



VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

*Religious Tourism Demand and Country Prosperity:
An Empirical Study of Saudi Arabia*

This is the Published version of the following publication

Alanzi, Eman Mealith, Kulendran, Nada and Nguyen, Thu-Huong (2023)
Religious Tourism Demand and Country Prosperity: An Empirical Study of
Saudi Arabia. *International Journal of Religious Tourism and Pilgrimage*, 11
(2). pp. 40-60. ISSN 2009-7379

The publisher's official version can be found at
<https://arrow.tudublin.ie/ijrtp/vol11/iss2/5/>

Note that access to this version may require subscription.

Downloaded from VU Research Repository <https://vuir.vu.edu.au/47910/>

12-6-2023

Religious Tourism Demand and Country Prosperity: An Empirical Study of Saudi Arabia

Eman Mealith Alanzi

Department of Business Administration, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia and College of Business, Victoria University, Melbourne, Australia., eman.alanzi@live.vu.edu.au

Nada Kulendran

Victoria University Melbourne, nada.kulen@vu.edu.au

Thu-Huong Nguyen

Victoria University, Melbourne, Australia, thu-huong.nguyen@vu.edu.au

Follow this and additional works at: <https://arrow.tudublin.ie/ijrtp>



Part of the [Tourism and Travel Commons](#)

Recommended Citation

Alanzi, Eman Mealith; Kulendran, Nada; and Nguyen, Thu-Huong (2023) "Religious Tourism Demand and Country Prosperity: An Empirical Study of Saudi Arabia," *International Journal of Religious Tourism and Pilgrimage*: Vol. 11: Iss. 2, Article 5.

doi:<https://doi.org/10.21427/X9C7-K225>

Available at: <https://arrow.tudublin.ie/ijrtp/vol11/iss2/5>

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Share Alike 4.0 International License](#).

Religious Tourism Demand and Country Prosperity: An Empirical Study of Saudi Arabia

Eman Mealith Alanzi

Princess Nourah Bint Abdulrahman University, Saudi Arabia and Victoria University, Australia
eman.alanzi@live.vu.edu.au

Nada Kulendran

Victoria University Melbourne, Australia
nada.kulen@vu.edu.au

Thu-Huong Nguyen

Victoria University, Melbourne, Australia
thu-huong.nguyen@vu.edu.au

This study examines the impact of destination prosperity level on religious tourism flows to Saudi Arabia. The model was empirically tested for a panel of 21 countries from 2000 to 2019. Dynamic panel gravity models were estimated using the Generalised Method of Moments (GMM) difference approach. The study found that the human rights index and prosperity index, word of mouth, Saudi Arabian income, origin country income and investment in tourism at the destination all had a positive and significant impact on religious tourism demand. In contrast, the cost of travel and cost of living at the destination, political risk, visa restrictions, and the relative temperature had an inverse and significant impact. The estimated coefficients suggest that Saudi Arabia should invest in high-quality services to make religious visits a more pleasant and memorable experience. The paper's originality is in using new non-economic factors such as prosperity and human rights as well as economic factors in estimating tourism demand for religious purposes.

Key Words: religious tourism demand, economic and destination prosperity factors, human rights, panel data

Introduction

Religious tourism is the main reason for visiting the Kingdom of Saudi Arabia (KSA) which is a unique destination for the Hajj and Umrah (Stephenson, 2017). In 2018, of the total visitor arrivals, religious tourism, business and conferences, and visiting friends and relatives represented 60%, 16% and 15% respectively (MAS, 2018). Every year millions of pilgrims travel to Mecca in Saudi Arabia, the birthplace of the Prophet Mohammed, to participate in the universal undertaking of either the Hajj or Umrah. Hajj can only be performed at a specific month of the year (from the eighth to the 13th day of the month of 'Dhul-Hijjah', the 12th month of the Islamic calendar); whereas Umrah can be performed at any time of the year. In order to control the number of Hajj pilgrims, more visa restrictions are applied to the Hajj than Umrah.

The Kingdom of Saudi Arabia launched an online tourist visa to boost international tourism on 27 September

2019. However, this eVisa does not apply for the Hajj pilgrimage; it is only available for general tourism and Umrah. Only four countries have visa-free access to Saudi Arabia: Bahrain, Kuwait, Oman, and the UAE. The Umrah Plus Programme launched in 2014 allows Umrah pilgrims from 65 countries to stay in Saudi Arabia for one month to visit historical, heritage, and religious sites (Ekiz *et al.*, 2017). Muslims who enter Al Masjid Al Haram (the Holy Mosque) and perform Umrah in Mecca can also visit Medina, the second holiest place for Muslims which has many religious tourist attractions including Al-Masjid a Nabawi and the grave of the Prophet Muhammad (Ibrahim *et al.*, 2021).

The vast numbers of pilgrims require infrastructure, transportation, safety awareness, healthcare, accommodation and legal and administrative counsel. Moreover, since visitors to holy sites are from a wide range of countries and use many languages, these services can only be efficiently delivered with the assistance

of interpretation (translation) staff and skilled human resources professionals. The Saudi government has made commendable efforts to enhance Hajj services and the pilgrim experience in recent years. Several construction, expansion, and renovation projects have been undertaken to reduce the potential risks of overcrowding and make the Hajj rituals easier, including the many levels of the Jamarat Bridge and circumambulation space around the Kaaba.

Several ambitious transportation projects either have been completed or are currently being constructed, such as the Makkah Mass Rail Transit and the Haramain High-Speed Rail. Consequently, the number of pilgrims visiting Mecca to fulfil their religious requirements has increased significantly from less than 100,000 in the mid-1950s to 1,357,240 in 2000 and over 3 million in 2019 (Abuhjeeleh, 2019; GaStat, 2021). The total number of Umrah pilgrims reached 19,158,031 in 2019 (7,457,663 international pilgrims and 11,700,368 domestic pilgrims), since it can be undertaken at any time of the year. The number of religious tourists has steadily increased as long-haul travel has become faster, safer, and more affordable due to low-cost carriers in the Gulf region, especially in Saudi Arabia (Alsumairi & Tsui, 2017).

Religious tourists are the biggest spenders, compared to other types of tourists in Saudi Arabia, and provide benefits to the Saudi economy (Fourie *et al.*, 2015). Pilgrim expenditure includes entrance and visa fees, external and internal transportation, food and drink, and accommodation; the Hajj and Umrah contribute an estimated \$12 billion annually to Saudi Arabia's GDP, representing 20 per cent of the country's non-oil GDP and 7 per cent of total GDP (Alam, 2021). Oil revenues have had a major role in Saudi economic prosperity and in enhancing services at Saudi holy sites.

As the elderly represent a large segment of pilgrims, they need healthcare and housing services in the two holy cities, provision of food facilities to reduce risks and prevent cases of food poisoning, and good quality water. For example, in 2013, 87 percent of hajj pilgrims were elderly (>65 years old), with 83 percent facing a significant risk of health problems (Rustika *et al.*, 2020). Saudi Arabia's Ministry of Health (MOH) has an important responsibility during the Hajj season to

provide effective health care for pilgrims by developing health facilities and assigning trained health personnel (Nafea, 2017).

Moreover, initiatives have been implemented to enhance the quality of overall Hajj services while maintaining the pilgrimage's authenticity, all of which have resulted in dramatic changes in tourism demand (Ladki & Mazeh, 2017; Rusydiana *et al.*, 2021).

Recently, Saudi Arabia's Ministry of Hajj and Umrah launched the Hajj smart card and platform. Each card contains basic information about the pilgrim, such as their registration number, the precise location of their lodging, a cell phone number, medical information and their guide's identification number. The Ministry is also using robots to deliver sacred water to the faithful at holy sites. Innovation and entrepreneurial management of the Hajj and Umrah are likely to contribute to further development of services, accommodation and housing, and investing in security and safety technologies, retail trade, catering, logistics, information and translation services as well as other services provided to pilgrims. It seems that countries with high prosperity can provide safe and secure accommodation, and better food, transportation, healthcare, water resources, human capital with high skills, shopping facilities and entertainment venues (Al-Saqqaf *et al.*, 2019).

Since 2011, Saudi Arabia has improved its position on the global prosperity index rankings. This index explains the essential conditions for well-being in a country, including safety and security, personal freedom, living conditions, health, education, governance, social capital, investment environment, entrepreneurial conditions, market access and infrastructure, economic quality, and the natural environment. On this index, Saudi Arabia has performed well on enterprise conditions and social capital, but very low on personal freedom. On education, it showed the greatest improvement, compared to a decade ago.

Saudi Arabia's ranking on personal freedom has been widely criticised. It is consistently ranked among the worst countries in relation to human rights, political and civil rights, with abuses including torture, failure to uphold women's rights, the guardianship system, segregation, restrictions on the rights of foreigners,

migrant workers and labourers, freedom of the press and communication, and political freedom. These criticisms have an impact on the global perspective of visiting Saudi Arabia (Abuhjeeleh, 2019). Recent changes have made it easier for women to participate in public life - such as the right to vote and freedom to leave the house without being accompanied by a male relative. Labour reforms were also introduced in March 2021 to improve conditions for migrant workers. The purpose of these changes is to 'normalise' the international perspective of the country reflected in recent international indicators and reports on human rights.

In the last few years, Saudi Arabia has implemented strategies to diversify its economy rather than depend on volatile oil revenue. Its strategic plan identified the tourism industry as a priority for government expenditure and development as part of its Vision 2030 project that aims to increase the number of international religious tourists to 30 million by 2030 (Nhamo *et al.*, 2020). Given the recent contribution and potential of religious tourism to economic growth and development, earning foreign exchange, creating job opportunities, and improving the balance of payments, it is critical for the country to identify the primary determinants of international religious tourism arrivals in Saudi Arabia. Explaining the factors that influence tourism demand is important to understanding past tourism demand and predicting future demand (Peng *et al.*, 2015).

Previous studies suggested that tourism demand is influenced by economic factors such as the country's income, the cost of living in the destination country, and the cost of travelling to the destination (Paniagua *et al.*, 2022; Sokhanvar *et al.*, 2018; Santana-Gallego & Fourie, 2020; Agarwal *et al.*, 2021). However, in recent years non-economic factors have played an essential role in determining tourism demand. Some early studies show that specific factors attract tourism to a particular destination, such as political stability (Balli *et al.*, 2019; Basu & Marg, 2010; Ghalia *et al.*, 2019; Afonso-Rodríguez, 2017; Samitas *et al.*, 2018; Ahad *et al.*, 2021; Altindag, 2014), personal safety (Saha *et al.*, 2017), climate (Day *et al.*, 2013; De Freitas *et al.*, 2008; Eugenio-Martin & Campos-Soria, 2010; Goh, 2012; Hamilton & Tol, 2007; Jermisittiparsert, 2020), availability of transportation infrastructure and

services (Adeola & Evans, 2020; Gholipour *et al.*, 2021; Khadaroo & Seetanah, 2008; Nguyen, 2021; Habibi, 2017; Athanasopoulos & Hyndman, 2008), political and economic freedom (Saha *et al.*, 2017), governance and institutional quality (Tang, 2018), life expectancy as a proxy of human development (Viljoen *et al.*, 2019; Naudé & Saayman, 2005; Rosselló *et al.*, 2017) and levels of happiness at the destination (Gholipour *et al.*, 2022; Huang *et al.*, 2021).

Since prosperity and enhanced quality of life are critical for the 2030 vision of Saudi Arabia to make the country an attractive destination for both citizens and visitors – and evidence from previous research has shown freedom, security, the level of happiness, environment, strong institutions and quality of governance in the destination affect international tourism demand – it is clear that prosperity and welfare in the destination may impact on inbound international tourist visits to a country. However, none of the previous research has comprehensively investigated the impact of prosperity and human rights in the destination country on inbound tourism demand in general and religious inbound tourism demand in particular. Therefore, this study explores whether destination prosperity level and human rights influence religious inbound tourism demand.

To sum up, this paper makes three significant contributions to the existing literature.

First, the study models religious tourism demand in Saudi Arabia using a gravity model; this approach is novel in relation to religious tourism demand.

Second, it explores whether or not the destination prosperity level is an attractive factor to Saudi inbound religious tourism by using the Legatum prosperity index which provides a unique insight into how global prosperity is developing (Sokhanvar *et al.*, 2018). It is the most comprehensive indicator and represents the only worldwide measure of prosperity that considers well-being and income.

Finally, this study examines the impact of human rights development in a destination country on religious tourism demand. The effect of human rights on tourism flows has not been explored in previous studies thus, we hope to provide useful information about this relationship.

Given the lack of comprehensive religious tourism demand analysis in the Saudi Arabian context, this study will have important policy implications for Saudi Arabia's tourism sector and suggest effective marketing strategies that could attract more tourists.

Literature Review

There is extensive literature on the Hajj economy that mostly focuses on the economic contribution of religious activities (Alshammari & Shaheen, 2021; Al Atwi, 2021; Bokhari, 2018). However, few empirical studies examine the impact of the determinants of religious tourism demand. To the best of our knowledge, Shaheen (2019) is the only author that has tested the association between religious tourism demand and economic factors. His study considered six major markets for Saudi religious tourism, examining economic factors such as GDP per capita, population size, trade volume, and travelling costs in KSA using the Panel Auto-Regressive Distributed Lag (ARDL) method. A major finding was that the price of tourism was positively related to the number of religious tourist arrivals. Its outcome was to determine religious tourism as a 'Veblen Good' which is connected to the financial capability of the tourists in the country of origin.

Previous studies identified several economic factors that impact on tourism demand such as income, relative price, substitute price, relative exchange rates (Altaf, 2021; Barman & Nath, 2019; Xu *et al.*, 2019; Morley *et al.*, 2014; Ibrahim, 2013; Shafiullah *et al.*, 2019; De Vita, 2014; Habibi, 2017; Veloce, 2004; Adeola & Evans, 2020; Kumar *et al.*, 2020; Ibragimov *et al.*, 2021), marketing expenditure (Kulendran & Divisekera, 2006; Rosselló-Nadal & HE, 2019), and trade-openness (Fратиanni & Kang, 2006; Fry *et al.*, 2010; Kulendran & Wilson, 2000; Leitão, 2010) as determinants of tourism demand. Per capita, the gross domestic product has been the most common measurement in tourism demand research as a proxy for income. This present study selected origin country income and destination country income as determinants of religious tourism demand. Destination country income is important in providing necessary services to pilgrims and visitors such as shelter, food, transport, safety, and security, and the origin country reflects the tourist's income and their capacity to travel; both incomes are expected to have a positive impact on religious tourism demand.

According to consumer choice theory, international tourism demand is inversely related to relative price. The price of tourism is measured by two components: 1) relative price - cost of living at the destination measured by destination country price related to origin country price adjusted by the exchange rate, known as relative price, and 2) the price of a substitute destination (the price of a competing destination). The cost of living at the competing destination is measured by a weighted average of the cost of living for the origin country, price adjusted by the exchange rate in competing destinations (Song & Li, 2008; Dogru & Sirakaya-Turk, 2018; Dogru *et al.*, 2017; Altaf, 2021). The lower the cost of living in the destination country relative to the country of origin, the higher the demand for tourism, and vice versa. As Saudi Arabia is a unique destination for pilgrimage purposes, the substitute price was not considered. This study tested if there was an inverse relationship between the cost of living at the destination and religious tourism demand.

Transportation costs are important as they account for a large portion of international tourism costs (Crouch, 1994; Zaki, 2008). A greater distance between the country of origin and the country of destination leads to increased transport costs (cost of travel) and transportation time. The effect of transport costs is statistically significant and negative, which means that countries that are further away will have higher transport costs and tourists will be less willing to travel to that destination (Kareem, 2008; Xu *et al.*, 2019).

To measure the cost of travel, some studies have used oil price as a proxy (Shaheen, 2019; Smeral & Witt, 1996; Yeoman *et al.*, 2007; Carson *et al.*, 2011; Santana-Gallego *et al.*, 2010; Wang, 2009; Garín-Mun, 2006) while others (Morley *et al.*, 2014; Hanafiah & Harun, 2010; Jong *et al.*, 2020a; Kaplan & Aktas, 2016) have used geographical distance between the capital cities of the origin and destination countries as a proxy, which implies that greater travel distance leads to higher travel costs. However, geographic distance as a proxy for transportation cost is time-invariant and oil price does not reflect the distance between the destination and origin countries (Kumar & Kumar, 2019). As a result, other studies such as Jong *et al.* (2020b) have measured the transportation cost by multiplying the geographic

distance (in kilometres) with the crude oil price as a proxy for the cost of travel. The hypothesis tested in this current study was that there is an inverse relationship between the cost of travel and religious demand.

Most countries require visitors to apply in advance for a visa. Neumayer (2010) pointed out that while visa restrictions can have a negative impact on international tourist demand flow, they may not have an equal impact on all types of travel but would reduce all visitors. However, Li *et al.* (2017) noted that there is a need to distinguish the impact of visa restrictions on different forms of travel. In the case of Saudi Arabia, eligible international citizens wishing to make a pilgrimage to Mecca have to apply for an Umrah or a Hajj visa (Ekiz *et al.*, 2017).

While every physically and financially able Muslim is obliged to undertake the Hajj, Mecca cannot accommodate all those wishing to perform the pilgrimage every year. Consequently, a quota system is in place to ensure equitable distribution of Hajj quotas for each country and to regulate the numbers at the holy sites. The quota was first implemented nearly three decades ago under the umbrella of The Organisation of Islamic Cooperation (OIC), with one thousand pilgrims per million inhabitants for each country (Henderson, 2017). However, since visits to Umrah and Medina can be undertaken at any time of the year without quotas, this study estimated the effect of visa restrictions on inbound religious travel and expected a negative impact.

The literature indicates the importance of tourism growth on country prosperity through creating more jobs and developing infrastructure, but the effect of the destination country's prosperity on tourism growth has yet to be researched. Therefore, the impact of the destination country's prosperity on inbound tourism demand needs to be identified. Prosperity affects people's well-being and ability to build a better future (Diener & Seligman, 2004; Diener *et al.*, 2010). Gholipour *et al.* (2022) found that tourists spend more at happier destinations. Vision 2030 focuses on establishing a prosperous economy by developing all aspects of people's lives. This focus on quality of life may become a key factor in driving inbound tourism demand.

Saudi Arabia has invested billions of dollars in developing tourism infrastructure to create economic

income and job opportunities (Nhamo *et al.*, 2020). Investment in tourism in a destination country may stimulate government revenue, create new employment, improve tourism infrastructure, and as a result create more tourist flows (Barman & Nath, 2019; Fourie & Santana-Gallego, 2013). Nonthapot (2017) observed that improving infrastructure (restaurants, hotels, roads, airports, souvenirs), as well as the overall quality of the tourism product, is essential if countries want to attract more visitors. This suggests that capital investment in the tourism sector is crucial to fostering tourism growth and attracting visitors.

Several studies have identified a positive relationship between investment in the tourism sector and international tourist flows (Su & Lin, 2014; Yang *et al.*, 2010; Khadaroo & Seetanah, 2008; Naudé & Saayman, 2005; Du Toit & Fourie, 2012; Barman & Nath, 2019). Based on these studies, a hypothesis was tested that there is a positive relationship between capital investment in the tourism sector and religious tourism demand.

The lagged dependent variable is considered as an explanatory variable to measure the impact of word-of-mouth effect and repeat visits on religious tourism demand. Witt and Witt (1995) claimed that tourists from a certain country who visited a destination the previous year were likely to spread information about their experiences, which was expected to have an effect on the number of tourists from that country who visited the destination in the current year. Previous studies (Barman & Nath, 2019; Habibi & Abbasianejad, 2011; Habibi *et al.*, 2009; Garin-Munoz & Montero-Martín, 2007; Tang & Lau, 2021; Mendieta-Aragón & Garín-Muñoz, 2020) capture the word-of-mouth effect and repeat visit impact on tourism demand by including a dynamic term (lagged dependent variable) in the demand model.

Several studies have investigated how global health risks such as SARS, foot and mouth disease and Avian flu epidemics negatively impacted tourism demand. McAleer *et al.* (2010) found that the SARS and Avian flu epidemics had a negative impact on inbound international tourist flows in Asia while Zeng *et al.* (2005) concluded that SARS had a considerable effect on Chinese tourism. Blake *et al.* (2003) reported that foot and mouth illness reduced tourism spending, and Kuo *et al.* (2008) indicated that tourist arrivals in affected nations declined

considerably. Other studies used dummy variables to capture the effect of the outbreak of different diseases such as Cheng (2012a); Viljoen *et al.* (2019). However, recent studies in tourism demand, including Karabulut *et al.* (2020) used a newly developed indicator - the World Pandemic Uncertainty Index (WUPI) - developed by Ahir *et al.* (2020) to investigate the effect of pandemic uncertainties and global pandemics on tourism demand. Before 2020, there were no indexes or measurements that could be used to account for the uncertainty caused by pandemics. The emergence of major significant concerns regarding worldwide uncertainty caused by COVID-19 led to the development of this new index, and the data included in the World Pandemic Uncertainty Index encompass all of the pandemics that have occurred since 1996.

Another factor that influences tourism demand is weather or climate. Mipanntel International Group (1991) reported that 73 percent of UK respondents cited 'good weather' as the main reason why people go abroad. Gössling *et al.* (2006) found that 53% of respondents considered climate a key factor in their choice of destination. Meanwhile Taylor and Ortiz (2009) used the variables of temperature and sunny hours; Kulendran and Dwyer (2012) applied maximum temperature, relative humidity, and sunshine hours; Ridderstaat *et al.* (2014) used rainfall, temperature, wind speed, and cloud coverage; and Goh (2012) used the Tourism Climate Index (TCI). While previous research focused on the effect of the origin country's climate as a push factor or the destination country's climate as a pull factor, the climate difference between destination and origin countries as a potential travel motive has not been widely investigated. Li *et al.* (2017) is one study that suggests climatic variation as a travel motive. The current research will combine the impact of differences between the temperature of the home country and the destination on tourism demand, as climate differences between destination and origin countries may attract visitors and impact on tourism demand (Guo & Sun, 2016; Unguren *et al.*, 2021; Li *et al.*, 2017). The hypothesis tests if the relative temperature between the home and destination countries could influence religious tourism demand.

Despite Saudi Arabia's prosperity and robust economy, the tourism industry faces significant challenges. One

is how the government's human rights policies protect its citizens. Human rights are important for Saudi Arabia because it has received international criticism on this issue. Ricci (2021) argued that the lack of respect for human rights and individual freedom, particularly when it comes to women's rights, affects the country's reputation.

There is no universally accepted definition of human rights, but they are the basic standards without which people cannot live with dignity (Donnelly, 2013). The United Nations defines human rights as inherent in our nature as human beings, the foundation for the quality of life in which individual dignity and worth receive due respect and protection, and as the foundation for freedom, justice and peace (UDHR, 1948). Neumayer (2004) suggested that uncertainty about personal safety deters tourists from visiting a certain area, while Ghaderi *et al.* (2017) pointed out that security extends beyond the traditional concept of external military threats to human rights, the environment, economics, drug trafficking, pandemics, crime, terrorism, and political instability. Previous studies indicated that lack of safety and security may hurt tourism demand and needed to be investigated (Ghaderi *et al.*, 2017; Assaf *et al.*, 2019; Neumayer, 2004; Neumayer & Plümper, 2016; Fourie *et al.*, 2020; Santana-Gallego & Fourie, 2020; Osinubi *et al.*, 2021).

Hemström *et al.* (2006) found that environmental responsibility and human rights were crucial factors in increasing Sweden's share of Chinese tourism demand. Once tourists feel unsafe, they may have a negative perception of a destination, which leads to a decrease in prospective tourists. Having identified the importance of human rights and personal security on tourism demand, this study tested the hypothesis that improving human rights has a positive effect on religious tourism demand.

Geopolitical risk factors and uncertainties (defined as the risk connected with wars, terrorist action, and tensions between nations that impair the regular and peaceful conduct of international relations) have been found to have negative and significant impacts on the tourism industry (Hailemariam & Ivanovski, 2021; Balli *et al.*, 2019; Demiralay & Kilincarslan, 2019). Political risk also has a negative influence on the supply and demand side of tourism (Ghalia *et al.*, 2019). From the demand

side, political risk creates a negative international image of a country (Ghalia *et al.*, 2019; Kim *et al.*, 2018). On the supply side, political risk can lead to delays in tourism investment and tourism-related business activities (Ghalia *et al.*, 2019; Saha & Yap, 2014). The hypothesis tested if there was an inverse relationship between political risk and religious tourism demand.

Variable Specifications and Data

Sample

The countries considered in this empirical analysis were Pakistan, India, Indonesia, Jordan, Egypt, Iraq, Bangladesh, Morocco, Sudan, Bahrain, Oman, United Arab Emirates, Turkey, Algeria, Malaysia, Kuwait, Iran, Nigeria, Afghanistan, United Kingdom, and Tunisia. These are the top source countries of religious visitors to Saudi Arabia. According to the Saudi Tourism Information and Research Centre (MAS), these countries represent more than 85 per cent of the total international tourist arrivals for religious purposes during the study period.

The dependent variable in this study is *religious tourism demand*. The number of inbound religious tourist arrivals to Saudi Arabia was used to measure the demand for religious tourism. Most studies – including Shaheen (2019); Martins *et al.* (2017); Barman and Nath (2019); Fourie *et al.* (2020) – have used the number of tourist arrivals as the dependent variable in modelling tourism demand. Others, including Aslan (2016); Cárdenas-García *et al.* (2015); Song *et al.* (2010); Gholipour and Tajaddini (2018; 2019) employed tourist expenditures in the destination country as the dependent variable. For Saudi Arabia, data on the number of religious tourists from other countries is available. However, there is no data on the expenditure of religious tourists by origin country in Saudi Arabia. Considering Saudi Arabia's government has recently announced a new initiative to increase the annual number of pilgrims, that makes this research even more important.

The independent variables in this study are as follows

Economic factors

Income of origin and destination countries measured by using the GDP per capita in the origin and the destination countries. This is calculated by dividing a country's GDP by the size of its population.

Cost of travel is measured by multiplying the geographic distance between origin and destination countries (in kilometres) by the crude oil price.

Cost of living at the destination is measured by the cost of living of tourists in Saudi Arabia relative to the cost of living in the origin country adjusted by the exchange rate (Song & Li, 2008; Dogru & Sirakaya-Turk, 2018; Dogru *et al.*, 2017; Altaf, 2021).

Investment in the tourism sector measured by capital investment in travel and tourism; these data include investment in the tourism, hospitality, and transportation industries. This was obtained from World Travel & Tourism Council research reports.

Country specific factors

Legatum Prosperity Index is considered as a proxy to measure Saudi Arabia's Prosperity. It was measured using the country's score from the mean of 12 pillars (including safety and security, personal freedom, governance, social capital, investment environment, entrepreneurial conditions, infrastructure and market access, economic quality, living conditions, education, health, and natural environment) and following the approach of Fereidouni *et al.* (2013) and Youssef and Diab (2021) in economic studies. The Index was developed by the Legatum Institute to highlight the strengths and weaknesses of each country, so that economic decisions could be made about how to build more inclusive societies and open economies, and empower people with the tools they need to drive prosperity.

Human rights score is considered a proxy to measure Saudi Arabia's human rights. A high score on human rights indicates that all 14 human rights are respected in a country, while a low score indicates low respect for human rights. The data come from

the CIRI+CIRIGHTS Data Project which provides indices for the level of government respect for various internationally recognised human rights. Each country obtains an aggregate human rights score based on a weighted average of the 14 indicators measuring various aspects of human rights. These data sets cover categories such as women's rights, civil and political liberties, freedom of speech and the press, worker's rights (including acceptable conditions of work with respect to minimum wages, hours of work, and occupational safety and health), and physical integrity rights (protection from extrajudicial killing, disappearance, torture, and arbitrary and political detention).

Relative temperature between destination and origin countries was used as a proxy to capture climate. It is considered in this study because when the Hajj and Umrah are performed during the summer months the temperature in Mecca can reach 50°C (Rustika *et al.*, 2020). Pilgrims come from different countries with varied climates and have to adapt to extreme heat.

This study used the political risk index as a proxy to capture the political environment in the destination country. This index is published by the International Country Risk Guide (ICRG), which is widely used in economic research. It is a comprehensive proxy, which measures more than political instability. As an oil-exporting country, Saudi Arabia has had many conflicts with neighbouring countries (Ekiz *et al.*, 2017). The political risk index has 12 variables (government stability, socio economic conditions, investment profile, internal conflicts, external conflicts, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and quality of the bureaucracy). This index has been rescaled for ease of explanation following Yap and Saha (2013). The higher values indicate greater political risk. The minimum score is 1 (very stable country), and the maximum score is 10 (very unstable country - high political risk). The greater a country's political instability, the lower its tourism demand. The expected sign of the coefficient of political risk is negative.

To measure the impact of global health risk on Saudi religious tourism demand, this study used The World

Pandemic Uncertainty Index (WUPI) developed by Ahir *et al.* (2020). It is calculated by counting the frequency the word 'uncertainty' and its variants appearing near a word related to pandemics in Economist Intelligence Unit nation reports. A larger number indicates greater uncertainty about pandemics and vice versa. Originally, WUPI data were available frequently, but they are converted in this study to annual observations by taking an average to achieve consistency with data sets of other variables.

Dummy variables are included in the model to capture visa restrictions and Hajj incident in 2015 and 2016 (the variable takes number 1 if visitors from origin countries require a visa to perform Umrah otherwise it takes 0 ; Hajj incidents take number 1 in 2015 and 2016 otherwise it takes 0). Table 1 provides detailed descriptions and definitions of the variables, their expected sign, and data sources.

Modelling Religious Tourism Demand

This study employed a gravity model approach to modelling religious tourism demand which considered that tourists flow between two regions / countries is directly proportional to the countries' economic size (measured in terms of GDP or GDP per capita) and inversely proportional to the distance between them (mainly measured in travel costs). In the past, gravity models were increasingly used in the context of tourism demand studies (Alawin & Abu-Lila, 2016; Chang, 2014; El-Nader *et al.*, 2009; Eryiğit *et al.*, 2010; Saray & Karagöz, 2010; Ulucak *et al.*, 2020; Xu & Dong, 2020).

The base gravity model formula is as follows:

$$F_{ij} = G \frac{M_i M_j}{D_{ij}} \quad (1)$$

Where F_{ij} is the tourists flow from country i to country j .

G is the gravitational constant,

M_i and M_j are the economic factors in countries i and j ; both are expected to be positive. D_{ij} is the geographical distance between i and j countries and is expected to be negative.

Table 1: Independent Variable's Measurement, Data Definitions and Sources for the Period 2000-2019

Independent Variable	Label	Expected Sign	Description	Data Source
Economic Factors				
Word -of Mouth Effect and repeat visit	$LNRT_{ijt-1}$	$\beta_1 > 0$	Repeat visit and word of mouth effect	The number of tourists from Tourism Information and Research Centre (MAS) https://mas.gov.sa/
Origin country (j) Income	IO_{jt}	$\beta_2 > 0$	Origin country GDP per capita	World Bank, World Development Indicators (WDI)
Destination (i) Country Income	ID_{it}	$\beta_3 > 0$	Destination country GDP per capita	World Bank, World Development Indicators (WDI)
Cost of living at the destination	P_{it}	$\beta_4 < 0$	Relative price measured by Consumer price index (CPI) of Saudi Arabia divided by CPI of origin country adjusted by nominal exchange rates	World Bank, Development Indicators (WDI)
Cost of Travel	$LnCT_{ijt}$	$\beta_5 < 0$	A proxy multiplying the geographic distance (measured in kilometres) with crude oil price	The French Research Centre CEPII (Centre d'Etudes Perspectives d'Informations Internationales) http://www.cepii.fr/cepii/en/bdd_modele/bdd.asp
Capital investment in the tourism sector in destination	$LnINVEST_{it}$	$\beta_6 > 0$	Measured by capital investment in travel and tourism in terms of GDP (percentage) in (i) at the time (t)	The World Travel & Tourism Council (WTTC)
Destination Prosperity Attractiveness				
Political Risk	$PRISK_{it}$	$\beta_7 < 0$	Measured by averaging internal conflicts (IC), government stability (GS), religion in politics (RP), external conflicts (EC), ethics tension (ET), and military in politics (MP).	International country risk guide (ICRGC), the PRS Group, International Country Risk Guide (ICRG) - The PRS Group The PRS Group
Human Rights	HI_{it}	$\beta_8 > 0$	Measured by The CIRI Human Rights Dataset, which contains quantitative information based on standards of government compliance with 15 globally recognised human rights, including internationally recognized women and worker's rights (that concern Saudi Arabia) and other rights.	The Cingranelli and Richards (CIRI) Human Rights Data Project, (http://www.humanrightsdata.com/) (https://www.binghamton.edu/institutes/hri/researcher-resources.html)
Relative Temperature	TEM_{it}	$\beta_9 < 0$	Measured by ratio of origin country temperature to destination country temperature.	https://climateknowledgeportal.worldbank.org/download-data
Prosperity Index	PI_{it}	$\beta_{10} > 0$	Prosperity Index includes components such as nation's social capital, education, governance, security/ safety, personal freedom, and health.	The Legatum Prosperity Index- The Legatum Institute, https://www.prosperity.com/
Visa restrictions	DVR_i	$\beta_{11} < 0$	1 = If there are restrictions on the Saudi visa in the country of origin of the tourist. 0 =If not.	https://www.saudiarabiavisa.com/entry-requirements/
Global Health Risk	HR_{it}	$\beta_{12} < 0$		World Pandemic Uncertainty Index (WUPI) by Ahir <i>et al.</i> , 2021 ¹
Hajj Incident	$DHAJ_i$	$\beta_{13} < 0$	$D_i = 1$ for 2015 and 2016, 0 other otherwise	

¹ Ahir, Hites, Bloom, Nick and Furceri, Davide, World Pandemic Uncertainty Index [WUPI], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WUPI>, October 1, 2021

Morley *et al.* (2014) provided a theoretical background for this model and showed that gravity models for tourism can be derived from consumer choice theory – the probability that a customer chooses a destination that is positively proportional to its attractiveness and inversely proportional to the distance to it. It is noted that in the base gravity model the interpretation of tourism flows depended on three variables represented by the size of the economy of the country under study and the size of the economy in the origin country (partner), expressed in Gross Domestic Product (GDP) per capita and geographic distance between them. The basic gravity model was augmented by introducing additional variables that might have direct and indirect influences on the flows, including social, political or semi-economic factors (Ulucak *et al.*, 2020).

This study considered an augmented version of the gravity model discussed in Morley *et al.* (2014) to model religious tourism demand in Saudi Arabia from 21 countries. The dependent variable is *religious tourism* (measured in tourist arrivals from origin *I* to destination *J*) with the push force for outbound tourists from origin *I* (such as origin country GDP), pull force of inbound tourists to destination *J* (such as destination country GDP, cost of living, cost of travel), and destination factor forces (such as human rights, political risk, temperature, visa restrictions, and prosperity).

Model

The augmented version of the gravity model considered for religious tourism demand estimation is given in equation 2

$$\begin{aligned} \text{LNRT}_{ijt} = & \beta_0 + \beta_1 \text{LNRT}_{ijt-1} + \beta_2 \text{IO}_{ijt} + \beta_3 \text{ID}_{it} + \\ & \beta_4 \text{LnPI}_{it} + \beta_5 \text{LnCT}_{ijt} + \beta_6 \text{LnINVEST}_{it} + \beta_7 \text{PRISK}_{it} \\ & + \beta_8 \text{LnHI}_{it} + \beta_9 \text{TEM}_{it} + \beta_{10} \text{LnPI}_{it} + \beta_{11} \text{LnHR}_{it} \\ & + \beta_{12} \text{DHA}_j + \beta_{13} \text{DVR}_i + \mu_i + \tau_i + \varepsilon_{ijt} \quad (2) \end{aligned}$$

where *LNRT_{ijt}* is the number of international arrivals to destination *I* (Saudi Arabia) from origin countries *j* at time *t*; *J*= 21 origin. The dependent variable is measured by the number of tourist arrivals from a country of origin (*J*) to the destination country Saudi Arabia (*I*) at a time (*t*) for religious purposes. Secondary data were collected from the Tourism Information and Research

Centre in Saudi Arabia for the period 2000 to 2019. The study adopted the double-logarithmic form because the parameters can be interpreted as elasticities. μ_i and τ_i are country effect and time effect and ε_{ijt} is the error component assumed to be serially uncorrelated with zero mean and independently distributed across countries. Pairwise correlation coefficients between independent variables confirm that the model does not encounter multicollinearity.

The panel data contain cross-sectional data covering 21 origin countries, in addition to economic and non-economic factors that influence religious inbound tourism demand in Saudi Arabia across time for the period 2000 to 2019. The dynamic panel regression model given in equation 2 consists of a lagged dependent variable to measure the word-of-mouth effect and repeat visits cannot be estimated by ordinary least square methods (*OLS*) due to the small number of observations in the time dimension (*T*). Therefore, the Generalised Method of Moments (*GMM*) difference given in Arellano and Bond (1991) was considered for estimation. As discussed in studies by Lam and Shiu (2010); Barman and Nath (2019) and; Baltagi (2021) the advantages of using the GMM method are: avoiding biased and inconsistent estimates and endogeneity problems due to *OLS* estimation; transforming the original regression by differencing the variables which eliminate the country-specific fixed effects and unit root issues.

This method uses a lagged independent variable and independent variables as instruments in the estimation. However, as with any method, the panel *GMM* difference approach has its limitations. The first limitation is weak instrumental variables (*IV*) in the *Diff-GMM* model. Since variables lagged by *T* periods (*T* = 1, 2...) are utilised as *IV*, the correlation between the *IV* and the endogenous variable is weak when *T* is large. Weak *IV* may result in poor performance with limited samples (in practice, relatively small). When evaluating regressions, the lag periods of the *IV* must be limited rather than using all previous lags to alleviate the weak *IV* issue. The second limitation is if the dependent variable is persistent and close to being a random walk; the use of the difference *GMM* estimator leads to both a biased and inefficient estimate of infinite samples (when *T* is small) if the dependent variable is persistent and close to being

a random walk. The third limitation is being unable to obtain the estimates of time-invariant factors such as distance, common language, contiguity or colonial ties.

including Brida and Risso (2009); Garín-Muñoz and Montero-Martín (2007), Chasapopoulos *et al.* (2014); Tatoglu and Gul (2019); Porto *et al.* (2018); Leitão (2015); Durbarry *et al.* (2009).

The gravity model has been widely applied in previous research using a dynamic panel difference *GMM* model,

Table 2: GMM estimated Short-Run Elasticity (Dependent variable: log tourist arrival) from 2000 to 2019

Independent Variables	Model 1 Coefficient Prob.	Model 2 Coefficient Prob	Model 3 Coefficient Prob	Model 4 Coefficient Prob
Word of Mouth & Repeat Visit RT_{ijt-1}	0.486 *** p=0.0000	0.450*** p=0.0000	0.436*** p=0.0000	0.438*** p=0.0000
Economic Factors				
Saudi Income IO_{jt}	2.019*** p=0.0000	1.634*** p=0.0003	0.800*** p=0.0000	-
Origin Income ID_{it}	0.266*** p=0.0009	0.475 p=0.3174	0.113** p=0.0240	0.622* p=0.0959
Cost of Travel CT_{ijt}	-0.222*** p=0.0000	-0.215* p=0.0812	-0.261*** p=0.0000	-0.370*** p=0.0309
Cost of Living at the Destination Pit	-0.544*** p=0.0000	-	-	-
Capital investment in the tourism sector $INVEST_{it}$	0.028*** p=0.0000	-	-	-
Destination Prosperity Attractiveness Factors				
Relative Temperature TEM_{it}	-	-	-0.263*** p=0.0074	-
Human Rights Index HI_{it}	-	0.231** p=0.0523	-	-
Political Risk $PRISK_{it}$	-	-0.879*** p=0.0044	-	-
Prosperity Index PI_{it}	-	-	-	0.021*** p= 0.073
Global Health Risk HR_{it}	-	-	-0.001 p=0.8911	-
Visa restrictions DVR_{ij}	-	-0.515*** p=0.0001	-	-
Wald Test	440 p=0.000	125 p=0.000	386 p=0.000	279 p=0.000
Sargan Test	18.264 p=0.249	15.650 p=0.405	14.406 p=0.494	15.88 p=0.950
AR(1)	0.998	0.998	0.725	0.798
AR(2)	0.999	0.999	0.880	0.746
Note: *** 1% significant, **5% significant and * 10% significant				
Source: Authors' estimation				

The dynamic model to be estimated with all the variables in the first difference is given below in Equation 3:

$$\begin{aligned} \Delta \text{LnRT}_{ijt} = & \beta_1 \Delta \text{LnRT}_{ijt-1} + \beta_2 \Delta \text{LnIO}_{ijt} + \beta_3 \Delta \text{LnID}_{it} \\ & + \beta_4 \Delta \text{LnPit} + \beta_5 \Delta \text{LnCT}_{ijt} + \beta_6 \Delta \text{LnINVEST}_{it} + \\ & \beta_7 \Delta \text{LnPRISK}_{it} + \beta_8 \Delta \text{LnHI}_{it} + \beta_9 \Delta \text{LnTEM}_{it} + \beta_{10} \Delta \\ & \text{LnPI}_{it} + \beta_{11} \Delta \text{LnHR}_{it} + \beta_{12} \text{DHAI} + \beta_{13} \text{DVR}_{ij} \\ & + \Delta \varepsilon_{ijt} \end{aligned} \quad (3)$$

where $\Delta \text{LNRT}_{ijt} = \text{LNRT}_{ijt} - \text{LNRT}_{ijt-1}$

These estimated coefficients are short-run elasticities and the long-run elasticities can be obtained by dividing each of the coefficients by $(1 - \beta_1)$ (Garín-Muñoz & Montero-Martín (2007).

Empirical Results and Discussion

Panel data in this study contains a large number of independent variables and a small number of observations in the time dimension. Since Roodman (2009) indicated that too many instruments compared to the size of the cross-sectional sample size can lead to weakened specification tests and biased coefficient and standard error estimates, this study estimated the panel regression model in four specifications considered in previous studies (Barman & Nath, 2019; Lorde *et al.*, 2016; Viljoen *et al.*, 2019) as follows:

The first specification, Model 1 in Column 1 of Table 2, includes economic factors that are 1-year lagged tourist arrivals, per capita GDP of both the origin and destination countries, cost of travel, cost of living at the destination, and investment in the tourism sector;

The second specification, Model 2 in Column 2 includes 1-year lagged tourist arrivals, per capita GDP of both the origin and destination countries, cost of travel, human rights and political risk;

The third specification, Model 3 in Column 3 includes 1-year lagged tourist arrivals, per capita GDP of both the origin and destination countries, cost of travel, cost of living at the destination, global health risk, and temperature.

The fourth specification, Model 4 in Column 4 includes 1-year lagged tourist arrivals, per capita GDP of origin country, cost of travel, and prosperity index of destination (GDP of the destination country

is excluded from this model since it includes the prosperity index of destination).

The variables were mostly consistent in effect and significance, with different specifications.

For the purpose of estimation, this study used the **GMM-DIFF** estimator suggested by Arellano and Bond (1991) and EViews 11 econometric software. The results in Table 2 show that the estimated coefficients for both sign and magnitude are almost aligning with the expected sign. The following tests were carried out in this study: The Wald test provides support to the joint significance of the explanatory variables; The Sargan–Hansen test (the specification test) for over-identification restrictions for the GMM estimators developed by Arellano and Bond (1991) does not indicate a serious problem with the validity of these instrumental variables; AR (1) and AR (2) first order and second-order serial correlation tests confirm models performed satisfactorily.

The results indicate that the word-of-mouth effect (habit persistence) and repeat visits are important factors in explaining religious tourism demand in Saudi Arabia. For all five-specification models, the estimated coefficient of lagged tourist arrivals was positive and statistically significant. This result suggests that pilgrims who visited Saudi Arabia in the previous year become an important source for promotion, information and spreading experiences in their home countries. Moreover, on average 45 per cent of the total inbound religious tourism arrivals to Saudi Arabia can be explained by repeat visits and word-of-mouth effects.

According to Islamic jurisprudence, Muslims can perform additional Hajj and Umrah (Nafal which refers to an action that is voluntary or optional) as many times as they wish. When the Umrah and the Hajj become easier and the quality of service is high, people are willing to make repeat visits (Raj & Bozonelos, 2015). This result is consistent with other studies which show that word of mouth is important for explaining religious tourism demand (such as Khadaroo & Seetanah (2008); Fourie & Santana-Gallego (2013); Habibi (2017); Ghaderi *et al.* (2017); Buigut *et al.* (2015); Garin-Munoz & Montero-Martín (2007); Garin-Mun (2006); Mendieta-Aragón & Garín-Muñoz (2020).

Destination income impact is higher than tourist origin country income. When destination income increases by one percent on average, religious tourism demand increases by 1.65 per cent. This result is consistent with Shaheen (2019) who found a positive effect of income of origin countries on religious tourism. Prior research on religious tourism (e.g. Rinschede, 1992; Crain, 1996; Norman, 2004) primarily considered religious travel to be a spiritual phenomenon and did not find any link between the income of the origin country and the decision to participate in religious tourism. However, when tourist origin country income increases by one per cent, religious tourism demand increases by on average 0.28 percent *ceteris paribus* (all other factors being equal).

This study shows that when the income of tourists increases, tourists will be able to afford international travel. Furthermore, when income of the destination increases, the destination will be able to cater for tourists' needs including infrastructure, health care, transportation, accommodation, and entertainment facilities. Saudi Arabia is a wealthy nation and as a result, it can attract visitors because it provides the necessary services to religious tourists. From the gravity theory perspective, the economic size of origin and destination countries is important for explaining bilateral tourist flows, as the theoretical model predicts they have a positive impact on international tourism. Therefore, bilateral tourism between two countries is likely to benefit from the intensity of an economic relationship between them.

The estimated religious tourism demand price elasticity is 0.54 which indicates that religious tourists are price sensitive, meaning that if tourism prices in the destination rise by 1 per cent, tourist arrivals will reduce by 0.46 per cent, *ceteris paribus*. This result supports the findings of previous studies (Eilat & Einav, 2004; Rosselló-Nadal & HE, 2019; Görmüş & Göçer, 2010; Habibi, 2017; Tang, 2018; Xu *et al.*, 2019). Consistent with this finding, the consumer's utility theory in conventional economic demand models (that drive the gravity model) concludes that the relative price variable is negatively associated with inbound tourist arrivals. In contrast, Shaheen (2019) found a positive relationship between the price and demand for religious tourism in all countries in the sample.

In this current study, the cost of travel has a negative and statistically significant impact on religious tourism. This indicates that lower cost of travel leads to a greater increase in demand for religious tourism. Thus, religious tourists are sensitive to the cost of travel. The finding concurs with other studies (Aki, 1998; Khadaroo & Seetanah, 2008; Chaiboonsri *et al.*, 2010; Chaitip & Chaiboonsri, 2009; Kaplan & Aktas, 2016). One percent increase in the cost of travel between the origin country and Saudi Arabia would decrease religious tourism demand on average by 0.23 per cent *ceteris paribus*.

Tourism related investment in the destination country has a positive impact on religious tourism demand. One percent increase in tourism investment would increase religious tourism demand by 0.028 per cent *ceteris paribus*, and supports the results reported in Jeje (2021). Negative signs of travel cost and relative price variables indicate that international tourists prefer nearby destinations with relatively lower living costs.

The results of the current research indicate that visa restrictions are negatively associated with the number of tourist arrivals; its elasticity is 0.51 and is statistically significant. This suggests that visa requirements represent an essential deterrent to tourist flows. Neumayer (2010) observed that visa restrictions could reduce travel by between 52 and 63 percent, depending on the regional variation and the restrictions imposed. Czaika and Neumayer (2017) found that visa restrictions in destination countries reduce tourist inflows by approximately 20 percent while Cheng (2012b) observed a positive impact of relaxing visa requirements on tourism demand.

Relative temperature between the destination and origin country has a negative impact and is significant. One percent increase in temperature in Saudi Arabia during the Hajj season would decrease religious tourism demand on by 0.26 percent *ceteris paribus*.

Furthermore, this current study found that the impact of political risk was negative and had a significant impact on religious tourism demand, indicating that higher levels of political risk in the destination country prevent international religious tourists. Previous studies (Llorca-Vivero, 2008; Saha *et al.*, 2017; Saha & Yap, 2014; Yap & Saha, 2013) also found that political instability had a

significant negative impact on tourism demand. Political risk was considered by examining whether political issues in the Middle Eastern region have an impact on religious tourism demand in Saudi Arabia.

This study found that the estimated coefficient of the Prosperity Index had a positive and significant impact on religious tourism demand, indicating its direct impact on the demand for religious tourism; improvement in prosperity in Saudi Arabia would therefore increase religious tourism demand. This result indicated that religious tourists are more likely to travel to destinations that have a high level of prosperity. This study contributes to the literature by introducing an explanatory variable to the modelling of tourism demand and is supported by Su and Lin (2014) who found that GDP expenditure on health had a positive impact on inbound tourism. In addition, Gholipour *et al.* (2022) indicated that tourists were more likely to spend at a destination where its residents have higher levels of happiness, and that countries with more World Heritage sites and comfortable travel infrastructure attract more international visitors who spend more money during their stay.

In the current study, estimated coefficients of global health risk had negative but not significant effects on religious tourism demand, possibly because the sample period did not cover COVID-19. The evidence of a negative impact of global health risk and infectious disease on tourist flow is consistent with the results reported in several studies, including (Karabulut *et al.*, 2020; Rosselló *et al.*, 2017; Uzuner & Ghosh, 2020). Karabulut *et al.* (2020) found that the impact of pandemics on tourist arrivals was minimal in advanced and emerging economies, but more pronounced in low-income ones. In low-income economies, a lack of transparency and healthcare infrastructure may be the primary reasons for declining tourism demand.

The results of the current study indicate that the respect of government for human rights in the destination country positively affects religious tourism demand. This means that improvement of respect for human rights in destination countries would result in higher tourism demand while a low level of respect may lead to decreased tourism demand. The destination country should maintain its image as safe and secure, which is

important for increasing pilgrimage. Previous studies by Bassil *et al.* (2019); Samitas *et al.* (2018); Walters *et al.* (2019) argued that issues such as human rights violations, drug trafficking, epidemics, crime, terrorism, and political instability were major deterrents to tourism demand. In 2018 the Saudi Arabian government took initiatives to enhance human rights by giving women the right to drive and allowing women over 21 years of age to travel freely and obtain passports without permission from a male guardian (Elyas and Aljabri, 2020).

The Hajj incident effect was found to not be statistically significant and therefore is not included in the model estimation.

It should be highlighted that the coefficients estimated in Table 2 are for short-run demand elasticities. However, pilgrims require time to plan their trips to visit holy cities. If, during their travel planning timeline there is a change (increase or decrease) in one of the determinant factors (say the cost of travel) the short-term reaction is lower, but higher in the long run. In addition, the destination country needs long-run elasticities for tourism planning and policy formulation to maintain competitiveness. Thus, for policy analysis purposes, a sensitivity analysis was conducted to examine how religious tourism demand responded to a one percent increase or decrease due to the fluctuation of economic and non-economic factors in the long run.

This analysis indicates that estimated tourism demand elasticities are often lower in the short run than in the long run. This study obtained long-run elasticities by undertaking some transformations. Table 3 shows the long-run elasticities of determinants which were calculated by dividing each short-run elasticity coefficient by the coefficient of the lag independent variable $\beta_1 - 1$ in each model specification. For interpretation purposes, the average value of each economic factor in the last column is obtained by taking the average value from the five specification models.

In the long run, repeat visits and the word-of-mouth effect contributed to 84% of pilgrim visits to Saudi Arabia whose stable economy and economic prosperity have a significant impact on religious tourism demand. A one percent increase in Saudi Arabia's income and

Table 3: Estimated Long-Run Elasticity Of Economic Factors From 2000 -2019

Independent Variable	Model	Model2	Model3	Model 4	Average
Word Of Mouth & Repeat Visit	0.946	0.819	0.773	0.779	0.829
Saudi Income	3.929	2.973	1.419	-	2.774
Origin Income	0.517	0.865	0.199	1.106762	0.671941
Cost Of Travel	-0.432	-0.391	-0.463	-0.65836	-0.486
Cost Of Living At The Destination	-1.058	-	-	-	-1.058
Capital Investment In The Tourism Sector	0.055	-	-	-	0.055
Human Rights Index	-	0.419	-	-	0.419
Political Risk	-	-1.599	-	-	-1.599
Visa Restrictions	-	-0.93636	-	-	-0.93636
Prosperity Index	-	-	-	-	0.037

origin country income would increase religious tourism demand in the long run by 2.77 per cent and 0.67 per cent respectively. Religious tourism demand in Saudi Arabia is very sensitive to the cost of living at the destination; therefore, any changes in the destination price level would have a substantial impact in the long run compared to the cost of travel, and the estimated long-run elasticities are -1.05 -0.48 per cent respectively. Tourism investment by the Saudi Arabian government to diversify the economy away from reliance on energy would increase religious tourism demand by 0.05 per cent in the long run. Improvement in Saudi Arabia's human rights and prosperity would increase religious tourism demand by 0.41 per cent and 0.03 per cent respectively and political instability and visa restrictions would decrease demand by -1.59 per cent and -0.93 per cent respectively.

Conclusion

This study investigated the determinants of religious tourism demand in Saudi Arabia from 21 countries of origin for the period from 2000 to 2019, using the panel GMM difference approach. It found that the word-of-mouth effect and repeat visits were significant in all model specifications. Economic factors such as Saudi Arabia's per capita income, origin country per capita income and investment in the tourism sector, positively and significantly affected religious tourism demand in Saudi Arabia, whereas there was an inverse relationship between the cost of travel and the cost of living in Saudi Arabia, which significantly affected religious

tourism demand. Non-economic factors including the prosperity index, political risk, visa restrictions, human rights factors and climate had a significant impact on religious tourism demand. Global health risks were not significant, but this may be due to the limited sample period. The period before 2020 did not reflect the impact of COVID-19 because the world had not at that stage experienced such a global pandemic. Governments implemented travel restrictions and border closures in 2020 to slow the spread of infection. The role of prosperity and human rights in destination countries has received little attention in previous research. The findings of this study indicate that destination prosperity and the development of human rights are significant factors in promoting religious tourism demand. Based on these results, the present study has made some important policy recommendations. It recognises that, along with other factors, destination prosperity can be an attractive feature that makes tourists want to travel.

To promote the image of a safe and secure country along with a good quality-of-life, Saudi Arabia should invest to enhance the standard of health care, a clean environment, skilled human resources, high quality services, transportation infrastructure, and technology and thereby make every visit safe and memorable for pilgrims. Priority should be given to ensuring that pilgrims' health, safety, and well-being are protected, and thereby supporting Islamic Sharia's goal of safeguarding human souls to complete the rituals of Hajj or Umrah. Based on the findings, the study suggests that public

policies aiming to respect internationally recognised human rights through stable regulations and laws would promote the country's image and increase its prosperity, attracting more tourists and giving international tourists a sense of security.

Maintaining a steady cost of living and providing low / budget travel and accommodation may assist in promoting inbound religious tourism demand in Saudi Arabia. Moreover, Saudi Arabia may also need to increase the number of international airports, upgrade the standard of existing airports, and introduce low-cost airlines. Religious travel is significantly affected by visa restrictions, and therefore policymakers should consider whether the benefits of relaxing visa controls outweigh any security and other concerns they may have. While there is limited time each year for Hajj participation, those who travel to Saudi Arabia could also be given an additional tourist visa to explore other sites of historical or recreational interest, particularly those that are close to the holy cities of Makkah and Madinah where the Hajj is performed. This would assist the hospitality, travel, and tourism sector to grow in Saudi Arabia.

One limitation of this analysis is data availability. There were no data for tourist flows before 2000 and then the COVID-19 pandemic heavily influenced the data after 2019. Further research on religious tourism demand analysis might be extended by dividing the sample, based on the income level of the origin country. Moreover, future research could explore the impact of prosperity of the destination country on tourism demand for other destinations or another purpose of a visit if data for prosperity were available for a longer period. To validate the result, the model developed in this study could be tested using another estimate method, such as SYS-GMM, in future studies.

References

- Abuhjeeleh, M. (2019) Rethinking tourism in Saudi Arabia: Royal vision 2030 perspective. *African Journal of Hospitality, Tourism and Leisure* 8(5): 1-16.
- Adeola, O. and Evans, O. (2020) ICT, infrastructure, and tourism development in Africa. *Tourism Economics* 26(1): 97-114.
- Afonso-Rodríguez, J.A. (2017) Evaluating the dynamics and impact of terrorist attacks on tourism and economic growth for Turkey. *Journal of Policy Research in Tourism, Leisure and Events* 9(1): 56-81.
- Agarwal, S., Page, S.J. and Mawby, R. (2021) Tourist security, terrorism risk management and tourist safety. *Annals of Tourism Research* 89: 103207.
- Ahad, M., Anwer, Z. and Ahmad, W. (2021) Does crime-tourism nexus hold for Pakistan? *International Journal of Emerging Markets*.
- Ahir, H., Bloom, N. and Furceri, D. (2020) The world uncertainty index. Available at SSRN 3275033. <https://worlduncertaintyindex.com/data/>.
- Aki, S. (1998) A compact econometric model of tourism demand for Turkey. *Tourism management* 19(1): 99-102.
- Al-Saqqaf, H., Mashat, B., Rahim, I., et al. (2019) Assessment of Services and the Health Environment in Medina. *The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research*.
- Al Atwi, K. (2021) Does the Number of Hajj Pilgrims Boost Economic Growth in Saudi Arabia? *University of Sharjah Journal for Humanities & Social Sciences*, 18(2A): 468-488.
- Alam, G.N. (2021) The Impacts Of Covid-19 To Saudi Arabia's Economic Sector And Hajj Pilgrimage Policy Of The Kingdom Of Saudi Arabia. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)* 12(8): 463-472.
- Alawin, M. and Abu-Lila, Z. (2016) Uncertainty and gravity model for international tourism demand in Jordan: evidence from panel-GARCH model. *Applied Econometrics and International Development* 16(1): 131-146.
- Alshammari, R. and Shaheen, R. (2021) The Economics of Religious Tourism (Hajj) And it's Impact on The Saudi Economy. *PalArch's Journal of Archaeology of Egypt/ Egyptology* 18(13): 1078-1083.
- Alsumairi, M. and Tsui, K.W.H. (2017) A case study: The impact of low-cost carriers on inbound tourism of Saudi Arabia. *Journal of Air Transport Management* 62: 129-145.
- Altaf, N. (2021) Modelling the International Tourist Arrivals in India. *Tourism Planning & Development*. 1-10.
- Altindag, D.T. (2014) Crime and international tourism. *Journal of Labor Research* 35(1): 1-14.

- Arellano, M. and 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.
- Aslan, A. (2016) Does tourism cause growth? Evidence from Turkey. *Current Issues in Tourism* 19(12): 1176-1184.
- Assaf, A.G., Li, G., Song, H., et al. (2019) Modeling and forecasting regional tourism demand using the Bayesian global vector autoregressive (BGVAR) model. *Journal of Travel Research* 58(3): 383-397.
- Athanasopoulos, G. and Hyndman, R.J. (2008) Modelling and forecasting Australian domestic tourism. *Tourism management* 29(1): 19-31.
- Balli, F., Uddin, G.S. and Shahzad, S.J.H. (2019) Geopolitical risk and tourism demand in emerging economies. *Tourism Economics* 25(6): 997-1005.
- Baltagi, B.H. (2021) *Econometric analysis of panel data*. Springer Nature.
- Barman, H and Nath, H.K. (2019) What determines international tourist arrivals in India? *Asia Pacific Journal of Tourism Research* 24(2): 180-190.
- Bassil, C., Saleh, A.S. and Anwar, S. (2019) Terrorism and tourism demand: a case study of Lebanon, Turkey and Israel. *Current Issues in Tourism* 22(1): 50-70.
- Basu, K. and Marg, V.S. (2010) Impact of political instability and terrorism in the tourism industry of three Middle-East countries: An Econometric exploration. *International conference on tourism, transport & logistic*.
- Blake, A., Sinclair, M.T. and Sugiyarto, G. (2003) Quantifying the impact of foot and mouth disease on tourism and the UK economy. *Tourism Economics* 9(4): 449-465.
- Bokhari, A.A.H. (2018) The economics of religious tourism (Hajj and Umrah) in Saudi Arabia. *Global Perspectives on Religious Tourism and Pilgrimage*. IGI Global, pp.159-184.
- Brida, J.G. and Risso, W. (2009) Tourism as a factor of long-run economic growth: An empirical analysis for Chile. *European Journal of Tourism Research* 2(2): 178-185.
- Buigut, S., Ettarh, R. and Amendah, D.D. (2015) Catastrophic health expenditure and its determinants in Kenya slum communities. *International journal for equity in health* 14(1): 1-12.
- Cárdenas-García, P.J., Sánchez-Rivero, M. and Pulido-Fernández, J.I. (2015) Does tourism growth influence economic development? *Journal of Travel Research* 54(2): 206-221.
- Carson, R.T., Cenesizoglu, T. and Parker, R. (2011) Forecasting (aggregate) demand for US commercial air travel. *International Journal of forecasting* 27(3): 923-941.
- Chaiboonsri, C., Sriboonjit, J., Sriwichailamphan, T., et al. (2010) A panel cointegration analysis: An application to international tourism demand of Thailand. *Annals of the University of Petrosani Economics* 10(3).
- Chaitip, P. and Chaiboonsri, C. (2009) Thailand's international tourism demand: The ARDL approach to cointegration. *Annals of the University of Petrosani, Economics*, University of Petrosani, Romania, vol. 9(3), pages 163-184.
- Chang, S.-C. (2014) The determinants and motivations of China's outward foreign direct investment: A spatial gravity model approach. *Global Economic Review* 43(3): 244-268.
- Chasapopoulos, P., Den Butter, F.A. and Mihaylov, E. (2014) Demand for tourism in Greece: a panel data analysis using the gravity model. *International Journal of Tourism Policy* 5(3): 173-191.
- Cheng, K., Ming, (2012a) Tourism demand in Hong Kong: Income, prices, and visa restrictions. *Current Issues in Tourism* 15(3): 167-181.
- Cheng, K.M. (2012b) Tourism demand in Hong Kong: Income, prices, and visa restrictions. *Current Issues in Tourism* 15(3): 167-181.
- Crain, M. (1996) Contested territories. The politics of touristic development at the shrine of EI Rocio in southwestern Andalusia. In: J. Boissevain (editor), *Coping with Tourists. European Reactions to Mass Tourism*, Oxford, Berghahn: 27-55.
- Crouch, G.I. (1994) The study of international tourism demand: A review of findings. *Journal of Travel Research* 33(1): 12-23.
- Czaika, M. and Neumayer, E. (2017) Visa restrictions and economic globalisation. *Applied Geography* 84: 75-82.
- Day, J., Chin, N., Sydnor, S., et al. (2013) Weather, climate, and tourism performance: A quantitative analysis. *Tourism Management Perspectives* 5: 51-56.
- De Freitas, C.R., Scott, D. and McBoyle, G. (2008) A second generation climate index for tourism (CIT): specification and verification. *International Journal of Biometeorology* 52(5): 399-407.
- De Vita, G. (2014) The long-run impact of exchange rate regimes on international tourism flows. *Tourism management* 45: 226-233.
- Demiralay, S. and Kilincarslan, E. (2019) The impact of geopolitical risks on travel and leisure stocks. *Tourism management* 75: 460-476.
- Diener, E., Ng, W., Harter, J., et al. (2010) Wealth and happiness across the world: material prosperity predicts life evaluation, whereas psychosocial prosperity predicts positive feeling. *Journal of Personality and Social Psychology* 99(1): 52.
- Diener, E. and Seligman, M.E. (2004) Beyond money: Toward an economy of well-being. *Psychological science in the public interest* 5(1): 1-31.
- Dogru, T. and Sirakaya-Turk, E. (2018) Modeling Turkish outbound tourism demand using a dynamic panel data approach. *Tourism and Hospitality Research* 18(4): 411-414.

- Dogru, T., Sirakaya-Turk, E. and Crouch, G.I. (2017) Remodeling international tourism demand: Old theory and new evidence. *Tourism management* 60: 47-55.
- Donnelly, J. (2013) Universal human rights in theory and practice. *Universal Human Rights in Theory and Practice*. Cornell University Press.
- Du Toit, L. and Fourie, J. (2012) Africa's comparative advantage in travel service exports. *Studies in Economics and Econometrics* 36(1): 1-22.
- Durbarray, R., Nicolas, J. and Seetanah, B. (2009) The determinants of tourism demand in South Africa using a dynamic panel data approach. *Tourism Analysis* 14(3): 375-385.
- Eilat, Y. and Einav, L. (2004) Determinants of international tourism: a three-dimensional panel data analysis. *Applied Economics* 36(12): 1315-1327.
- Ekiz, E., Öter, Z. and Stephenson, M.L. (2017) Tourism development in the Kingdom of Saudi Arabia: Determining the problems and resolving the challenges. *International Tourism Development and the Gulf Cooperation Council States*. Routledge, pp.124-139.
- El-Nader, H., Al-Raimony, A. and Irshaidat, A. (2009) An Empirical Study of the Determinants of Tourism Exports Flow: Using Gravity Model, the Case of Jordan (1976-2005).
- Elyas, T. and Aljabri, A. (2020) Representations of Saudi Male's Guardianship System and Women's Freedom to Travel in Western Newspapers: A Critical Discourse Analysis. *Contemporary Review of the Middle East* 7(3): 339-357.
- Eryiğit, M., Kotil, E. and Eryiğit, R. (2010) Factors affecting international tourism flows to Turkey: a gravity model approach. *Tourism Economics* 16(3): 585-595.
- Eugenio-Martin, J.L. and Campos-Soria, J.A. (2010) Climate in the region of origin and destination choice in outbound tourism demand. *Tourism management* 31(6): 744-753.
- Fereidouni, H.G., Najdi, Y. and Amiri, R.E. (2013) Do governance factors matter for happiness in the MENA region? *International Journal of Social Economics*.
- Fourie, J., Rosselló-Nadal, J. and Santana-Gallego, M. (2020) Fatal attraction: how security threats hurt tourism. *Journal of Travel Research* 59(2): 209-219.
- Fourie, J., Rosselló, J. and Santana-Gallego, M. (2015) Religion, religious diversity and tourism. *Kyklos* 68(1): 51-64.
- Fourie, J. and Santana-Gallego, M. (2013) The determinants of African tourism. *Development Southern Africa* 30(3): 347-366.
- Fратиanni, M. and Kang, H. (2006) International terrorism, international trade, and borders. *Regional Economic Integration*. Emerald Group Publishing Limited.
- Fry, D., Saayman, A. and Saayman, M. (2010) The relationship between tourism and trade in South Africa. *South African Journal of Economics* 78(3): 287-306.
- Garín-Mun, T. (2006) Inbound international tourism to Canary Islands: a dynamic panel data model. *Tourism management* 27(2): 281-291.
- Garín-Munoz, T. and Montero-Martín, L.F. (2007) Tourism in the Balearic Islands: A dynamic model for international demand using panel data. *Tourism management* 28(5): 1224-1235.
- Garín-Muñoz, T. and Montero-Martín, L.F. (2007) Tourism in the Balearic Islands: A dynamic model for international demand using panel data. *Tourism management* 28(5): 1224-1235.
- GaStat (2021) Umrah Statistics 2020. General Authority for Statistics.
- Ghaderi, Z., Saboori, B. and Khoshkam, M. (2017) Does security matter in tourism demand? *Current Issues in Tourism* 20(6): 552-565.
- Ghaliya, T., Fidrmuc, J., Samargandi, N., et al. (2019) Institutional quality, political risk and tourism. *Tourism Management Perspectives* 32: 100576.
- Gholipour, H.F., Andargoli, A.E., Arjomandi, A., et al. (2021) Capital investment in telecommunications infrastructure and tourist arrivals in developing countries: Does the public-private sectors relationship matter? *Tourism Economics*. 13548166211014814.
- Gholipour, H.F. and Tajaddini, R. (2018) Sub-dimensions of consumer confidence and outgoing tourist expenditures. *Anatolia* 29(3): 445-455.
- Gholipour, H.F., Tajaddini, R. and Foroughi, B. (2022) International tourists' spending on traveling inside a destination: does local happiness matter? *Current Issues in Tourism*. 1-17.
- Goh, C. (2012) Exploring impact of climate on tourism demand. *Annals of Tourism Research* 39(4): 1859-1883.
- Görmüş, Ş. and Göçer, İ. (2010) The socio-economic determinant of tourism demand in Turkey: A panel data approach. *International Research Journal of Finance and Economics* 55(1): 88-99.
- Gössling, S., Bredberg, M., Randow, A., et al. (2006) Tourist perceptions of climate change: a study of international tourists in Zanzibar. *Current Issues in Tourism* 9(4-5): 419-435.
- Mintel (1991) Special report – Holidays, leisure intelligence. Mintel International Group, London. .
- Guo, X. and Sun, Z. (2016) A Novel Evaluation Approach for Tourist Choice of Destination Based on Grey Relation Analysis. *Scientific Programming* 2016.
- Habibi, F. (2017) The determinants of inbound tourism to Malaysia: a panel data analysis. *Current Issues in Tourism* 20(9): 909-930.
- Habibi, F. and Abbasianejad, H. (2011) Dynamic panel data analysis of European tourism demand in Malaysia. *Iranian Economic Review* 15(29): 27-41.

- Habibi, F., Rahim, K.A., Ramchandran, S., *et al.* (2009) Dynamic model for international tourism demand for Malaysia: Panel data evidence. *International Research Journal of Finance and Economics* 33(1): 208-217.
- Hailemariam, A. and Ivanovski, K. (2021) The effect of economic policy uncertainty on US tourism net exports. *Tourism Economics*. 13548166211025334.
- Hamilton, J.M. and Tol, R.S. (2007) The impact of climate change on tourism in Germany, the UK and Ireland: a simulation study. *Regional Environmental Change* 7(3): 161-172.
- Hanafiah, M.H.M. and Harun, M.F.M. (2010) Tourism demand in Malaysia: A cross-sectional pool time-series analysis. *International Journal of Trade, Economics and Finance* 1(1): 80-83.
- Hemström, O., Luu, J. and Unenge, U. (2006) *Attracting Chinese tourism: How Sweden can gain a larger share of the Chinese outbound tourism*.
- Henderson, J.C. (2017) Pilgrimage and tourism development in Saudi Arabia. *International Tourism Development and the Gulf Cooperation Council States: Challenges and Opportunities*. 222.
- Huang, Z., Huang, S., Yang, Y., *et al.* (2021) In pursuit of happiness: Impact of the happiness level of a destination country on Chinese tourists' outbound travel choices. *International Journal of Tourism Research* 23(5): 713-725.
- Ibragimov, K., Perles-Ribes, J.F. and Ramón-Rodríguez, A.B. (2021) The economic determinants of tourism in Central Asia: A gravity model applied approach. *Tourism Economics*. 13548166211009985.
- Ibrahim, A.O., Bashir, F.M., Ojobo, H., *et al.* (2021) Opting for Enriching Saudi Arabia's Tourism Attraction Sites towards the Realization of Vision 2030. *Elementary Education Online* 20(5): 4101-4114.
- Ibrahim, M. (2013) The determinants of international tourism demand for Egypt: Panel data evidence. *European Journal of Economics, Finance and Administrative Sciences*, ISSN. 1450-2275.
- Jeje, K. (2021) Increasing Tourist Arrivals: Do Capital Investment and Government Spending Matter? *The Journal of Accounting and Management* 11(1).
- Jermisittiparsert, K. (2020) Climate change, growth determinants and tourism industry: time series analysis from Malaysia. *ICSS 2019: Proceedings of the 2nd International Conference on Social Sciences, ICSS 2019, 5-6 November 2019, Jakarta, Indonesia*. European Alliance for Innovation, 335.
- Jong, M.-C., Puah, C.-H. and Arip, M.A. (2020a) Modelling Tourism Demand: An Augmented Gravity Model. *Jurnal Ekonomi Malaysia* 54(2): 105-112.
- Kaplan, F. and Aktas, A.R. (2016) The Turkey tourism demand: a gravity model. *The Empirical Economics Letters* 15(3): 265-272.
- Karabulut, G., Bilgin, M.H., Demir, E., *et al.* (2020) How pandemics affect tourism: International evidence. *Annals of Tourism Research* 84: 102991.
- Kareem, O.I. (2008) A panel data analysis of demand for tourism in Africa. *Ibadan Journal of Social Sciences, Forthcoming*.
- Khadaroo, J. and Seetanah, B. (2008) The role of transport infrastructure in international tourism development: A gravity model approach. *Tourism management* 29(5): 831-840.
- Kim, R., Saha, S., Vertinsky, I., *et al.* (2018) The Impact of national institutional quality on international tourism inflows: a cross-country evidence. *Tourism Analysis* 23(4): 533-551.
- Kulendran, N. and Divisekera, S. (2006) *Australian tourism marketing expenditure elasticity estimates*. Citeseer.
- Kulendran, N. and Dwyer, L. (2012) Modeling seasonal variation in tourism flows with climate variables. *Tourism Analysis* 17(2): 121-137.
- Kulendran, N. and Wilson, K. (2000) Is there a relationship between international trade and international travel? *Applied Economics* 32(8): 1001-1009.
- Kumar, N. and Kumar, R.R. (2019) Relationship between ICT and international tourism demand: A study of major tourist destinations. *Tourism Economics*. 1354816619858004.
- Kumar, N., Kumar, R.R., Patel, A., *et al.* (2020) Modelling inbound international tourism demand in small Pacific Island countries. *Applied Economics* 52(10): 1031-1047.
- Kuo, H.-I., Chen, C.-C., Tseng, W.-C., *et al.* (2008) Assessing impacts of SARS and Avian Flu on international tourism demand to Asia. *Tourism management* 29(5): 917-928.
- Ladki, S.M. and Maze, R.A. (2017) Comparative pricing analysis of Mecca's religious tourism. *International Journal of Religious Tourism and Pilgrimage* 5(1): 20-28.
- Lam, P.-L. and Shiu, A. (2010) Economic growth, telecommunications development and productivity growth of the telecommunications sector: Evidence around the world. *Telecommunications Policy* 34(4): 185-199.
- Leitão, N.C. (2010) Does trade help to explain tourism demand? The case of Portugal. *Theoretical and Applied Economics*. 63-74.
- Leitão, N.C. (2015) Portuguese tourism demand: a dynamic panel data analysis. *International Journal of Economics and Financial Issues* 5(3): 673-677.
- Li, H., Song, H. and Li, L. (2017) A dynamic panel data analysis of climate and tourism demand: Additional evidence. *Journal of Travel Research* 56(2): 158-171.
- Llorca-Vivero, R. (2008) Terrorism and international tourism: New evidence. *Defence and Peace Economics* 19(2): 169-188.
- Lorde, T., Li, G. and Airey, D. (2016) Modeling Caribbean tourism demand: an augmented gravity approach. *Journal of Travel Research* 55(7): 946-956.

- Martins, L.F., Gan, Y. and Ferreira-Lopes, A. (2017) An empirical analysis of the influence of macroeconomic determinants on World tourism demand. *Tourism management* 61: 248-260.
- MAS (2018) Summary of tourism in the Kingdom of Saudi Arabia Reportno. .
- McAleer, M., Huang, B.-W., Kuo, H.-I., *et al.* (2010) An econometric analysis of SARS and Avian Flu on international tourist arrivals to Asia. *Environmental Modelling & Software* 25(1): 100-106.
- Mendieta-Aragón, A. and Garín-Muñoz, T. (2020) Foreign Tourism in Andalusia: A Dynamic Panel Data Analysis. *Advances in Decision Sciences* 24(3): 1-32.
- Morley, C., Rosselló, J. and Santana-Gallego, M. (2014) Gravity models for tourism demand: theory and use. *Annals of tourism research* 48: 1-10.
- Nafea, I. (2017) Mobile health application running on public cloud during Hajj. *International Conference on Mobile Web and Information Systems*. Springer, 129-136.
- Naudé, W.A. and Saayman, A. (2005) Determinants of tourist arrivals in Africa: a panel data regression analysis. *Tourism Economics* 11(3): 365-391.
- Neumayer, E. (2004) The impact of political violence on tourism: Dynamic cross-national estimation. *Journal of conflict resolution* 48(2): 259-281.
- Neumayer, E. (2010) Visa restrictions and bilateral travel. *The professional geographer* 62(2): 171-181.
- Neumayer, E. and Plümper, T. (2016) Spatial spill-overs from terrorism on tourism: Western victims in Islamic destination countries. *Public Choice* 169(3): 195-206.
- Nguyen, Q.H. (2021) Impact of Investment in Tourism Infrastructure Development on Attracting International Visitors: A Nonlinear Panel ARDL Approach Using Vietnam's Data. *Economies* 9(3): 131.
- Nhamo, G., Dube, K. and Chikodzi, D. (2020) Impact of COVID-19 on Global Religious Tourism and Pilgrimages. *Counting the Cost of COVID-19 on the Global Tourism Industry*. Springer, pp.251-272.
- Nonthapot, S. (2017) Causality between capital investment in the tourism sector and tourist arrivals in ASEAN. *J. Advanced Res. L. & Econ.* 8: 2504.
- Norman, A. (2004) Spiritual tourism: Religion and spirituality in Contemporary travel.
- Osinubi, T.T., Osinubi, O.B., Tabash, M.I., *et al.* (2021) The Impact of Corruption on Tourism Sector in Nigeria: Empirical Insights by Using an Autoregressive Distributed Lag Bounds (ARDL) Testing Approach. *International Journal of Hospitality & Tourism Administration*. 1-20.
- Paniagua, J., Peiró-Palomino, J. and Santana-Gallego, M. (2022) Does happiness drive tourism decisions? *Economic Modelling*, 111,
- Peng, B., Song, H., Crouch, G.I., *et al.* (2015) A meta-analysis of international tourism demand elasticities. *Journal of Travel Research* 54(5): 611-633.
- Porto, N., Garbero, N. and Espinola, N. (2018) Spatial distribution of touristic flows in a gravity model in South America. *Journal of Tourism Analysis: Revista de Análisis Turístico*.
- Raj, R. and Bozonelos, D. (2015) Pilgrimage experience and consumption of travel to the city of Makkah for Hajj ritual. *International Journal of Religious Tourism and Pilgrimage* 3(1): 38-45.
- Ricci, A. (2021) Tourism as a geopolitical weapon: case from Saudi Arabia. DOI: <https://doi.org/10.20935/AL1298>.
- Ridderstaat, J., Oduber, M., Croes, R., *et al.* (2014) Impacts of seasonal patterns of climate on recurrent fluctuations in tourism demand: Evidence from Aruba. *Tourism management* 41: 245-256.
- Rinschede, G. (1992) Forms of religious tourism. *Annals of Tourism Research* 19(1): 51-67.
- Roodman, D. (2009) A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics* 71(1): 135-158.
- Rosselló-Nadal, J. and He, J. (2019) Tourist arrivals versus tourist expenditures in modelling tourism demand. *Tourism Economics*. 1354816619867810.
- Rosselló, J., Santana-Gallego, M. and Awan, W. (2017) Infectious disease risk and international tourism demand. *Health policy and planning* 32(4): 538-548.
- Rustika, R., Oemiyati, R., Asyary, A., *et al.* (2020) An evaluation of health policy implementation for Hajj pilgrims in Indonesia. *Journal of Epidemiology and Global Health* 10(4): 263.
- Rusydiana, A., Antonio, M.S., Assalafiyah, A., *et al.* (2021) Hajj Investment Fund: A Bibliographic Study of The Hajj Economy. *The international journal of religious tourism and pilgrimage* 9(1): 132-146.
- Saha, S., Su, J.-J. and Campbell, N. (2017) Does political and economic freedom matter for inbound tourism? A cross-national panel data estimation. *Journal of Travel Research* 56(2): 221-234.
- Saha, S. and Yap, G. (2014) The moderation effects of political instability and terrorism on tourism development: A cross-country panel analysis. *Journal of Travel Research* 53(4): 509-521.
- Samitas, A., Asteriou, D., Polyzos, S., *et al.* (2018) Terrorist incidents and tourism demand: Evidence from Greece. *Tourism Management Perspectives* 25: 23-28.
- Santana-Gallego, M. and Fourie, J. (2020) Tourism falls apart: How insecurity affects African tourism. *Tourism Economics*. 1354816620978128.
- Santana-Gallego, M., Ledesma-Rodríguez, F.J. and Pérez-Rodríguez, J.V. (2010) Exchange rate regimes and tourism. *Tourism Economics* 16(1): 25-43.
- Saray, M.O. and Karagöz, K. (2010) Determinants of tourist inflows in Turkey: Evidence from panel gravity model. *Uluslararası Yönetim İktisat ve İşletme Dergisi* 6(11): 33-46.

- Shafiullah, M., Okafor, L.E. and Khalid, U. (2019) Determinants of international tourism demand: Evidence from Australian states and territories. *Tourism Economics* 25(2): 274-296.
- Shaheen, R. (2019) Nexus between religious journeys and economic influences - the case of Saudi Arabia. *International Journal of Religious Tourism and Pilgrimage* 7(3): 27-37.
- Smeral, E. and Witt, S.F. (1996) Econometric forecasts of tourism demand to 2005. *Annals of Tourism Research* 23(4): 891-907.
- Sokhanvar, A., Aghaei, I. and Aker, Ş. (2018) The effect of prosperity on international tourism expenditure. *Tourism Review*.
- Song, H. and Li, G. (2008) Tourism demand modelling and forecasting—A review of recent research. *Tourism management* 29(2): 203-220.
- Song, H., Li, G., Witt, S.F., *et al.* (2010) Tourism demand modelling and forecasting: how should demand be measured? *Tourism Economics* 16(1): 63-81.
- Stephenson, M.L. (2017) Introduction: deciphering international tourism development in the GCC region. *International Tourism Development and the Gulf Cooperation Council States*. Routledge, pp.1-25.
- Su, Y.-W. and Lin, H.-L. (2014) Analysis of international tourist arrivals worldwide: The role of world heritage sites. *Tourism management* 40: 46-58.
- Tang, C.F. (2018) The impacts of governance and institutions on inbound tourism demand: evidence from a dynamic panel data study. *Asia Pacific Journal of Tourism Research* 23(10): 1000-1007.
- Tang, C.F. and Lau, E. (2021) Exploring the Impact of Political Stability and Climate Change on Inbound Tourism Demand: Evidence from Dynamic Panel Data Analysis. *Regional Science Perspectives on Tourism and Hospitality*. Springer, pp.403-419.
- Tatoglu, F.Y. and Gul, H. (2019) Analysis of tourism demand using a multi-dimensional panel gravity model. *Tourism Review*.
- Taylor, T. and Ortiz, R.A. (2009) Impacts of climate change on domestic tourism in the UK: a panel data estimation. *Tourism Economics* 15(4): 803-812.
- UDHR (1948) Universal Declaration of Human Rights.
- Ulucak, R., Yücel, A.G. and İlkay, S.Ç. (2020) Dynamics of tourism demand in Turkey: Panel data analysis using gravity model. *Tourism Economics*. 1354816620901956.
- Unguren, E., Tekin, Ö. and Bayirli, M. (2021) Exploring the effect of push and pull motivation factors on destination satisfaction: an Empirical Evidence from Amenity Migration Perspectives. *European Journal of Tourism Research* 28: 2811-2811.
- Uzuner, G. and Ghosh, S. (2020) Do pandemics have an asymmetric effect on tourism in Italy? *Quality & Quantity*. 1-19.
- Veloce, W. (2004) Forecasting inbound Canadian tourism: An evaluation of error corrections model forecasts. *Tourism Economics* 10(3): 263-280.
- Viljoen, A., Saayman, A. and Saayman, M. (2019) Determinants influencing inbound arrivals to Africa. *Tourism Economics* 25(6): 856-883.
- Walters, G., Wallin, A. and Hartley, N. (2019) The threat of terrorism and tourist choice behavior. *Journal of Travel Research* 58(3): 370-382.
- Wang, Y.-S. (2009) The impact of crisis events and macroeconomic activity on Taiwan's international inbound tourism demand. *Tourism management* 30(1): 75-82.
- Witt, S.F. and Witt, C.A. (1995) Forecasting tourism demand: A review of empirical research. *International Journal of forecasting* 11(3): 447-475.
- Xu, B. and Dong, D. (2020) Evaluating the Impact of Air Pollution on China's Inbound Tourism: A Gravity Model Approach. *Sustainability* 12(4): 1456.
- Xu, L., Wang, S., Li, J., *et al.* (2019) Modelling international tourism flows to China: A panel data analysis with the gravity model. *Tourism Economics* 25(7): 1047-1069.
- Yang, C.-H., Lin, H.-L. and Han, C.-C. (2010) Analysis of international tourist arrivals in China: The role of World Heritage Sites. *Tourism management* 31(6): 827-837.
- Yap, G. and Saha, S. (2013) Do political instability, terrorism, and corruption have deterring effects on tourism development even in the presence of UNESCO heritage? A cross-country panel estimate. *Tourism Analysis* 18(5): 587-599.
- Yeoman, I., Lennon, J.J., Blake, A., *et al.* (2007) Oil depletion: What does this mean for Scottish tourism? *Tourism management* 28(5): 1354-1365.
- Youssef, J. and Diab, S. (2021) Does quality of governance contribute to the heterogeneity in happiness levels across MENA countries? *Journal of Business and Socio-economic Development* 1(1): 87-101.
- Zaki, A. (2008) An Econometric Model Forecasting Egypt's Aggregate International Tourism Demand and Revenues. *Tourism and Hospitality Planning & Development* 5(3): 215-232.
- Zeng, B., Carter, R.W. and De Lacy, T. (2005) Short-term perturbations and tourism effects: The case of SARS in China. *Current Issues in Tourism* 8(4): 306-322.