossRef\]](#)
- Becken, S. (2011a). A critical review of tourism and oil. *Annals of Tourism Research*, 38(2), 359–379. [\[CrossRef\]](#)
- Becken, S. (2011b). Oil, the global economy and tourism. *Tourism Review*, 66(3), 65–72. [\[CrossRef\]](#)
- Becken, S., & Lennox, J. (2012). Implications of a long-term increase in oil prices for tourism. *Tourism Management*, 33(1), 133–142. [\[CrossRef\]](#)

- Beşel, F. (2017). Oil prices affect current account deficit: Empirical evidence from Turkey. *Journal of Applied Research in Finance and Economics*, 3(2), 13–21.
- Chatziantoniou, I., Filis, G., Eeckels, B., & Apostolakis, A. (2013). Oil prices, tourism income and economic growth: A structural VAR approach for European Mediterranean countries. *Tourism Management*, 36, 331–341. [\[CrossRef\]](#)
- Deng, T., Ma, M., & Shao, S. (2014). Research Note: Has international tourism promoted economic growth in China? A panel threshold regression approach. *Tourism Economics*, 20(4), 911–917. [\[CrossRef\]](#)
- Faisal, F., Rahman, S. U., Chander, R., Ali, A., Ramakrishnan, S., Ozatac, N., Ullah, M. N., & Tursoy, T., & Tursoy, T. (2021). Investigating the nexus between GDP, oil prices, FDI, and tourism for emerging economy: Empirical evidence from the novel fourier ARDL and hidden cointegration. *Resources Policy*, 74, 102368. [\[CrossRef\]](#)
- Gunduz, L., & Hatemi-J, A. (2005). Is the tourism-led growth hypothesis valid for Turkey? *Applied Economics Letters*, 12(8), 499–504. [\[CrossRef\]](#)
- Hassani, H., Ghodsi, M., Huang, X., & Silva, E. S. (2021). Is there a causal relationship between oil prices and tourist arrivals? *Journal of Applied Statistics*, 48(1), 191–202. [\[CrossRef\]](#)
- Hesami, S., Rustamov, B., Rjoub, H., & Wong, W.-K. (2020). Implications of oil price fluctuations for tourism receipts: The case of oil exporting countries. *Energies*, 13(17), 4349. [\[CrossRef\]](#)
- Jiménez-Rodríguez, R., & Sánchez, M. (2005). Oil price shocks and real GDP growth: Empirical evidence for some OECD countries. *Applied Economics*, 37(2), 201–228. [\[CrossRef\]](#)
- Katircioglu, S. (2009). Testing the tourism-led growth hypothesis: The case of Malta. *Acta Oeconomica*, 59(3), 331–343. [\[CrossRef\]](#)
- Kisswani, K. M., Zaitouni, M., & Moufakkir, O. (2020). An examination of the asymmetric effect of oil prices on tourism receipts. *Current Issues in Tourism*, 23(4), 500–522. [\[CrossRef\]](#)
- Lennox, J. (2012). Impacts of high oil prices on tourism in New Zealand. *Tourism Economics*, 18(4), 781–800. [\[CrossRef\]](#)
- Logar, I., & Van Den Bergh, J. C. J. M. (2013). The impact of peak oil on tourism in Spain: An input–output analysis of price, demand and economy-wide effects. *Energy*, 54, 155–166. [\[CrossRef\]](#)
- Meo, M. S., Chowdhury, M. A. F., Shaikh, G. M., Ali, M., & Masood Sheikh, S. (2018). Asymmetric impact of oil prices, exchange rate, and inflation on tourism demand in Pakistan: New evidence from nonlinear ARDL. *Asia Pacific Journal of Tourism Research*, 23(4), 408–422. [\[CrossRef\]](#)
- Moshiri, S. (2015). Asymmetric effects of oil price shocks in oil-exporting countries: The role of institutions. *OPEC Energy Review*, 39(2), 222–246. [\[CrossRef\]](#)
- Omri, A., Shahbaz, M., Chaibi, A., & Rault, C. (2015). *A panel analysis of the effects of oil consumption, international tourism, environmental quality and political instability on economic growth in MENA region* (pp. 2015–2613). Ipag Business School.
- Ritchie, J. R. B., & Hudson, S. (2009). Understanding and meeting the challenges of consumer/tourist experience research. *International Journal of Tourism Research*, 11(2), 111–126. [\[CrossRef\]](#)
- Shin, Y., Yu, B., & Greenwood-Nimmo, M. (2014). Modelling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework. *Festschrift in honor of Peter Schmidt: Econometric Methods and Applications*, 281–314.
- Van Cranenburgh, S., Chorus, C. G., & van Wee, B. (2014). Vacation behaviour under high travel cost conditions—A stated preference of revealed preference approach. *Tourism Management*, 43, 105–118. [\[CrossRef\]](#)
- Vogel, H. L. (2021). *Travel industry economics: A guide for financial analysis*. Springer nature.
- World Trade Organization (2020). World Bank open data. Retrieved from data.worldbank.org

Geniřletilmiř Özet

Makroekonomik olaylar her zaman Turizm sektörünü doğrudan etkilemiřtir. Ekonomik durgunluk nedeniyle daha az seyahat eden insanlar veya yakıt fiyatlarının artması ile artan seyahat masrafları buna örnektir. Makroekonomik olayların Turizm sektörüne olan etkisi literatürde sıkça tartiřılan arařtırma konularından biridir. Öte yandan, Turizm gelirleri ve ham petrol fiyatları literatürde nadiren çalıřılmaktadır. Turizm, döviz toplama aısından önemli olmakla birlikte, petrol fiyatlarındaki artış nedeniyle ekonomileri de olumsuz etkileyebilmektedir çünkü, büyük ölçüde döviz tahsilatına bağımlıdır. Örneğın, küresel ekonomide düşen petrol fiyatları Turizm sektörünü olumlu etkiler ve istihdam olanakları yaratır. Ayrıca, vergilendirme ve yatırımlar da ekonomik ve sosyal kalkınmayı destekler. Burada hatırlanması gereken önemli unsur Turizmin de en az diğeri sektörler kadar doğal afetler ve siyasi huzursuzluk gibi dış şoklara karşı hassas oluşudur. Çin, Almanya, İspanya, Fransa, Birleşik Krallık, İtalya, Meksika, Tayland, Türkiye ve Amerika Birleşik Devletleri gibi turistlerin en çok tercih ettiğı ülkeler arasında yer aldığı ülkelerin dahil edildiğı bir arařtırmaya nadiren rastlanmaktadır. Bu bakış açısıyla bu çalıřma, 2010–2019 yılları arasındaki döneme ışık tutmaktadır. Dolayısıyla, çalıřmanın temel amacı, ham petrol fiyatlarının turizm gelirleri üzerindeki etkilerini incelemektir. Çalıřmanın uygulama kısmında turizm gelirleri ve sadece seyahat amaçlı turizm gelirlerinin bağımlı değıřkenler olarak kullanıldığı iki ana model analiz edilmiřtir. Çalıřmada sağıam ve etkili sonuçlar elde edebilmek amacıyla en çok turist çeken ülkelerden on tanesi ele alınmıřtır. Bunlar ağırlıklı olarak petrol ihraç etmeyen ülkeler arasından seçilmiřtir. Veri seti 2010- ve 2019 yılları arasında kapsar. Daha güncel bir çalıřma olabilmesi için alınabilecek en yakın zaman dilimi olarak bu yıllar kullanılmıřtır. 2020 yılında bařlayan küresel sağıık sorunu tüm ekonomileri ve elbette en bařta turizm sektörünü etkilemiřtir. Bu süreci çalıřmaya dahil etmemek için veriler 2019 yılı ile sınırlandırılmıřtır.

Çalıřmanın uygulama kısmında dinamik panel veri tekniğı kullanılmıřtır. Dinamik panel analizinde, yıllardan (t) daha fazla kesit (n) gerektirir, yani on ülkenin ele alındığı bu çalıřmada, maksimum yıl sayısı ondan az olmalıdır. Bunun nedeni, yatay kesit verilerinde daha fazla varyasyon olması gerektiğidir. Doğru sonuçlar elde etmek için yatay kesit sayısının zaman serisi verilerinden daha fazla olması gereğı bundandır. Bunlara ek olarak, kesit başına birden fazla gözlem kullanmak, katsayıların yanlılığını azaltmaya yardımcı olur. Bu nedenle, dinamik panel veri analizi, zaman içinde farklı değıřkenlerin etkisini ölçmek için kullanılabilir güçlü bir araçtır. Aynı zamanda, hem zamanla değıřmeyen hem de zamanla değıřen değıřkenlerin etkisini yakalamak için de yararlıdır. Sonuçlar, petrol fiyatlarının turizm gelirleri üzerinde anlamlı ve pozitif bir etkiye sahip olduğunu göstermektedir. Bulguların turizm politikası ve yönetimi için çıkarımları vardır ve petrol fiyatlarının turizm üzerindeki etkilerini yönetmek için stratejiler geliřtirmek için kullanılabilir. Petrol fiyatlarının seyahat turizmi gelirleri üzerindeki etkisi, uluslararası yolcu seyahatlerini içeren toplam turizm gelirleri üzerindeki etkisinden daha az, ancak sadece seyahat turizmi gelirlerini etkiliyorsa daha anlamlıdır.