

Differences in Tourism Demand: A Comparison between Developed and Developing Economies

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ABSTRACT

Tourism is important in bringing a positive socioeconomic change in the form of creating jobs, increasing income and welfare. The study at hand employs the generalized method of moments approach in the course of investigating the dynamic relationship of tourism expenditures, GDP, globalization, CO2 emissions, and exchange rate with tourism demand during 1995-2014. A total of 50 countries are included in this research study, which is divided into two categories, i.e. 25 developed economies and 25 developing countries. Based on the Panel GMM estimates, for both economies and overall sample, the findings reveal a positive and a significant association between tourism expenditures, world income, globalization and GDP per capita, while there are mixed results for the real exchange rate, environment quality and government effectiveness. It can be suggested that the governance, growth, environment protection and exchange rate management policies can be tapped to boost the tourism receipts.

JEL Classification: A10, Z3, Z32

Keywords: Panel GMM, Tourism, globalization, environmental quality, tourism expenditures, panel data study.

INTRODUCTION

The tourism industry is expanding around the globe with every passing day. Tourism contributes substantially to the economies of both developed as well as developing countries (Arain et al., 2020; Rasheed et al., 2019; Fareed et al., 2018). The latest tourism barometer reveals that tourism retained momentum, and there is a six percent growth in the first few months of 2017 (UNWTO, 2017). The importance of tourism can also be judged from by the growing studied in the economics of tourism. Economic implications are highly visible in this perspective when we take leisure as a product for tourists. Numerous factors can be said to be accountable for the demand for leisure and the volume of tourists visiting different tourist sites. Among these factors and most importantly is the outbreak of coronavirus, otherwise known as Covid-19. Other factors which affect tourist demand are the degree of openness and green or eco-tourism as they are very instrumental and visible. December 2019 shackled the world with news of first case of novel corona virus (2019-nCoV). It has impacted the tourism industry severely following the fact that virtually all the countries in the world placed a ban on flights movement across nations (Estrada et al., 2020). The government of china has directed health authorities to closely monitor and analyze the CoV-19 situation. (2019-nCoV).

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Furthermore, since December 2019, a total of 6,884,943 cases have been reported in the world as at 6th of July 2020. 399,001 were also reported to have lost their lives to the pandemic as at 6th of July 2020. Also, in the same vein, a total of 3,375,437 were reported to have recovered from the virus. More so, about 215 countries have been reported to have been affected by the virus. USA is the most hit countries given that about 1.9 million people were already victims of the virus while Brazil which is next hit country recorded cases of 46,006 as at 6th of July 2020 (Chinazzi et al., 2020).

The high level of the outbreak spread to several countries resulting in lockdowns, as this has dramatically taken a heavy toll on the business of tourism. From the beginning of 1950s the international tourism has experienced most significant growth, and the number has tremendously increased from 25 million to 450 million in 90s, which further skyrocketed in 2010s. By the year 2018, the number of arrivals was reported to have increased to 1.4 billion. It was estimated by the United Nations World Tourism Organization to account for \$1.4 trillion, and it also represents 7% of the world goods and services (RTE, 2020).

Various factors have driven the high growth in tourism, among which is “the growth of new technologies, new lifestyle trends. These are associated with globalization, alongside the advent of low-cost airlines which has made international travel cheaper for the masses. The aforementioned explosion of tourism numbers in the last 30 years may also be said to be due to the improvement in the status of the middle-class people in the highly populated countries of the world such as China, Brazil and India (RTE, 2020). The movement of such a massive number of people and associated expenditures has usually been for leisure and business” reasons. It had a great impact on the local, regional as well as on the national economies across the world.

The tourism sector has the potential to promote different economic sectors in a country. It has played a very instrumental role in transforming different countries, mainly African countries, where tourism provides 21 million jobs along with more than 56 million tourists arrive every year (WB, 2013). The data released by the World Travel and Tourism Council reveal that the tourist industry has contributed more than 8 trillion dollars in the global economy (WTTC, 2016). While this industry has contributed US\$7.6 trillion, that is 10.2% of world GDP and employed 292 million workforce (Crotti & Misrahi, 2017). There are natural as well as a man-made tourist attraction that affects the behaviour of tourists and their attraction. Besides the natural beauty, different seasons are also responsible for generating cyclical and secular swings in the visit of tourist to a particular region or a country. Keeping in perspective of these changes, different countries are focusing on the development of this sector while taking different measures. For instance, the re-engineering of the tourist sites and innovation and animation is shaping the emerging trends in this sector. Tourists become very choosy in this fast globalizing world because now they have speedy access to the information and facilities about different tourist sites. In this situation, tourists prefer new destinations to past destinations as they desperately look for new sites. The tangible aspect of tourism, which requires putting the relevant infrastructure in place is critical in attracting tourists.

The tourist industry is said to be a source of foreign exchange earnings. It has the potential to stimulate economic growth through an increase in the level of demand facilitated by tourists. The tourist visited markets besides the cultural and tourist sites. This brings about an increase in the demand for domestically produced goods and services, which in turns results in a series of economic activities. The world economies are eager to attract foreign tourist to spur

economic growth. Governments are taking different initiatives to provide a conducive environment for tourists to materialize the dividends associated with the tourism sector.

Quite a number of related studies exist in this area. However, the ones that focused on the comparison between tourism demands in developed and developing countries are scanty. It was observed among the few ones that exist that a variable considered important and a major factor when it comes to demand for goods and services across the border was excluded. The few studies in this area such as Chai-Aun and Ahmad (2015) considered variables such as CO2 emissions, economic growth, population, FDI and arrivals. However, they failed to incorporate the exchange rate as a variable into the model of his study. Their study may be considered inadequate due to the failure to consider the exchange rate. This study, therefore, contributes to knowledge by adding the real exchange rate into the model of the study. The real exchange rate was introduced into this study, given the role it plays in demand for foreign goods and services. *Ceteris paribus*, the exchange rate can be said to have a positive relationship with foreign demand for domestic goods and services tourism inclusive. The demand for a tourist service becomes cheaper to foreigners when the exchange rate of the domestic country increases. Furthermore, this study contributes to the literature by adding the most important factors that effecting tourism demand, comparing tourism demand in developed and developing economics. Furthermore, we used a large panel of countries and conducted a comparative study which will contribute to the existing literature.

Research Objectives

In line with the illustrated merits of tourism, this study constructs the model of tourism demand for developed and developing economies. A comparison will be made regarding differences in the way proposed indicators like growth, environmental quality, openness, relative prices, incomes and governance influence tourism demand for developed and developing economies controlling for the level of development and differences in currency rates.

LITERATURE REVIEW

The considerable volume of literature is available, which has made tourism an important aspect of the economy. Empirical studies prompted the behaviour of tourists and initiatives of the governments are essential factors for tourism demand. The global tourist sector can be described as a dynamic and focused industry where a continual adjustment to clients' changing needs and longings is paramount. The importance of international tourism is visible from the initiatives and arrangements of international organisations that concentrate on the choices of the tourist consumers, their protection, and means of entertainment.

The available literature also explores the causality of tourism and growth. For example, a bi-directional causality was revealed between tourism and economic growth (Dritsakis, 2004; Demiroz & Ongan 2005; Isik, Dogru & Turk, 2018). Massidda and Mattana (2012) have found unidirectional causality running from GDP to international tourist arrivals. Furthermore, Agiomirgianakis et al. (2014) also found out that there exists a positive and a significant relationship between GDP per capita on tourism demand.

Another area where literature on tourism-focused is the spread of globalism, for instance, the study by Azarya (2004) has found out that a strong relationship exists between globalization and tourism. It allows the enterprises to make a globalized strategy for international presence

(Knowles, Diamantis, & El-Mourhabi, 2001). Similarly, increased interconnection allows tourists to have online reservations, and instant information availability further flourishes in the tourism sector (Smeral, 1998). Tour operators are increasingly benefited from the use of information technology, thus creating new forms of services and tourism industry. The frequent mobility of people with greater ease and intensive interaction among tourist clients and operators played a prominent role in the development of this sector (Burns & Novelli, 2008). The development of the transport sector and the innovative changes in communication also facilitate and stimulate growth in tourism (Cooper & Wahab, 2005).

The available literature has concentrated mainly on investigating the causality between tourism and economic growth. The interaction between ecology and tourism has received less attention. Environmental beauty and resources are subject to depletion. Considerable resources are allocated to the research on tourism and economic variable while less attention is paid to the environmental aspect. The quality environment is the principal driver of the tourism sector. Tourists declared environment as the main consideration in deciding on the destination (Hu & Ritchie, 1993; Zhou et al., 2019; Meo et al., 2018). The quality of environment facilitates and makes the tourist activities more attractive and enjoyable (Kozak, Graham, & Wiens, 2008). A study by Cho (2010) assessed 135 countries in terms of the effect of non-economic factors, including CO2 on tourism demand. This study concluded that people from developed countries like to visit developing countries. Their high purchasing power effect the infrastructure development in developing countries which is represented by an increase in CO2 emissions.

Few studies in the literature have illustrated the effect of the real exchange rate. The depreciation makes the host country less competitive as compared to other countries in the world, which might increase the level of tourism because of a decrease in the relative cost of tourism services (Lim, 1997; Sharma & Pal, 2019). Study by Chadeeand & Mieczkowski (1987) for the case of tourism in Spain shows that depreciation of currency leads to increase in demand of tourism services. A study for the case of Pakistan by Meo et al. (2018) showed that an increase in the real exchange rate had a positive effect on tourist arrival. However, there is an asymmetry in the effect of increasing and decreasing the real exchange rate.

Effect of governance on tourism arrival is rarely tested empirically. Authers (Bayar & Yener, 2019; Thocharous et al., 2020) highlighted the role of political stability in attracting tourists. Meo et al. (2018) also confirmed that the increase in institutional quality attracts tourists. A study by (Competitive Enterprise Institute, 2015; Investor's Business Daily, 2018) showed that over-regulation increases the cost of compliance which discourages people from following through with the activity.

In light of several empirical and related studies, this study intends to determine the factors responsible for tourism demand. These indicators include environmental quality, real exchange rate, GDP per capita, tourism expenditures, globalization, and world income and government effectiveness. Previous studies ignored the non-linear effects of independent variables. It is expected that the difference in the incidence of independent variables in developed and developing countries, they might influence the tourism service demand differently. Thus, this study will build a comparative analysis between developing and developed countries and an overall model using quadratic forms of environmental quality, real exchange rate and government effectiveness to confirm the differences. Here the change in the

effects of CO2 may represent the growth effect because of tourist arrival, the change in the effect of institutional quality may represent the over-regulation effect in the visa application of developed economies which is restricting the people from developing economies, while the change in the effect of real exchange rate shows the difference in the competitiveness of the currency between developed and developing economies. These objectives are achieved using instrumental variable panel GMM approach developed using (Baum, Schaffer & Stillman, 2003; Schaffer, 2020) as there is expected a bi-directional relation between tourism demand and growth.

METHODOLOGY

Variables and Data Sources

The variables used in this study are tourism expenditures, economic development (proxied by GDP), globalization (proxied by KOF globalization index), environment quality (proxied by CO2 emissions), currency effect (proxied by real exchange rate) and governance (proxied by government effectiveness). Since theoretically, tourism demand might cause GDP, this study has used panel GMM model to counter the inconsistency caused by this possible endogeneity. In Table 1 below, the description of the variables used in the model is provided with their units and source.

Table 1:
Variable Description

Variable	Description	Units	Source
NMTR	Tourism Demand	No. of visitor arrivals	WTO, WDI (2017)
TEXP	Tourism Expenditures	Current US\$	WDI (2017)
GDP	Gross Domestic Product per capita	GDP per capita (constant US\$)	WDI (2017)
GI	KOF Globalization Index	Social, Economic and Political Globalization	(Dreher, 2006; Dreher, Gaston & Martens, 2008)
CO2	Carbon Dioxide Emissions	Metric tonnes per capita	WDI (2017)
REX	Real Exchange Rate	Domestic Currency per Dollars (LCU/\$)	WDI (2017)
CPI	Consumer Price Index	Cost of Basket of Goods for average Consumer	WDI (2017)
WI	World Income (excluding host country)	GDP per capita (constant US\$)	WDI (2007)

The World Tourism Organization has been improving on its coverage of data on tourism expenditure. This they try achieving by using balance of payments data sourced from the International Monetary Fund (IMF) and which is supplemented with the data from the individual countries. The data among others include travel and passenger transport items as defined in the IMF's Balance of Payments. In a situation where the IMF fails to report data on passenger transport items, expenditure data for travel items are then shown. The data is then aggregated using the World Bank's weighted aggregation methodology which differs from the World Tourism Organization's aggregates (WDI, 2017).

GEF	Government Effectiveness	The quality perception of civil services and its independence from political pressures	(Kaufmann, Kraay & Mastruzzi, 2011)
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For simplification, this study will employ a double log form. This log-linearization approach will reduce the intensity of heteroskedasticity and convert the coefficients into elasticities (Benoit, 2011; Gujarati, 2009; Arshed et al., 2018).

Sample and Model Specification

This study has used a set of selected 25 developing and 25 developed countries shown in table 2. The time period taken in this study is between 1995 and 2014.

Table 2:
Sample Countries

Developed Countries		Developing Countries	
Australia	Malta	Benin	Morocco
Cyprus	Netherlands	China	Nepal
Denmark	New Zealand	Colombia	Nigeria
Finland	Norway	Egypt	Pakistan
France	Qatar	Gabon	Peru
Greece	Saudi Arabia	Ghana	Philippines
Hong Kong	Singapore	Honduras	Senegal
Iceland	Spain	India	South Africa
Ireland	Sweden	Iran	Sri Lanka
Italy	United States	Iraq	Thailand
Japan	Uruguay	Jamaica	Tunisia
Kuwait	Venezuela	Jordan	Turkey
Luxembourg		Mexico	

Following is the stochastic equation describing the model used in the study to fulfil the research objectives. Since the data is varying across countries and time, hence each variable as a subscript of 'it', indicating that it is a panel data equation. This equation 1 and 2 will be estimated for developed and developing country sample, while equation 3 using quadratic transformations will be estimated for the overall sample. The difference in both estimates will depict the role of tourism expenditures, as it is expected that the countries which have higher numbers of tourist arrivals do spend more.

Specification of the model

Following is the stochastic equation describing the model used by the study to fulfil the research objectives. Since the data is varying across countries and time, hence each variable as a subscript of 'it', indicating that it is a panel data equation.

$$nmtr_{it} = \alpha_{0i} + \alpha_1 gdp_{it} + \alpha_2 ltext_{it} + \alpha_3 gi_{it} + \alpha_4 CO2_{it} + \alpha_5 exc_{it} + \alpha_6 geff_{it} + \mu_t \quad Eq. 1$$

Generalized method of moments (GMM)

There are several problems associated with static regression models, for example, spurious regression, and structural instability (Song & Witt, 2000). Therefore, study at hand employed dynamic based methodology based on Berger (1995) and more recently, Goddard et al. (2004) and Athanasoglou et al. (2008). The prime intention of using dynamic model is that these models take more information and consequently produce more efficient parameters (Mamatzakis & Remoundos, 2003). While Garin-Munoz (2006) argued that in the sampling of pooled time-series data variables mostly suffer from greater variation due to different level of income and socio-demographical individualities. However, such kind of data increases the degree of freedom, reduce multicollinearity issues, increases number of observation, consequently improve efficiency of parameters and the issue of heterogeneity across the individual entities can be solved/tackle by allowing constant to vary across each cross-section³(Song & Witt, 2000; Greene, 2012; Racicot, 2015). Moreover, Garin-Munoz and Perez-Amaral (2000) proposed that tourism has much idleness and that a dynamic model could be evaluated to catch the impact of past. Furthermore, a case when a lagged dependent variable is being used as an independent variable OLS, random effects and within group (WG) estimators becomes biased and inefficient Garin-Munoz (2006). However, the problem of inconsistency and biasness can be solve by the first difference transformation of model (GMMDIFF) and by incorporating lags value of the dependent variable as an instrumental variable (Garin-Munoz, 2006; Ledesma-Rodriguez et al., 2001).

As the study at hand employed panel GMM model due to various advantages of generalized method of moments (GMM) approach. It cures the issue of endogeneity, serial correlation and heteroskedasticity (Leitao, 2010). Bond et al. (2001) argue that this method can correct unobserved country heterogeneity, omitted"variable bias, measurement error, and potential endogeneity. The generalized method of moments (GMM) estimators developed for dynamic models of panel data introduced by Arellano and Bond (1991), Arellano and Bover (1995). As Arellano and Bover (1995) and Ahn et al. (2001) argued that difference GMM includes lagged levels as well as lagged differences. The basic assumption of the GMM -the first differences of instrumental variables are uncorrelated with the fixed effects- allows the model to introduce more instruments and improve its efficiency. Roodman (2006) argues that both difference and system GMM estimators are suitable for studies that involve 'small T, large N' panels; where independent variables are not strictly exogenous, and heteroscedasticity and autocorrelation exist among the individual sample, in this study, countries. However, the problem of serious finite sample biases might arise with difference GMM if the instruments used have near unit root properties. That is why Bond and Windmeijer (2002) suggested for system GMM, as it has notably smaller finite sample bias and much greater precision when estimating autoregressive parameters using persistent series. In addition, The GMM system controls for unobserved heterogeneity and for the persistence of the dependent variable. The following

³-Which is because of high skewness of the variables

formula for GMM proposed by Athanasoglou (2008) and Albaladejo and Gonzalez-Martinez (2019) used to conduct the empirical analysis on tourism demand, consider the following regression equation:

$$\lnnmtr_t = \alpha + \delta \lnnmtr_{i,t-1} + \sum_{j=1}^j \beta_j X_{it}^j + \sum_{m=1}^m \beta_m X_{it}^m + \varepsilon_{it} \quad Eq. 2$$

Where \lnnmtr the number of tourist arrival yearly is, α is constant, i refers to each country over time t . While $\lnnmtr_{i,t-1}$ is lag value of the dependent variable (number of tourist arrival yearly), X_{it} represents a set of independent variables and ε_{it} is the error term.

Importantly the GMM estimator's reliability depends upon the strength of instruments. There are two specification tests which are suggested by (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998). The first test which is used for the overall validity of instruments is, Sargan/Hansen test with the null hypothesis is that all instruments as a group are exogenous. While the second test examines "the null hypothesis differenced equation is not serially correlated mainly at the second-order" (AR2).

Data Descriptive

Figure 1 and 2 display the scatter plot and linear relation approximation between the dependent variable, which is a number of tourist arrivals and individual independent variables. As shown in figure 1, an increase in the GDP per capita, tourism expenditures and globalization have positive associations with tourism demand while environment quality follows a U-shaped association.

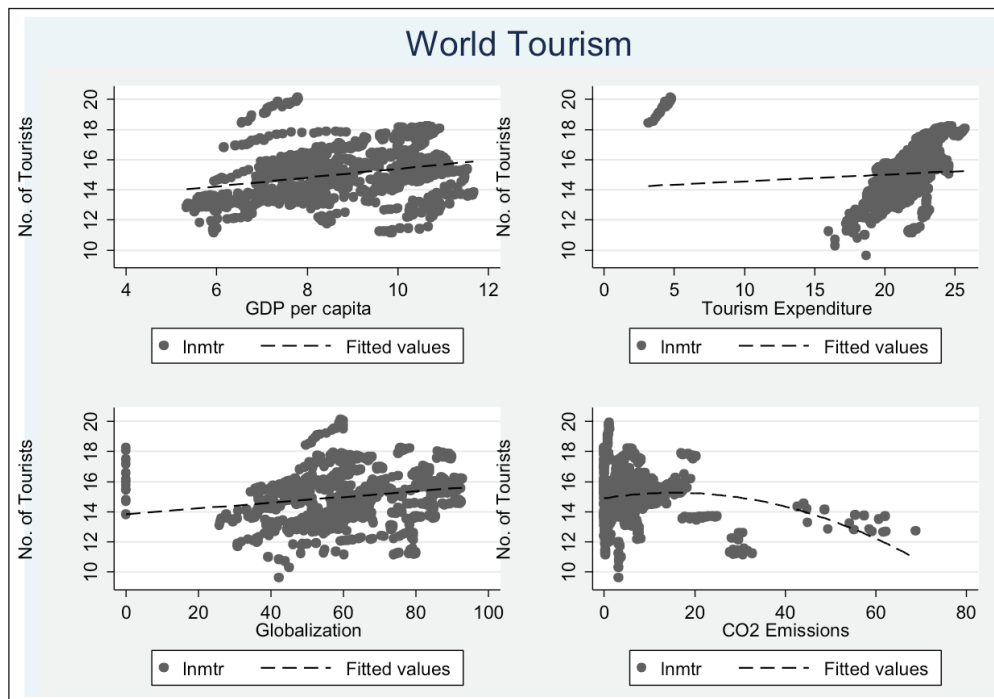


Figure 1: Scatter Plot of determinants of Tourism demand

While assessing the figure 2 it can be seen that there is a minimal association of real exchange rate, government effectiveness and world income with the tourism services demand.

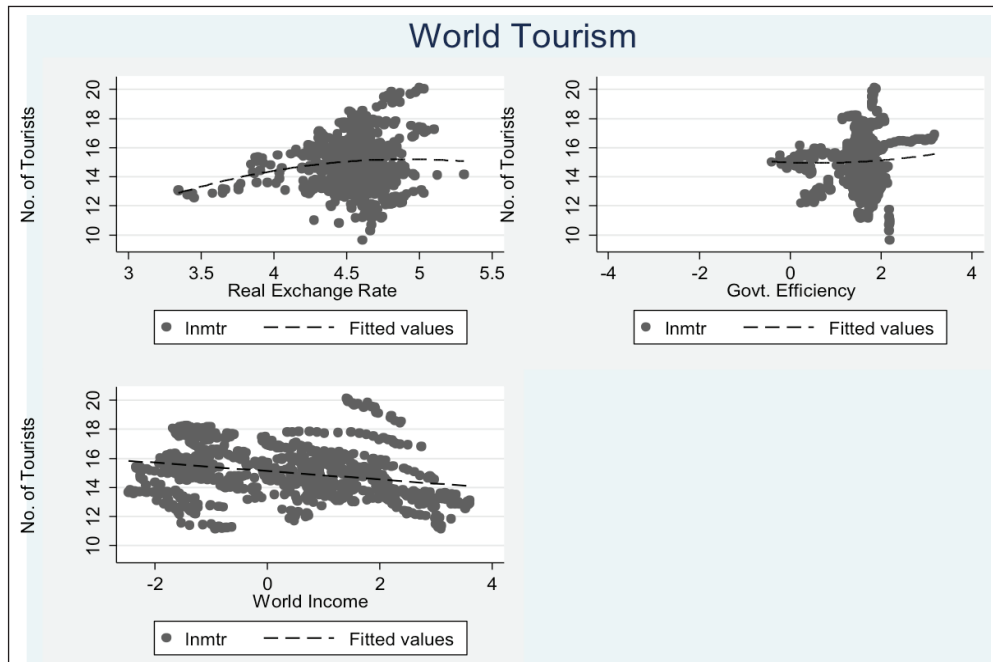


Figure 2: Figure 2 Scatter Plot of determinants of Tourism demand

Source: Author's computation, 2019

While for the case of developed economies, it can be seen that GDP, openness, tourism expenditures, exchange rate and government efficiency are positively correlated with the number of tourists. In contrast, CO2 emissions, on the other hand, are negatively correlated with the number of tourists. The quadratic pattern of few variables can be explained from the fact that while comparing the descriptive statistics of developed and developing countries in table 3, it can be seen that there is a major difference in the description of data employed for the countries.

Table 3:

Descriptive Statistics

Variable	Observations		Mean Developed	Standard Deviation Developed	Standard Deviation	
	Developed	Developing			Developing	Developing
Inmtr	495	472	15.29	1.57	14.79	1.81
IGDPpc	643	610	10.09	0.34	7.41	1.00
ITexp	503	487	22.43	1.48	19.99	4.07
IRex	649	617	4.59	0.15	4.54	0.27
ICO2	568	550	2.12	0.84	0.32	1.07
IGi	622	600	4.28	0.17	3.86	0.23
IGef	646	624	1.39	0.65	1.68	0.18
IWi	643	610	-1.05	0.69	1.62	0.95

Source: Author's computation, 2019

This difference in the correlation patterns and descriptive statistics highlights the need for the construction of two models for developed and developing economies rather than a pooled model. A pooled model would have shown biased slope coefficients when there are two extreme cases in the dataset. In order to ensure there is no multicollinearity between the selected variables, table 4 shows the VIF statistics. Since all of the statistics are less than 10, so there is no evidence that multicollinearity could exist between the selected independent variables in both models (Gujarati, 2009).

Table 4:
Test for multicollinearity

Variance Inflating Factor		
Variable	Developing Country	Developed Country
lTexp	1.33	1.42
lGi	1.48	1.38
lCO2	3.70	1.37
lRex	1.19	1.33
lGef	1.70	1.14
lWi	8.36	6.22
lGDP	7.71	3.42

Source: Author's computation, 2019

Results and Discussions

When panel data has a long time period, it is expected to behave as time-series data (Pedroni, 2008). Hence it is necessary to ensure the stationarity of the variables using a panel unit root tests. On the consensus of Im, Pesaran and Shin (2003) and Pesaran (2007), a panel unit root is needed to ensure the stationarity of the data. As contained in table 5 below, it can be concluded that all the variables are stationary at level (I(0)).

Table 5:
Test for Stationarity

Panel Unit Root Tests				
	IPS (2003)		Pesaran (2007)	
	Developing countries	Developed countries	Developing countries	Developed countries
	Statistic (Prob.)	Statistic (Prob.)	Statistic (Prob.)	Statistic (Prob.)
lnmtr	-4.54 (0.00)	-3.66 (0.00)	-1.03 (0.15)	-2.13 (0.01)
lGDPpc	-5.63 (0.00)	-	-3.25 (0.00)	-
lWi	-3.54 (0.00)	-1.61 (0.05)	-4.29 (0.00)	-2.95 (0.00)
lTexp	-3.94 (0.00)	-1.76 (0.03)	-2.02 (0.00)	-2.44 (0.00)
lRex	-1.34 (0.09)	-	-6.48 (0.00)	-
lCO2	-4.61 (0.00)	-	-2.05 (0.00)	-
lGef	-4.87 (0.00)	-	-0.27 (0.39)	-
lGi	-3.22 (0.00)	-	-2.74 (0.00)	-
lCPI	-4.06 (0.00)	-1.75 (0.04)	-1.93 (0.00)	-2.44 (0.01)

Source: Author's computation, 2019 * Lags are used based on the automatic lag section.

Structural Equation Modeling – Path Model

For both models shown in table 6, the significant F test shows that the proposed variables significantly explain the changes in the tourism demand. R squared shows that the proposed independent variables explained 66%, 54%, 63% of the changes in the tourism demand in model 1, 2, and 3, respectively.

The use of a combination of past GDP and CPI as instruments are tested for suitability using regression diagnostics in table 6. It is confirmed that in both models the instruments are not under-identified, not over-identified, the instruments are strong and there is no hint of endogeneity left in the model.

Table 6:
GMM estimates

Determinants of Tourism Demand			
Variables	Developing Countries Model 1 Coef. (prob.)	Developed Countries Model 2 Coef. (prob.)	Overall Model 3 Coef. (prob.)
Lnmtt-1	0.034(0.00)	0.324(0.00)	0.534(0.05)
lGDPpc	0.30 (0.00)	1.10 (0.04)	1.83 (0.00)
lTexp	0.13 (0.00)	0.21 (0.00)	0.15 (0.00)
lGi	1.15 (0.00)	0.26 (0.37)	0.32 (0.00)
lCO2	0.23 (0.00)	-0.11 (0.09)	0.17 (0.01)
lCO22		-0.03 (0.06)	
lRex	0.20 (0.00)	-0.53 (0.00)	-0.26 (0.76)
lRex2		0.04 (0.69)	
lGef	0.50 (0.05)	-0.14 (0.05)	0.04 (0.76)
lGef2		-0.07 (0.08)	
lWi	0.01 (0.84)	1.01 (0.09)	1.81 (0.00)
Regression Diagnostics			
N	391	409	805
F (prob)	101.3 (0.00)	60.52 (0.00)	114.3 (0.00)
R squared	0.66	0.54	0.63
RMSE	0.216	0.182	0.199
Under identification test	253.7 (0.00)	62.29 (0.00)	103.0 (0.00)
Weak identification test	404.7	35.72	58.8
Critical values	10% maximal : 19.93	15% maximal : 11.59	
Over identification test	0.25 (0.62)	0.11 (0.74)	0.00 (0.93)
Endogeneity test	0.33 (0.57)	0.01 (0.90)	0.11 (0.73)

Source: Author's computation, 2019

We have reported the findings of GMM used in this research in table 6. There are two specifications for developed and developing economies. Based on the root mean square error (RMSE) and R-Squared value, it can be seen that the models which are controlling for the

4-Anderson (1951) Canonical Correlation LM Statistic (Under Identification test) is significant.

5-Sargan Statistic (Hayashi, 2000) (Over Identification test) is insignificant.

6-Cragg and Donald (1993) Wald F Statistic (Weak Identification test) is higher than the critical values (Stock & Yogo, 2005).

7-Endogeneity test (Hayashi, 2000) is insignificant.

tourism expenditures are suitable. Our findings reveal that a 1% increase in GDP per capita attracts more tourists in the developed countries compare to the number of tourists in the developing countries. Also, the 1% increase in GDP per capita in the overall model leads to an increase in the tourism demand by 1.83% on average. This indicates that considering GDP per capita as an indicator of the growth and development of infrastructural facilities capable of persuading tourists. These results comply with the outcome of (Isik et al., 2018).

Our results further indicate that a 1% increase in tourism expenditures leads to an increase of only 0.13% in tourist demand in developing economies while the impact of 0.21% in developed economies and it is 0.15% the overall sample. The difference in tourist attraction is due to the improved facilities and the presence of tangible tourist infrastructure in these developed countries. These results are similar to the outcome of (Thrane & Farstad, 2011) whereby an increase in expenditures have a positive effect on the length and size of stay, but it has diminishing returns.

In the case of world income per capita, it is irrelevant for the developing countries as the rest of the world already has a higher income per capita than the host country, while the significance of world income is evident from the developed country and overall model. This means for the rich and developed country having a higher cost of services, it requires an increase in the income of the rest of the world for the people to become willing to travel. The results for developing countries comply with (Kliman, 1981) and the remaining results comply with (Barman & Nath, 2019).

Following figures 3, 4, 5 confirm the hypothesis for quadratic behavior of environment quality, real exchange rate and government effectiveness. This changing signs of coefficients are coined to the fact that there is a difference between the incidence of these three variables between developed and developing economies. And theory suggests that the effect of these variables is explained by their incidence too. This study has proposed a few interesting findings. First of them is the environmental quality, for the case of developing country's environment deterioration promotes tourists while for developed countries it discourages it. This U shaped relationship between environmental quality and tourism service demand is evident from the interchanging signs in the quadratic function in model 3. This result depicts that little industrialization based environment deterioration might increase access to the tourist venues while an excess of pollution will be observable in the air quality. Cho (2010) confirmed that an increase in CO₂ has negative or no effect in developed countries like USA, New Zealand, and Australia while there is a positive effect in developing countries like Asia.

The second finding is the U shaped relationship between the real exchange rate and the tourism service demand. Though this relationship is insignificant in overall mode, here depreciation of real exchange rate initially decreases the tourism demand for the countries whose exchange rates are already in their favour (i.e. developed countries) while further depreciation attracts more tourists to the country. This change effects is also confirmed by (Meo et al, 2018)

The third finding is the weak inverted U shaped relationship of government effectiveness and the tourism service demand in the overall model. Hence, if there is a 1% increase in government effectiveness, there will be a 0.50% increase in tourism service demand in developing countries while 0.14% decrease in the developed countries. This can be explained in a way the developed countries already have an efficient governance system. Further

increase in the efficiency will increase in the cost of provision of services to tourists, while in developing countries; there is a room for improvement in the governance, which is evident from the positive coefficient.

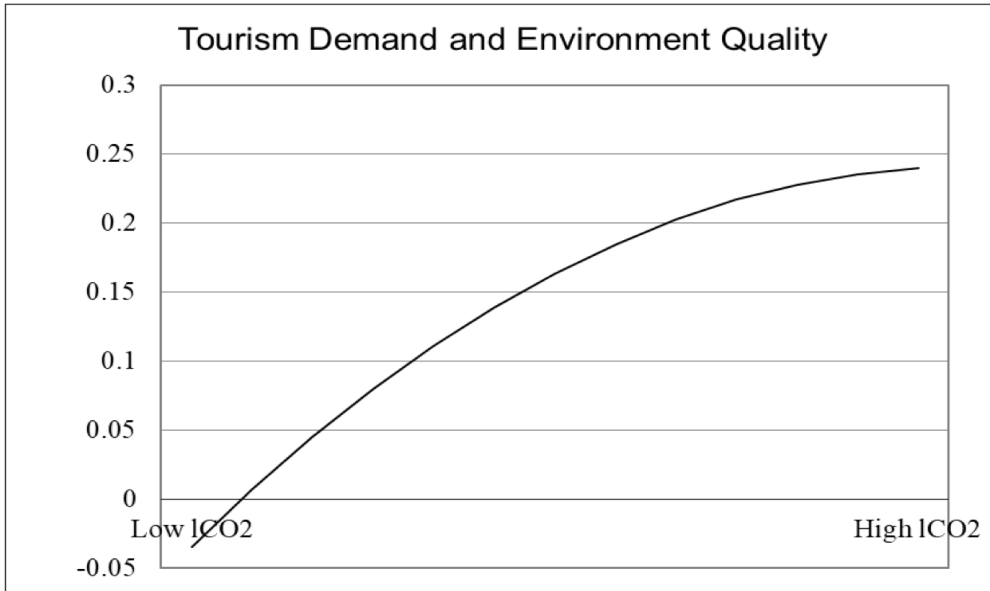


Figure 3: Quadratic Fit of Environment Quality and Tourism Demand (Source: Author's computation, 2019)

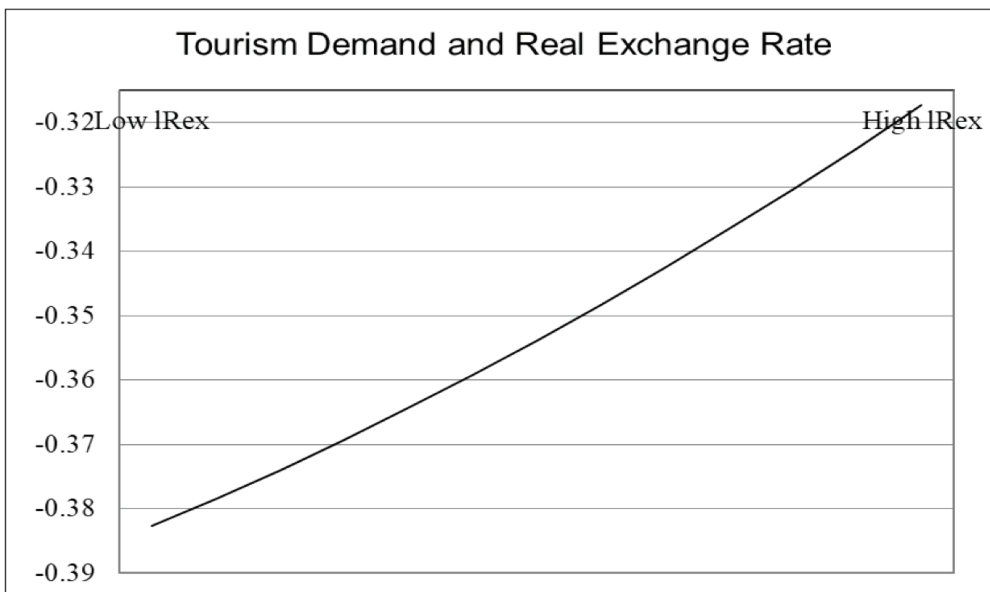


Figure 4: Quadratic Fit of Real Exchange Rate and Tourism Demand (Source: Author's computation, 2019)

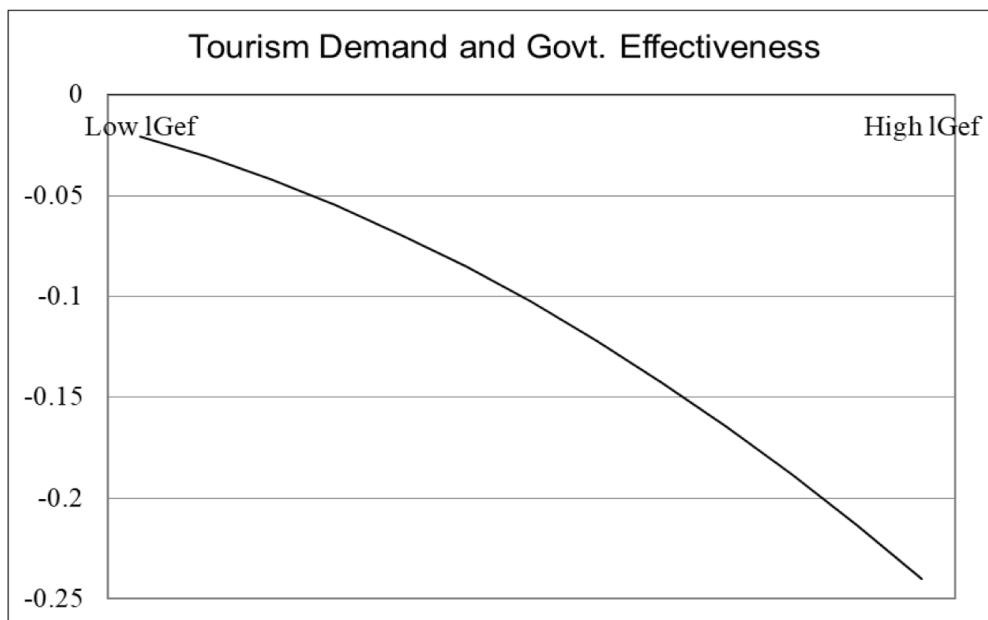


Figure 5: *Quadratic Fit of Government Effectiveness and Tourism Demand*
 (Source: Author's computation)

CONCLUSION AND POLICY IMPLICATION

Tourism has been considered as a very important sector that generates employment opportunities and contributes to the national income of a country. The number of global tourists has significantly increased over the past two decades. Global statistics show that tourism industry during 2016 has contributed more than 8 trillion dollars in the global economy. There are lots of factors that play a crucial role in the determination of a number of tourist arrival in a country. These broadly include tourist destinations, availability of information, the cost of visiting a particular tourist site, tourist perception, the image of the destination, availability of facilities including tangible infrastructures in the form of resorts, hotels, international airports and so many other things. The degree of openness or globalization, as well as the condition of climate and environment, are also very instrumental in the arrival of tourists. Our findings for the developed as well developing countries indicate that GDP per capita affects the tourism demand in both developed as well as developing economies. The estimates show that government effectiveness has an important effect on tourist arrival in developed and developing economies. Our findings further reveal that degree of openness, and environmental factor plays a role in determining tourist arrival. The changes in real exchange rate devaluation have a significant and a positive impact on the tourist arrival in developing as well as developed economies. Summing up, we can say that tourists also consider many other factors besides openness and climate or environment, particularly when they are planning to visit a developing economy.

This study suggests the policymakers that development, expenditures on tourism services and government effectiveness can promote tourist arrival. While environmental protection and exchange rate management policies can be handy in maximize and sustain the revenue from tourism.

While with globalization and an increase in incomes, there will be more and more people willing to come, all required to maintain the existing tourism venues and develop more.

REFERENCES

- Agiomirgianakis, G., Serenis, D., & Tsounis, N. (2014). Exchange rate volatility and tourist flows into Turkey. *Journal of Economic Integration*, 700-725.
- Ahn, S. C., Lee, Y. H., & Schmidt, P. (2001). GMM estimation of linear panel data models with time-varying individual effects. *Journal of Econometrics*, 101(2), 219-255.
- Albaladejo, I. P., & González-Martínez, M. (2019). Congestion affecting the dynamic of tourism demand: evidence from the most popular destinations in Spain. *Current Issues in Tourism*, 22(13), 1638-1652.
- Anderson, T. W. (1951). Estimating linear restrictions on regression coefficients for multi variate normal distributions. *The Annals of Mathematical Statistics*, 327-351.
- Arain, H., Han, L., Sharif, A., & Meo, M. S. (2020). Investigating the effect of inbound tourism on FDI: The importance of quantile estimations. *Tourism Economics*, 26(4), 682-703.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, 58(2), 277-297.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, 68(1), 29-51.
- Arshed, N., Anwar, A., Kousar, N., & Bukhari, S. (2018). Education enrollment level and income inequality: A case of SAARC economies. *Social Indicators Research*, 140(3), 1211-1224.
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of international financial Markets, Institutions and Money*, 18(2), 121-136.
- Azarya, V. (2004). Globalization and international tourism in developing countries: Marginality as a commercial commodity. *Current Sociology*, 52(6), 949-967.
- Barman, H., & Nath, H. K. (2019). What determines international tourist arrivals in India?. *Asia Pacific Journal of Tourism Research*, 24(2), 180-190.
- Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *Stata Journal*, 3(1), 1-31.
- Bayar, Y., & Yener, B. (2019). Political stability and tourism sector development in Mediteranean countries: a panel cointegration and causality analysis. *European Journal of Tourism Research*, 21, 23-32.
- Benoit, K. (2011). Linear regression models with logarithmic transformations. *London School of Economics*, 22(1), 23-36.
- Berger, A. N. (1995). The relationship between capital and earnings in banking. *Journal of Money, Credit and Banking*, 27(2), 432-456.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, 87(1), 115-143.
- Bond, S. R., & Windmeijer, F. (2002). Finite sample inference for GMM estimators in linear panel data models. *CEMMAP Working Paper no CWPO4/02*
- Bond, S. R., Hoeffler, A., & Temple, J. R. (2001). GMM estimation of empirical growth models. CEPR Discussion Paper no. 3048. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=290522

- Burns, P. M., & Novelli, M. (2008). *Tourism and Mobilities: local-global connections*: CABI. UK.
- Chadeeand, D., & Mieczkowski, Z. (1987). An empirical analysis of the effects of the exchange rate on Canadian tourism. *Journal of Travel Research*, 26(1), 13-17.
- Chai-Aun O., & Ahmad P. M. (2015). International Tourism Demand and Co2 Emission: A Comparison Between Developed And Developing Economies Of The World. Serials Publications. *Man In India*, 96(12), 5357-5371.
- Chinazzi, M., Davis, J., Ajelli, M., Gioannini, C., Litvinova, M., Merler, S., Pastore y Piontti, A., Rossi, L., Sun, K., Viboud, C., Xiong, X., Yu, H., Halloran, M.E., Longini Jr, M. & Vespignani, A. (2020). The effect of travel restrictions on the spread of the 2019 novel coronavirus (2019-nCoV) outbreak. The Preprint Server for Health Sciences, BMJ Yale, Retrieved from: <https://www.medrxiv.org/content/10.1101/2020.02.09.20021261v1> [Access on March 3, 2020].
- Cho, V. (2010). A study of the non-economic determinants in tourism demand. *International Journal of Tourism Research*, 12(4), 307-320.
- Competitive Enterprise Institute. (2015). The crushing burden of government regulation Retrieved 29, March, 2020, from <https://cei.org/content/crushing-burden-government-regulation>
- Cooper, C., & Wahab, S. (2005). *Tourism in the Age of Globalisation*. Routledge.
- Cragg, J. G., & Donald, S. G. (1993). Testing identifiability and specification in instrumental variable models. *Econometric Theory*, 9(2), 222-240.
- Crotti, R., & Misrahi, T. (2017). The Travel & Tourism Competitiveness Report 2017. Paving the Way for a More Sustainable and Inclusive Future. In World Economic Forum: Geneva, Switzerland.
- Demiroz, D., & Ongan, S. (2005). The contribution of tourism to the long-run Turkish economic growth. *Ekonomický časopis*, 9, 880-894.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied economics*, 38(10), 1091-1110.
- Dreher, A., Gaston, N., & Martens, P. (2008). *Measuring Globalisation. Gauging its Consequences* Springer, New York.
- Dritsakis, N. (2004). Tourism as a long-run economic growth factor: an empirical investigation for Greece using causality analysis. *Tourism Economics*, 10(3), 305-316.
- Estrada, M. A., Koutronas, E., & Lee, M. (2020). Staggression: *The economic and financial impact of Covid-19 Pandemic*. Available at SSRN 3593144.
- Fareed, Z., Meo, M. S., Zulfiqar, B., Shahzad, F., & Wang, N. (2018). Nexus of tourism, terrorism, and economic growth in Thailand: new evidence from asymmetric ARDL cointegration approach. *Asia Pacific Journal of Tourism Research*, 23(12), 1129-1141.
- Garín-Munoz, T. (2006). Inbound international tourism to Canary Islands: a dynamic panel data model. *Tourism Management*, 27(2), 281-291.
- Garin-Munoz, T., & Amaral, T. P. (2000). An econometric model for international tourism flows to Spain. *Applied Economics Letters*, 7(8), 525-529.
- Goddard, J., Molyneux, P., & Wilson, J. O. (2004). The profitability of European banks: a cross-sectional and dynamic panel analysis. *The Manchester School*, 72(3), 363-381.
- Greene, W. H. (2012). *Econometric Analysis, 7th Edition*. Upper Saddle River, NJ: Prentice Hall.
- Gujarati, D. N. (2009). *Basic econometrics: Tata McGraw-Hill Education*.
- Hayashi, F. (2000). *Econometrics*. Princeton, NJ: *Princeton University Press*.
- Hu, Y., & Ritchie, J. B. (1993). Measuring destination attractiveness: A contextual approach.

- Journal of travel research*, 32(2), 25-34.
- Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, 115(1), 53-74.
- Investor's Business Daily. (2018). Government regulation: how much is enough? Retrieved 30, March, 2020, from <https://www.investors.com/politics/government-regulation-burden-cost/>
- Isik, C., Dogru, T., & Turk, E. S. (2018). A nexus of linear and non-linear relationships between tourism demand, renewable energy consumption, and economic growth: Theory and evidence. *International Journal of Tourism Research*, 20(1), 38-49.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators (WGI) project. Retrieved April, 21, 2012.
- Knowles, T., Diamantis, D., & El-Mourhabi, J. (2001). *The Globalization of Tourism and Hospitality: A Strategic Perspective*, Continuum. London.
- Kozak, K. H., Graham, C. H., & Wiens, J. J. (2008). Integrating GIS-based environmental data into evolutionary biology. *Trends in Ecology & Evolution*, 23(3), 141-148.
- Leitão, N. C. (2010). Does trade help to explain tourism demand? The case of Portugal. *Theoretical and Applied Economics*, 17(3), 63-74.
- Mamatzakis, E., & Remoundos, P. (2003). Determinants of Greek commercial banks, 1989-2000. *Spoudai*, 53(1), 84-94.
- Massidda, C., & Mattana, P. (2012). A SVECM analysis of the relationship between international tourism arrivals, GDP and trade in Italy. *Journal of Travel Research*, 52(1), 93-105.
- 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.
- Pedroni, P. (2008). Nonstationary panel data. Notes for IMF Course (not publically available).
- Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Econometrics*, 22(2), 265-312.
- Racicot, F.-É. (2015). Engineering robust instruments for GMM estimation of panel data regression models with errors in variables: a note. *Applied Economics*, 47(10), 981-989.
- Rasheed, R., Meo, M. S., Awan, R. U., & Ahmed, F. (2019). The impact of tourism on deficit in balance of payments of Pakistan: an application of bounds testing approach to cointegration. *Asia Pacific Journal of Tourism Research*, 24(4), 325-332.
- Roodman, D. (2006). How to do xtabond2: An introduction to "Difference" and "System" GMM in Stata", *Center for Global Development Working Paper*, 103.
- Rodriguez, M. M. D., Baumann, A. A., & Schwartz, A. L. (2011). Cultural adaptation of an evidence based intervention: From theory to practice in a Latino/a community context. *American journal of community psychology*, 47(1-2), 170-186.
- RTE (2020). How the coronavirus may hit the tourism industry, Retrieved from: <https://www.rte.ie/brainstorm/2020/0303/1119857-coronavirus-tourism-ireland/>[Access on March 24, 2020].
- Schaffer, M. E. (2020). xtiivreg2: Stata module to perform extended IV/2SLS, GMM and AC/HAC, LIML and k-class regression for panel data models. Statistical Software Components, Boston College, Department of Economics.
- Scott, D., Amelung, B., Becken, S., Ceron, J., Dubois, G., Gössling, S., . . . Simpson, M. (2008). Climate change and tourism: Responding to global challenges. *World Tourism*

- Organization, Madrid, 230. retrieved from https://s3.amazonaws.com/academia.edu.documents/42734903/DavosReportOverviewDanScott.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1503072211&Signature=FxH%2FroVq8hszyGSmyE4KPArlTSc%3D&response-content-disposition=inline%3B%20filena me%3DClimate_change_and_tourism_Responding_to.pdf
- Scott, D., & McBoyle, G. (2001). Using a 'tourism climate index' to examine the implications of climate change for climate as a tourism resource. Meteorologischen Institut Universität Freiburg, 69-88. Retrieved from http://www.mif.uni-freiburg.de/ISB/ws/papers/full_report.pdf#page=73
- Sharma, C., & Pal, D. (2019). Exchange Rate Volatility and Tourism Demand in India: Unraveling the Asymmetric Relationship. *Journal of Travel Research*. Available at <https://journals.sagepub.com/doi/abs/10.1177/0047287519878516>
- Smeral, E. (1998). The impact of globalization on small and medium enterprises: new challenges for tourism policies in European countries. *Tourism Management*, 19(4), 371-380.
- Song, H., & Witt, S. F. (2000). *Tourism demand modelling and forecasting: Modern econometric approaches*: Routledge.
- Stock, J. H., & Yogo, M. (2005). Testing for weak instruments in linear IV regression. In *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg*, ed. D. W. K. Andrews & Stock, J. H., 80-108. Cambridge: Cambridge University Press.
- Teye, V. B. (1988). Coups d'etat and African tourism: A study of Ghana. *Annals of Tourism Research*, 15(3), 329-356.
- Theocharous, A. L., Zopiatis, A., Lambertides, N., Savva, C. S., & Mansfeld, Y. (2020). Tourism, instability and regional interdependency: Evidence from the Eastern-Mediterranean. *Defence and Peace Economics*, 31(3), 245-268.
- Thrane, C., & Farstad, E. (2011). Domestic tourism expenditures: The non-linear effects of length of stay and travel party size. *Tourism Management*, 32(1), 46-52.
- UNWTO. (2017). *World Tourism Barometer*. United Nations World Tourism Organization. Retrieved from http://cf.cdn.unwto.org/sites/all/files/pdf/unwto_barom17_03_june_excerpt_1.pdf
- WB. (2013). *Africa Tourism Report 2013*. World Bank. Retrieved from <http://www.worldbank.org/en/region/afr/publication/africa-tourism-report-2013>.
- WDI. (2017). *World Development Indicators*. Retrieved from <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>
- WTTC. (2016). *Travel & Tourism Economic Impact 2016*. World Travel & Tourism Council. Retrieved from <https://www.wttc.org/-/media/files/reports/economic%20impact%20research/regions%202016/world2016.pdf>
- Zhou, X., Santana Jiménez, Y., Pérez Rodríguez, J. V., & Hernández, J. M. (2019). Air pollution and tourism demand: A case study of Beijing, China. *International Journal of Tourism Research*, 21(6), 747-757.