

COVID-19 and tourism sector: A perspective of Saudi Arabia



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ABSTRACT

The current paper attempts to analyze the relationship between COVID-19 and tourism in Saudi Arabia from the period 2nd March 2020–15th Nov 2020 as COVID-19 cases started to increase in March 2020. Along with this, predicted data is also used for the year 2021 in order to know the situation of tourism in the coming year if COVID-19 cases continue to increase. Ordinary least square, as well as quantile regression, is used to have a detailed overview of the nexus between COVID-19 and tourism. The findings of the study clearly indicate that tourism in Saudi Arabia is declined significantly due to COVID-19 in 2020. Besides this, it is also found that if COVID-19 cases continue to increase in 2021, then tourism will continue to decrease in the coming year as well.

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1. Introduction

The tourism sector in Saudi Arabia is facing a sharp decline since Covid-19 started. The main reason for this decrease is the announcement by the World Health Organization (WHO) recognized that Covid-19 is considered as a pandemic, dated March 11th, 2020, as a result, the organization imposed many precautionary procedures on all countries to adherence to limit the spread of the disease. However, the countries have to impose a ban on different activities; the first is the tourism sector by restrict and prevent travel between affected countries, closing the airports and borders between countries, impose a curfew to keep everyone safe. Similarly, Saudi Arabia has followed the instructions given by WHO which is one of the biggest hubs of religious tourism. In the case of Saudi Arabia, the tourism sector has a massive contribution to the gross domestic product, after oil exports. This paper provides an overview of the tourism sector in Saudi Arabia throughout the pandemic, and to which extent tourism is affected by COVID-19 as a significant part of the globalized economy. This paper is useful because it summarizes and analyses the major effects on the tourism sector in the context generated by the COVID-19 pandemic.

The main objective of the current study is to examine the role of COVID-19 in the tourism sector, for Saudi Arabia. Moreover, we use the predicted data to explore the relationship between COVID-19 and tourism which helps to estimate the future outcomes and economic policies should be driven accordingly. The results are significant and negative which mention the decline in the tourism sector with the surge in COVID-19 cases.

Saudi Arabia tourism is considered one of the most important emerging sectors in the Kingdom. As the tourism sector in the Kingdom of Saudi Arabia contributed to an increase in the GDP by more than 7% in 2011, and the growth in this sector also led to an increase in the employment rate in this country, which reached nearly 26% of the total number of workers in the tourism sector. This sector occupies approximately 670,000 direct jobs, which has led to an increase in the workforce in the Kingdom of Saudi Arabia, specifically in the private sector. Also, numerous reports that appeared in the World Economic Forum revealed that Saudi Arabia earned nearly 46,000,000,000 dollars from inbound tourism in 2013 and that foreign tourists in Saudi Arabia spent nearly 48,000,000 dollars.

As for local tourists, their total spending this year was about \$ 28 million. We conclude that religious tourism is one of the most important pillars of the economy, as around 2 million Muslims from all over the world visit Saudi Arabia annually to perform Hajj and Umrah, visit the Grand Mosque and the Prophet's Mosque.

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2. Literature review

The correlation between cases of COVID-19 and international tourism had been examined by [Farzanegan \(2020\)](#) by using the regression analysis of cross countries along with the analysis of death rates due to COVID-19 in more than 90 countries. The results indicated a positive relationship between international tourism and cases of COVID-19 on the basis of estimation that with the inflow and outflow of 1% tourism there had been 1.2% and 1.4% cases and deaths due to COVID-19 till 30th April 2020 respectively. In this context; [Hong et al. \(2020\)](#) investigated and aimed to fill the gap before and after impacts of COVID-19 on the satisfaction of tourists with B&B (The bed and Breakfast); one of the industries of tourism in China which tackled many obstacles for improving the plans and procedures of health after the outbreak of COVID-19 in the country based on the online data collected from the 588 tourists of B&B industry from 1st March to 15th March 2020.

Similarly, [To \(2020\)](#) obtained the historical evidence from the website of the international airport of Hong Kong and examined the seasonal departure and aperture of passengers utilizing the annual and monthly data from 1998 to 2020, he investigated the peak aperture and departure of passengers in the months of April, July, August, October, and December. The number of passengers had raised from the time period of 1998 till 2019, but it decreased by 16.7% in March, 70.9% in April, 81.1% in May, 62.0% in June, and 25.9% in July due to the effects of SARS in the year of 2003. If the same practice would be repeated this year too because of the outbreak of COVID-19, it is assumed that the passengers' number at the international airport of Hong Kong would fall by 2 million in 2020 which would badly impact the services of flights and the tourism industry. As per the studies of [Williams \(2021\)](#), due to the pandemic of the corona virus, the enterprises and employees of the tourism industry had lost their revenue as the limitations on movements had been imposed. As per the reports of the Euro barometer survey of 2019, one out of 165 citizens of Europe had been engaged in an unreported job in the industry of tourism. In order to put these industries and employees on the state radar, temporary financial support had been offered to the unspoken employees and industries with respect to the disclosure of their previous unexpressed work. To discover the relationship between tourism and COVID-19, [Wen et al. \(2020\)](#) explored that where the medical and social sciences had been impacted by the COVID-19 outbreak, at the same time the sector of tourism had also been impacted due to this pandemic. The work of interdisciplinary overview had been briefed in this article with some benefits and diverged obstacles of cross-disciplinary studies. The opportunities of interdisciplinary collaboration in terms of COVID-19, inside and outside of the tourism industry had also been brought forward. [Rogerson and Rogerson](#)

[\(2020\)](#) aimed to discover South Africa's vulnerability spaces of tourism by using a database of HIS Global Insight for 2016 in order to explore the authority of scale at local level vulnerabilities to the effects of the pandemic of COVID-19. Those local authorities had been discovered as most defenseless to the recession of tourism all at once, also extracting the particular sorts of tourism, namely within the country as contrary to the international travel, holiday as contrary to the business trips.

Tourists' travel and lifestyle in China are examined by [Wen et al. \(2020\)](#) in terms of short and long-term impacts of the Covid-19. It has been predicted that the utilization pattern of tourism will be considerably changed due to the pandemic effect of COVID-19 ([Liew, 2020](#)). In the case of travel after a crisis, and the experimental verification supporting the results of the comparison between the previous health crises. COVID-19 is required to implement precautionary measures to ease future risks which is essential for tourism. [Liew \(2020\)](#) introduced a quick review and feedback to those who are eager to learn about the new COVID-19 pandemic and its impact by Booking Holdings Inc., Expedia Group, and Trip.com Group Ltd. The findings indicate that the tourism sector is losing performance and is entirely shut down by the above-mentioned leader companies. Based on online research and an assessment of the expected impacts of the COVID-19 pandemic on wildlife tourism. [Newsome \(2020\)](#) reported mixed evidence for the global tourism industry after the return to normalcy of the post-COVID-19 situation. [Jones and Comfort \(2020\)](#) examined that hospitality plays a crucial role in economics and society and there have been significant changes in the relationship between sustainability and hospitality in the context of the COVID-19 crisis. The study suggests that a more sustainable future appears when new challenges are faced successfully. [Koh \(2020\)](#) looked at the problems that are faced by tourism due to the Covid-19 pandemic, and the opportunities to be overcome in a post-Covid-19 period. The findings authenticate the effectiveness of the pandemic for converting the state of the tourism cities from one of "over-tourism" to one of "no tourism." [Kuqi and Hasanaj \(2020\)](#) evaluated the impacts of COVID-19 on the industry of tourism and the affiliation between statistics and analysis of data that led to the conclusion that COVID-19 affects people with varying degrees of strength in all directions. [Brouder \(2020\)](#) explored the consequences of COVID19 on the development of tourism in the long term and how innovation plays an essential part in providing the demand and supply of tourism as a result of radical changes.

The tourism sector is one of the most affected sectors at all levels and from all economic, political, social, and health aspects in all countries of the world. At this stage of the spread of the pandemic, the tourism sector works on studying and evaluating the potential positive and negative effects before and after the emergence of the COVID-19 pandemic, seeks to mitigate the effects of risks on tourists,

understand the expected and predict what may happen after the crisis by studying and comparing previous pandemics and developing effective preventive measures. The flexibility at this stage and the possibility of modification if any unexpected change occurs. The results confirm a clear vision of the possibility of creating a more sustainable future that appears after facing new challenges and creating innovative ideas that may radically change the travel behavior and user experience.

3. Data and methodology

Data for the current study consists of COVID-19 cases and outbound tourism as the number of flights to the country. COVID-19 cases are taken from <https://www.kapsarc.org/> whereas data regarding the flights from <https://www.routesonline.com/>. To check the impact of COVID-19 on tourism, OLS as well as quantile regression technique is applied on data from 2 March 2020-15 Nov 2020. The importance of quantile regression over the traditional regression can be documented through a number of channels, firstly, it helps to understand the relationship between variables outside of the mean of the data, which makes it able to realize the results that are non-normally distributed. Secondly, they have a nonlinear association with predicted variables.

4. Empirical results

Table 1 presents the descriptive statistics regarding tourism and COVID-19 in Saudi Arabia. It can be seen that the mean number of flights during the study period is 4.8 whereas the mean number of cases is about 6.9. Besides this, in terms of volatility (i.e. Std. Dev/volatility), COVID-19 is more volatile as compared to tourism. Along with this, coefficients of skewness are negative for both variables but kurtosis is more than three for only COVID-19. This

shows that both series are negatively skewed however, tourism data is normally distributed whereas COVID-19's distribution is not normal.

Table 1: Descriptive statistics

	Tourism	Covid-19
N	257	257
mean	4.79	6.58
max	4.88	8.50
Min	4.64	0.00
Sd	0.06	1.56
variance	0.02	2.42
skewness	-0.41	-1.89
kurtosis	2.27	7.66

4.1. Results and discussion

The empirical estimations for ordinary least square (OLS) and quantile regression are reported in Table 2. Results demonstrate that in ordinary least square, the relationship between covid-19 and tourism in Saudi Arabia is negative and the coefficient is -0.0278 which is significant at a 1% level of significance. This suggests that a 1% increase in covid-19 cases decreases tourism or flights to Saudi Arabia by 0.0278%. Results of quantile regression show that in all quantiles, coefficients are negative as well as significant at a 1% level of significance. However, the magnitude of effect keeps increasing from lower to upper quantiles and it reached the highest point in the 75th quantile (-0.0313) but then it is decreased slightly in the 95th quantile (0.0287). In the 75th quantile, a 1% increase in covid-19 cases results in a decrease in tourism by 0.0313%. The coefficient of linear regression underscored this impact. Alongside, the coefficient of OLS and middle quantile are almost the same. This suggests that with the passage of time, COVID patients increase during the study period and tourism decreases. The main reason behind this negative association is the restriction on traveling to Saudi Arabia from other countries to prevent the spread of the virus.

Table 2: OLS and Quantile estimations

	OLS	Q10	Q25	Q50	Q75	Q95
Covid-19	-0.0278*** (19.49)	-0.0199*** (9.09)	-0.0226*** (8.73)	-0.0282*** (9.84)	-0.0313*** (11.38)	-0.0287*** (14.42)
Constant	4.606*** (495.94)	4.595*** (309.64)	4.604*** (263.43)	4.605*** (237.48)	4.621*** (248.20)	4.665*** (346.48)
Observations	257	257	257	257	257	257

Note: t statistics in parentheses; * p<0.05, **p<0.01, *** p<0.001

Saudi Arabia is the most traveled destination by Muslims around the world for performing Umrah and Hajj and millions of people travel to both of the holy sites "Makkah" and "Medina" to perform the rituals. The tourism sector of the country is the largest in the Middle East due to religious tourism and thousands of flights come to the country carrying these pilgrims and hence, the tourism sector becomes the main sector in terms of the economic progress of the country. However, in January 2020, when COVID-19 is declared as a global pandemic, countries start putting a ban on traveling within and from outside of the country so that virus

could be contained. Saudi Government also put in place restrictions and suspended flights to the country especially for Umrah pilgrims because there is a huge threat of virus spread when people perform Umrah or hajj while walking closely in crowded places. This decrease in flights due to COVID-19 is the main reason behind the negative association between COVID-19 and tourism in Saudi Arabia because flights were not allowed. The magnitude of the negative association between COVID-19 and tourism decreased slightly in the last quantile because, when the effect of the virus gets lower due to different measures along with the creation of herd

immunity, restrictions on traveling get relaxed and flights get resumed to allow people perform Umrah and hajj. Fig. 1 explains the impact of COVID-19 cases

on tourism, mentioning that a higher number of cases leads to a decrease the tourism for Saudi Arabia.

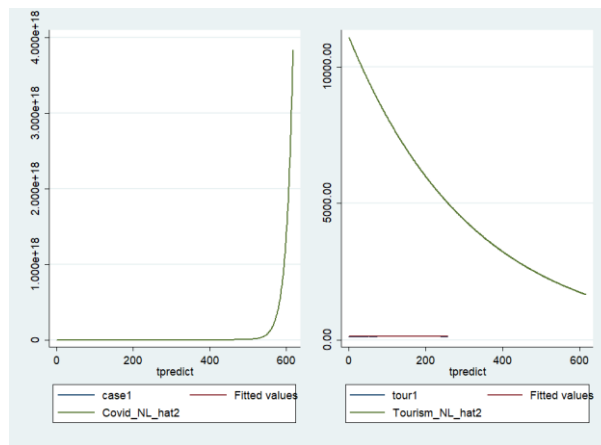


Fig. 1: Predicted trend of Covid-19 and tourism

4.2. Predicted results

Although it is seen that during the entire year of 2020, COVID-19 continues to spread to all countries around the world. However, recently it is noticed that the spread is somewhat reduced and the severity of the virus get decreased due to preventive measures and the creation of herd immunity. Due to this positive scenario, the majority of countries lifted the ban on flights and likewise, Saudi Arabia also resumes flights and is planning to open borders for pilgrims also. In this scenario, it is important to check that if COVID-19 cases continue to increase in the future year 2021 then what will be the impact on tourism in Saudi Arabia.

After the empirical estimations, we have predicted the data for COVID-19 and tourism till 16th November 2021. The results of OLS, as well as quantile regression, is represented in Table 3. It can be seen that the coefficient of linear regression, as well as all quantiles, is the same as -0.0534. The coefficient is negative as well as significant at a 99% level of significance. These results suggest that if COVID-19 cases continue to increase then a 1% increase in cases will result in a 0.0534% decrease in tourism in Saudi Arabia. These results can also be confirmed through Fig. 1 where a sharp increase in COVID-19 is clearly seen whereas tourism is decreased gradually in 2021 until it reached the lowest point. These results are somewhat shocking

because the highest magnitude of impact in the current scenario is 0.0313 which is in the 75th quantile. However, in the future, the impact is larger than this. These results suggest that the Saudi tourism sector will go down in the future due to COVID-19. The main reason for this high impact is the fact that the second wave of COVID-19 is affecting the world and reported cases are also increasing. Although flights are partially operating from and to the country, however, again it is expected to be banned to contain the virus again. Also, the vaccine for COVID-19 is still under trial and it can't be approved and get available next year hence, without vaccination COVID-19 will be spreading. Due to this fact, a ban is expected to be placed on Umrah and Hajj as well which is the main source of tourism hence, there will be a negative relationship between COVID-19 cases and tourism in 2021 as well. Along with this, another important point is that it is not expected that people will continue to travel to Saudi Arabia despite the ban lifted because it is noticed that people are very concerned about preventive measures. It is expected that people will not travel until the availability of a vaccine or a visible decrease in virus spread is seen. Also, it is mentioned by UNWTO (2020), that tourism in the world especially in the Middle East is not expected to return to the level of 2019 before 2024. Hence, these results are consistent with these points.

Table 3: OLS and Quantile estimations for predicted data (16 November 2020–16 November 2021)

	OLS	Q10	Q25	Q50	Q75	Q95
Predicted Covid-19	-0.0534***	-0.0534***	-0.0534***	-0.0534***	-0.0534***	-0.0534***
Constant	9.693***	9.693***	9.693***	9.693***	9.693***	9.693***
Observations	617	360	360	360	360	360

Note: OLS stands for ordinary least square, Q10 is 10th quantile, Q25 presents 1st quarter, Q50 is the median, Q75 is the third quarter, Q95 shows 95th quantile. * p<0.05, **p<0.01, *** p<0.001

5. Conclusion and policy recommendations

The current study is intended to check the effect of covid-19 on the tourism sector of Saudi Arabia from 2nd March 2020–15th Nov 2020 through OLS as

well as quantile regression. Besides this, the impact of COVID-19 is also checked on tourism by predicted data for 2021 so that future predictions can be made. Results demonstrate that COVID-19 is significantly and negatively related to tourism and it is noticed

that due to preventive measures to contain the virus, Saudi authorities put a ban on traveling from and to the country. This restriction stops pilgrims as well as leisure tourists and hence, tourism decline sharply. Besides this, there is a curfew in a few cities which stops the movement of local tourists as well and local tourism is also affected. Hence, all in all, COVID-19 affected tourism, and tourism declined significantly during the study period. Along with current data, predicted data for 2021 is used to analyze what will be the impact of COVID-19 on tourism if cases continue to increase in the next year as well. Results of OLS and Quantile regression show that in 2021 also, an increase in COVID cases will affect tourism significantly, and with increasing cases of COVID, tourism decline gradually in 2021. This decline is associated with the ban on flights along with the ban on Umrah and Hajj as a preventive measure to contain the virus because all countries are under the effect of the second wave of COVID-19 and it is expected that the third wave will affect as well.

Although there is not enough which could be done by humans to control the virus or subside its effects on the economy and tourism sector, however, there are some policy implications of this research that can help to minimize the negative impact of COVID-19 on tourism in Saudi Arabia. In this sense, authorities should make sure that proper safety measures should be adopted at airports and it should be made sure that SOP's are followed by everyone. This will boost the confidence of travelers that if they will travel to Saudi Arabia either for religious purposes or for leisure, they will be safe regarding COVID-19. Besides this, Umrah and Hajj should be opened and flights should be resumed however, precautionary measures should be placed for pilgrims also during Umrah and Hajj and they should be allowed to perform rituals of Umrah and Hajj in batches. Through these measures, one of the major tourism activities could be resumed and the negative effects of COVID-19 could be minimized in the coming years. Alongside, extensive research is carrying out throughout the world for making vaccines for COVID-19 and there are chances that vaccines will be available soon. Hence, it is recommended that Saudi authorities should book the vaccine in advance to make it available as soon as possible. Also, efforts should be made to enhance domestic tourism because it can support the tourism sector to some extent until the eradication of COVID-19 completely.

As for the limitations of the study, due to the limited number of observations, we are unable to do robust regression estimations. Another limitation is regarding the prediction method, which is useful for a limited number of observations, whereas, other sophisticated techniques require a higher number of observations. Further studies have to use different proxies for tourism variables which help to give robust results. Secondly, the same hypothesis can be regressed on different countries and long-period datasets. Thirdly, Different econometric estimations

are required to conclude the adequate relationship between COVID-19 cases and tourism.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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