

Assessing the Short-term Impacts of COVID-19 Pandemic on Foreign Visitor's Demand for Turkey: A Scenario Analysis

^aFatih Günay, ^bEngin Bayraktaroğlu, ^cKahraman Özkul

^a*Mersin University, Department of Tourism Management, Mersin – Turkey, ^bAnadolu University, Department of Tourism Management, Eskişehir – Turkey, ^cMavi Deniz Publication, Rize - Turkey



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ABSTRACT

Since it first started in China, COVID-19 outbreak has become the number one problem of the World. World Health Organization accepted COVID-19 outbreak a pandemic on March 11, 2020. In light of the latest information, it could be said that the world has never encountered such a pandemic in the last century. Tourism is one of the most sensitive sectors to crises such as wars, terrorist attacks, natural disasters and other kinds of unexpected phenomena. This study aims to forecast the short-term effects of COVID-19 pandemic on foreign visitors' demand for Turkey by using scenario analysis technique. According to the results, a decline in foreign visitors' arrivals in the range of 5% to 53% is estimated. It means a loss of tourism revenues about \$15.2 billion as the worst, and \$1.5 billion as the best alternative scenario for 2020. It is essential to develop recovery plans and to implement them urgently, to minimize the harms of the COVID-19 pandemic on Turkish tourism.

1. Introduction

Since it first started in China, the World has been under the effect of COVID-19 outbreak. World Health Organization classified COVID-19 outbreak as a pandemic on March 11, 2020. Because of COVID-19 and precautionary measures taken to curb the spread, economic conditions have become uncertain, specifically for the tourism industry.

In light of the latest information, it could be said that the world has never encountered such a pandemic in the last century. In the modern era, tourism activities and international mobility have reached a global scale. But in the third month following the first reported case, many countries restricted international mobility as a preventive measure against the virus. Some countries closed their borders entirely and others restricted border crossings. On the other hand, countries warned their citizens not to travel unless it is necessary. By taking these measures and defensive actions to stop the spreading of the virus, international mobility has almost stopped in the world and tourism activities have been delayed.

Tourism is one of the most sensitive sectors to crises such as wars, terrorist attacks, natural disasters and other kinds of unwanted phenomena. Normally, tourism demand and forecasts could be done by some objective methods, but coronavirus pandemic has changed all the circumstances and affected all the conditions in the economic cycle.

At this point, forecasting tourist demand with subjective or hypothetical methods could be seen as a solution. This study aims to forecast the short-term effects of COVID-19 pandemic on foreign visitors' demand for Turkey by using scenario analysis technique. For this purpose, the paper has designed in five sections. After the introduction, a literature review was conducted on the current state of international tourism, the past pandemics and the international tourism demand for Turkey. In the methodology section, short-term effects of COVID-19 pandemic on foreign visitors' demand for Turkey was analysed by using scenario analysis technique and some suggestions were made in the conclusion section. This study could be seen as an early prediction related to the effects of COVID-19 pandemic on tourist mobility to Turkey. It has seen in the results that, decision-makers still have time to recover the effects of the pandemic in 2020.

2. Literature Review

2.1. Chronological Spread of COVID-19 and Preventive Measures

COVID-19, known also as the Coronavirus, appeared in December 2019, according to the information provided by the World Health Organization (WHO). On January 9, 2020, a 61-year-old person in China was found to have similar symptoms with the SARS virus. On January 11, 2020, the first case was confirmed and announced by the Wuhan Municipal Health Commission ("China reports first dead," 2020). On January 20, 2020, the virus was detected on a US citizen returning from his trip in Wuhan, and he was quarantined. This is the

first reported case in the USA (Nedelman, 2020). On January 20, 2020, more than 200 people were reported to have symptoms of the pandemic. Until that date, 3 people had been infected, and the virus was also seen in Shanghai and Shenzhen cities of China ("New China Virus," 2020). The first case in South Korea was also confirmed on 20th January ("New Virus Surging," 2020).

On January 22, 2020, the first travel restriction came due to the coronavirus by North Korea. It was stated by the North Korean administration that there was a restriction for the tourists who wanted to travel the country entering via China and that such a decision was made due to the epidemic that started in Wuhan ("North Korea Bans Foreign Tourists," 2020). On January 24, 2020, China started to apply travel restrictions in 13 cities in which 35 million people lived, to prevent the spread of the virus. Thus, another major travel restriction was introduced by China after North Korea's restrictions on tourists entering the country ("China Expands Virus Lockdown," 2020). On the same day, 3 cases were confirmed in France. These cases were the first ones confirmed in the European Union ("Coronavirus Reaches Europe," 2020).

With the spreading of COVID-19 virus, countries geographically close to China took several preventive safety measures against the outbreak. These preventive measures, which started with the screening of passengers from China at the airports with thermal cameras, passed to the next stage with the flight cancellations decisions made by several countries on January 25. Russia warned its citizens not to travel to China and cancelled all flights from Wuhan to Moscow. Tajikistan cancelled Somor Air's all flights from Tajikistan to China and all flights of South Airlines from China to Tajikistan ("Airlines Suspend Flights," 2020). On January 27, 2020, Turkey urged its citizens not to travel to China unless necessary (Zorlu, 2020). In late January, many airlines decided to cancel their flights to China ("Airlines Suspend Flights," 2020). Germany reported its first coronavirus case on January 27 ("Bayerische Behörden bestätigen," 2020).

Turkish Airlines announced on January 30 that the number of flights to Beijing, Guangzhou, Shanghai and Xian regions, from February 5 to February 29, will be reduced ("Airlines Suspend China," 2020) A day later, Turkish Airlines announced that the flights to China were cancelled until 9 February 2020. Thus, Turkey introduced first flight restrictions, in the context of preventive measures against COVID-19 pandemic (Sahin, 2020).

While Spain reported the first case on January 31, 2020, it also announced that the infected person was in the Canary Islands and was a tourist from Germany ("Confirmado el coronavirus," 2020). On the same day, coronavirus was detected in two Chinese tourists in Milano, and this was the first reported case in Italy ("Conte, primi due casi di coronavirus confermati," 2020). On February 19, 2020, Iran reported 2 cases. On the same day, it announced that these 2 cases were under treatment ("Iran Reports Two," 2020). Turkey announced that visitors from Iran would undergo the medical examination and those with symptoms would not be accepted to the country, on February 21 (Alhas, 2020). Two days later, Turkey announced temporary cancellation of border crossings

* Corresponding author. E-mail address: fgunay@mersin.edu.tr (F. Günay).

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from Iran and Nakhichevan, as a result of the increase in the number of cases in Iran ("Turkey, Pakistan Shut Iran Border," 2020) on February.

25, 2020, Turkish Civil Aviation Authority suspended passenger flights to and from Iran (Aydın, 2020). With the rapid increase in the number of cases and deaths in Italy, Turkey decided to cancel flights to and from Italy on February 29, 2020.

The first novel coronavirus case was diagnosed in Turkey on March 11, 2020, and it also announced that the first confirmed case was a Turkish citizen who had travelled from Europe ("First coronavirus case," 2020). Therefore, Turkey took significant measures to prevent the spread of the virus. One of the most important measures taken in this context is the cancellation of international flights. On March 13, 2020, Turkey cancelled passenger flights to and from Germany, France, Spain, Norway, Denmark, Belgium, Austria, Sweden and Netherlands ("Türkiye'nin uçuş yasağı," 2020).

On March 28, 2020, all commercial passenger flights to or from Turkey was cancelled by a presidential enactment ("Turkey cancels international flights," 2020) The dates on which international flights were cancelled within the scope of preventive measures taken against COVID-19 pandemic by Turkey are presented in Table 1.

Table 1. Cancelled International Flights by Turkey ("Türkiye'nin uçuş yasağı," 2020).

Date	Flight cancellations by Turkey (in both directions)
February 3, 2020	China
February 23, 2020	Iran
February 29, 2020	Italy, South Korea, Iraq
March 13, 2020	Germany, France, Spain, Norway, Denmark, Belgium, Austria, Sweden, Netherlands
March 16, 2020	England, Switzerland, Saudi Arabia, Egypt, Ireland, United Arab Emirates
March 21, 2020	Sri Lanka, Kuwait, Bangladesh, Mongolia, Turkish Republic of North Cyprus, Ukraine, Kosovo, Morocco, Lebanon, Jordan, Kazakhstan, Uzbekistan, Oman, Slovenia, Moldova, Djibouti, Equatorial Guinea, Canada, India, Hungary, Guatemala, Poland, Kenya, Sudan, Chad, Philippines, Latvia, Taiwan, Peru, Sri Lanka, Ecuador, Niger, Tunisia, Algeria, Ivory Coast, Finland, Angola, Czechia, Dominican, Cameroon, Montenegro, Colombia, North Macedonia, Mauritania, Nepal, Portugal, Panama
March 28, 2020	All commercial passenger flights

2.2. Outbreaks that Have Affected Tourist Demand in the Past Two Decades

Diseases with their origins in Central Asia, Central America and Central Africa have significantly damaged the image of several countries as a safe tourist destination in the last two decades. One of these diseases is Severe Acute Respiratory Syndrome (hereafter SARS) epidemic, which first infected people in the Guangdong province of southern China in 2002 and received worldwide attention in 2003. The other one is H5N1 Avian Influenza (hereafter Avian Flu or Bird Flu) epidemic, which first infected people in Hong Kong SAR, China in 1997 and received worldwide attention in 2004 (McAleer, Huang, Huo, Chen & Chang, 2010). With its origin in Mexico, namely the H1N1 Swine Influenza (hereafter Swine Flu) epidemic, which received worldwide attention in 2009 (Haque & Haque, 2018) and the Ebola Virus Disease (hereafter Ebola) epidemic, which was first identified in the Democratic Republic of Congo in 1976 but received worldwide attention in 2014 (Sifolo & Sifolo, 2015) are some common examples.

SARS epidemic mainly affected the countries in Asia, namely China, Hong Kong, Singapore, and Taiwan. SARS epidemic is estimated to have cost these four countries over the US \$20 billion in lost GDP, and a reduction of more than 70% across the rest of Asia, even in the countries where no case was detected (McKercher & Chon, 2004). Industry data suggested that international tourism to China, Hong Kong, Taiwan and Vietnam declined by 58 per cent in the first quarter of 2003 (Henderson, 2003). Pine and McKercher stated that after SARS epidemic, Singapore's tourism gross domestic product (GDP) decreased 43% and the number of lost tourism-related jobs was 17,500; Hong Kong's tourism GDP decreased 41% and lost tourism-related jobs was 27,000; China's tourism GDP decreased 25% and lost tourism-related jobs was 2.8 million, and Vietnam's tourism GDP decreased 15% and lost tourism-related jobs was 62,000. Kuo et al., (2008) reported that damage levels in Taiwan and China were less noticeable than those in Hong Kong and Singapore, which signifies that the government's

reaction and strategies in dealing with this serious disease may result in different levels of damage. For example, Au et al., (2005) asserted that the impact of SARS on Hong Kong's tourism industry is said to be more damaging than the 9-11 episode or the 1997 Asian Financial crisis. In Singapore, visitor arrivals fell dramatically for April 2003 to June 2003 quarter, reaching rare figures, which were over 70% lower than the previous year in May (Henderson and Ng, 2004). Also, Canada is another SARS-infected country with 251 cases and 41 deceases. In Canada, during April 2004 to June 2004 quarter, international visitors declined by 14%, spending by international visitors declined by 13%, the international travel deficit grew to over \$1.1 billion and the tourism employment decreased by 2.4% (Wall, 2006).

Avian Flu infections suddenly spread in eight Asian countries, namely China, Japan, South Korea, Laos, Thailand, Cambodia, Vietnam, and Indonesia, between the end of 2003 and the beginning of 2004 (Kuo, Chang, Huang, Chen and McAleer, 2009). Brahmbhatt (2005) estimated that the Avian Flu outbreak led to a 5% decline in international tourist demand and decreased the GDP of Vietnam by 0.4% in 2004. In contrary, Kuo et al. (2008) stated that the number of affected cases had a significant impact on the tourist demand for SARS-infected countries, but not for Avian Flu-infected countries because SARS was able to spread between humans. However, the H5N1 Avian Flu virus is currently only transmitted from birds to humans and so its ability to spread among humans is still weak and the number of cases is small compared to SARS.

Swine flu was first recorded in Mexico in March 2009 and then spread into coterminous regions in American Continent and then to regions further afield, especially to Central and East Europe, Middle East and South-east Asia (Page, Song and Wu, 2012). Haque and Haque (2018) reported that Brunei lost nearly 15% of tourist demand from June 2009 to May 2010 (post swine flu) period. Page et al. (2012) estimated that the swine flu pandemic had a significantly negative effect on the United Kingdom tourism demand in all 14 source markets, especially mainland China, Spain, South Korea, and Russia, in the second quarter of 2009.

The Ebola outbreak of 2014 which started from Guinea in December 2013, spread to other West African countries, namely Sierra Leone and Liberia. Novelli, Burgess, Jones and Ritchie (2018) stated that whole continent of Africa's tourist arrivals reduced by 2% in 2014, and a further 5% in October 2015, after the Ebola outbreak. Mizrachi and Fuchs (2016) mentioned about a 20% to 70% decline in bookings in 2014 as a result of the Ebola outbreak in Kenya.

2.3. Foreign Visitor Arrivals to Turkey

Tourism is one of the most important sectors for the Turkish economy. It is widely accepted that tourism is an important instrument, which increases foreign exchange incomes, decreases unemployment rates and triggers overall economic growth (Isik 2012; Isik, 2010). When examining tourism demand, the number of foreign visitors is one of the important variables. When the number of foreign visitors to Turkey is analysed, except 2006, 2012, 2015, 2016, it stands out a general upward trend. Considering these years, it is possible to identify significant crises affecting the numbers.

In 2006, foreign visitor arrivals declined about 1,3 million compared to the previous year, after a 3,5 million increase. In 2005 and 2006, a series of terrorist attacks were organized by Kurdistan Workers' Party (PKK - PYD/YPG) in Istanbul and the tourism destinations in the southern shore of Turkey, namely Kusadasi, Cesme, Marmaris and Antalya. In these attacks, terrorists targeted the tourists directly. Also, in 2006, Andrea Santoro, the pastor of the Santa Maria Catholic Church in Trabzon, was killed in a Fetullah Terrorist Organization (FETO) linked armed attack. These terror attacks were accepted as the main determinants of a 1,3 million decline in foreign arrivals to Turkey in 2006.

In 2012, foreign visitor arrivals increased only about 300 thousand. In 2011, there was a 2,8 million increase compared to 2010. The main reason for this slight increase is the conflict which started in the border of Turkey and Syria, namely the Syrian Civil War.

In 2015, a slight decline was observed in foreign visitor arrivals to Turkey, about 250 thousand, compared to the previous year. In this year the Islamic State of Iraq and the Levant (ISIS) organized a series of attacks in Diyarbakir, Sanliurfa and Ankara. Also, Turkey shot a Russian fighter aircraft down which committed a border violation while flying over Syria in 2015. This is a major crisis affecting Russian visitors' arrivals. But in 2016 a major decline of 10,9 million in foreign visitor arrivals to Turkey was observed. In 2016, ISIS targeted directly the touristic places and governmental structures in different cities. In Istanbul, Sultanahmet Square, Istiklal Street, Ataturk Airport and Besiktas Stadium were targeted by ISIS with bombing attacks. Also, Kizilay Square in Ankara was targeted by another terrorist group, namely PKK - PYD/YPG, in 2016. There are other terrorist attacks committed by ISIS and PKK - PYD/YPG in some other cities, namely Diyarbakir, Mardin, Gaziantep, Adana and Kayseri, which are also touristic cities of Turkey. But the massive effect happened after the coup attempt organized by the FETO/Parallel State Structure in July 2016. This was the biggest political crisis in Turkey in the last 35 years and had effects tourist arrivals dramatically.

Table 2: Number of Foreign Visitors to Turkey (2000-2019)

Years	Numbers	Year	Months	Numbers
2000	10,428,153	2019		
2001	11,618,969			
2002	13,256,028			
2003	14,029,558		January	1,539,496
2004	17,516,908		February	1,670,238
2005	21,124,886		March	2,232,358
2006	19,819,833		April	3,293,176
2007	23,340,911		May	4,022,254
2008	26,336,677		June	5,318,984
2009	27,077,114		July	6,617,380
2010	28,632,204		August	6,307,508
2011	31,456,076		September	5,426,818
2012	31,782,832		October	4,291,574
2013	34,910,098		November	2,190,622
2014	36,837,900		December	2,147,878
2015	36,244,632		Total	45,058,286
2016	25,352,213			
2017	32,410,034			
2018	39,488,401			

Source: Turkish Ministry of Culture and Tourism, 2020a

After political stability, foreign arrivals to Turkey reached over 32,4 million in 2017, 39,4 million in 2018 and 45 million in 2019. On the other hand, in 2019, the average spending of a foreign visitor was \$642 and total revenue from foreign visitors were \$28.7 billion (Ministry of Culture and Tourism of Turkey, 2020b).

3. Methodology

There are several methods to forecast tourism demand and income. Some approaches, which use statistical and econometric methods (Isik et al., 2019; Isik et al., 2018) to forecast, are quantitative and objective. The others are subjective, grouped as qualitative techniques (Uysal & Crompton, 1985). Quantitative approaches try to predict what will happen in the future by calculating the past trends and the relationship between variables affecting demand (Calantone, Benedetto & Bojanic, 1987). Such approaches need historical data to forecast future tourism demand and the conditions should be stable during the estimated future or *ceteris paribus*. This assumption should be met depending on accurate forecasting and the validity of the results. Time series regression, gravity models, neural networks models and other econometric models can be listed as quantitative methods (Uysal & Crompton, 1985; Kulendran & Witt, 2003; Song & Turner, 2006; Kaplan & Aktas, 2015).

Quantitative methods are not useful when the future is unclear or there is no similar experience. Any historyless event cannot be predicted by quantitative method (Schnaars, 1987). In such cases, subjective methods, called as qualitative or judgmental, can be used to forecast the future due to the advantage of not requiring historical data (Frechtling, 2001). Those methods, classified as a qualitative approach, are appropriate where historical data are insufficient or inappropriate to forecast future (Uysal & Crompton, 1985: 7). The Delphi Model, Traditional survey methods, Judgement-Aided Model (JAM), Scenario Analysis (or Subjective probability assessment) are some of those qualitative methods to forecast (Uysal & Crompton, 1985; Calantone et al., 1987; Frechtling, 2001).

Scenario analysis is one of the techniques used in the economy, finance or other fields to predict the future. In accounting, finance and economy, it is important to estimate the future for any investment decision such as capital investments or portfolio selection. This technique is also used for risk management in finance (Altay, 2014; Hassani, 2016). In accounting, it is also used for budgeting process to forecast costs and revenues (De Kluyver, 1980). The technique is mostly studied in economy-based papers. Based on the information mentioned above, this study aims to make projections to see the effect of COVID-19 on the number of foreign visitors to Turkey in 2020 within the scope of alternative scenarios. Within this context, we generated two hypothetical scenarios in which the change rate of the tourism demand is constant for each month or decline will recover with an equal proportion from the dropped rate until December. Each scenario has a set of alternatives

covering border closure and every alternative was calculated for three-basis decline rate. The study covers only the monthly estimates of Turkey's 2020 international demand to put forth the yearly drop under alternative scenarios compared to 2019. The tourism statistics were obtained from the February 2020 bulletin of the relevant Ministry. Tourism is currently one of the most affected sectors from COVID-19 pandemic and UNWTO has revised its 2020 forecast for international arrivals and receipts, and it also emphasizes that any predictions are likely to be further revised (UNWTO, 2020).

Hypothetical Scenarios: Two scenario sets are presented with relevant alternatives. The first scenario expects a decrease in demand or at the same level compared to the same month of the previous year. In the second scenario, for every month after the opening of the borders, demand will recover from the drop evenly. The second scenario is that decline will be at the same proportion for each month after the borders are opened. This hypothetical scenario implies that demand will drop with a hypothetical percentage for the first month after the borders are opened, and then it will recover evenly.

Scenario A. Decline in demand is at the same level for each month:

- A.1. Borders will be closed for **one month**
- A.2. Borders will be closed for **one and a half months (45 days)**
- A.3. Borders will be closed for **two months**
- A.4. Borders will be closed for **three months**
- A.5. Borders will be closed for **four months**

Scenario B. Decline in demand will recover with equal proportion month by month:

- B.1. Borders will be closed for **one month**
- B.2. Borders will be closed for **one and a half months (45 days)**
- B.3. Borders will be closed for **two months**
- B.4. Borders will be closed for **three months**
- B.5. Borders will be closed for **four months**

The UNWTO has announced the expectations claiming that international tourist arrivals will be down 20% to 30% for 2020 when compared to 2019 because of travel restrictions (UNWTO, 2020). On the other hand, tourism professionals are hopeful for the after-COVID-19 outbreak (Horuz, 2020). Based on those expectations of stakeholders, we have estimated our projections for Turkey's international tourist arrivals in the context of foreign visitors with different decline rate. Monthly international tourist numbers were calculated by using Formula (1) as shown below.

$$\text{Number of Foreign Visitors}_{tm} = \text{Number of Foreign Visitors}_{tm-1} \times (1 \mp r) \quad (3.1)$$

tm is the calculated month, and $tm-1$ is the same month of the previous year. r is the change rate. This calculation has been done for each forecasted month. Then the number of yearly arriving foreigners has been calculated as the sum of monthly data for 2020. Lastly, forecasted yearly data for 2020 was proportioned to 2019 as shown in formula (2) to put forth the rate of change percentage.

$$\text{Estimated Rate of Change (\%)} \text{ for Foreign Visitors}_{t} = \frac{\text{Number of Foreign Visitors}_{t}}{\text{Number of Foreign Visitors}_{t-1}} - 1 \quad (2)$$

4. Findings

According to the analyses, the estimated number of foreign visitors and the annual decrease for alternative scenarios have been shown in Table 3 to 7. Table 3 shows the one-month border closure alternative for two scenarios under different decline rates.

Table 3: Estimated number of foreign visitors and annual change rate (what if borders are closed for a month)

Months	Scenario A.1.**				Scenario B.1.***			
	Hypothetical monthly decline rate and estimated numbers				Hypothetical monthly decline rate for the first month and estimated numbers			
	30%	20%	10%	0	30%	20%	10%	0
Jan*	1787435	1787435	1787435	1787435	1787435	1787435	1787435	1787435
Feb*	1733112	1733112	1733112	1733112	1733112	1733112	1733112	1733112
Mar	1171988	1171988	1171988	1171988	1171988	1171988	1171988	1171988
Apr	1152612	1317270	1481929	1646588	1152612	1317270	1481929	1646588
May	2815578	3217803	3620029	4022254	2966412	3318360	3670307	4022254
Jun	3723289	4255187	4787086	5318984	4122213	4521136	4920060	5318984
Jul	4632166	5293904	5955642	6617380	5376621	5790208	6203794	6617380
Aug	4415256	5046006	5676757	6307508	5361382	5676757	5992133	6307508
Sep	3798773	4341454	4884136	5426818	4816301	5019807	5223312	5426818
Oct	3004102	3433259	3862417	4291574	3969706	4076995	4184285	4291574
Nov	1533435	1752498	1971560	2190622	2108474	2135856	2163239	2190622
Dec	1503515	1718302	1933900	2147878	2147878	2147878	2147878	2147878
Total	31271259	35068220	38865180	42662141	36714133	38696802	40679472	42662141
	0.69	0.78	0.86	0.95	0.81	0.86	0.90	0.95
EACR (%)	-31%	-22%	-14%	-5%	-19%	-14%	-10%	-5%

* Provisional data announced by the ministry

** Decline in demand is at the same level for each month

*** Decline in demand will recover with equal proportion month by month

EACR: Estimated Annual Change Rate

As shown in Table 3, if the number of foreign visitors has dropped 30% as constant for each month of the rest of year, estimated annual change rate will be -31% compared to 2019 due to the one-month border closure. On the other hand, if the demand would be recovered with equal proportion month by month from the basis rate, the rate of change will be -19%. If the monthly rate of demand comes true as 80% compared to the previous year, as a constant decrease, the demand will decline by 22% due to the one-month border closure. In the event of recover from the basis rate, demand will decline by 14%. As can be seen in Table 3, the number of tourists will drop 5% even if demand remains the same.

The estimated number of foreign visitors and annual change rates are shown in Table 4 if border closure lasts one and a half months (until the 30th of April) for two scenarios.

Table 4: The estimated number of foreign visitors and annual change rate (what if borders are closed for one and a half months)

Months	Scenario A.2.**				Scenario B.2.***			
	Hypothetical monthly decline rate and estimated numbers				Hypothetical monthly decline rate for the first month and estimated numbers			
	30%	20%	10%	0	30%	20%	10%	0
Jan*	1787435	1787435	1787435	1787435	1787435	1787435	1787435	1787435
Feb*	1733112	1733112	1733112	1733112	1733112	1733112	1733112	1733112
Mar	1171988	1171988	1171988	1171988	1171988	1171988	1171988	1171988
Apr	0	0	0	0	0	0	0	0
May	2815578	3217803	3620029	4022254	2815578	3217803	3620029	4022254
Jun	3723289	4255187	4787086	5318984	3951473	4407310	4863147	5318984
Jul	4632166	5293904	5955642	6617380	5201261	5671756	6144899	6617380
Aug	4415256	5046006	5676757	6307508	5226401	5586560	5947349	6307508
Sep	3798773	4341454	4884136	5426818	4728929	4961740	5194008	5426818
Oct	3004102	3433259	3862417	4291574	3923786	4046525	4168835	4291574
Nov	1533435	1752498	1971560	2190622	2096644	2127970	2159296	2190622
Dec	1503515	1718302	1933090	2147878	2147878	2147878	2147878	2147878
Total	30118648	33750949	37383251	41015553	34784485	36860078	38937976	41015553
EACR (%)	-33%	-25%	-17%	-9%	-23%	-18%	-14%	-9%

*Provisional data announced by the ministry

** Decline in demand is at the same level for each month

*** Decline in demand will recover with equal proportion month by month

EACR: Estimated Annual Change Rate

If the number of foreign visitors has been as 70% at the same level for each month of the rest of year (Scenario A), the estimated rate of change is -33% compared to 2019 due to the three-month border closure, but if Scenario B comes true, the change of demand will be -23% (Table 4). If the number of foreign visitors declines by 20% compared to the previous year at the same level for each month, the demand will decline by 25% due to the three-month border closure. If Scenario B comes true, demand will decline by 18%. As seen in Table 4, the number of tourists will decline by 37%, even if the demand remains the same.

The forecasted number of foreign visitors and estimated annual change rates depending on two scenarios have shown in Table 5.

Table 3: Estimated number of foreign visitors and annual change rate (what if borders closed for two months)

Months	Scenario A.3.**				Scenario B.3.***			
	Hypothetical monthly decline rate and estimated numbers				Hypothetical monthly decline rate for the first month and estimated numbers			
	30%	20%	10%	0	30%	20%	10%	0
Jan*	1787435	1787435	1787435	1787435	1787435	1787435	1787435	1787435
Feb*	1733112	1733112	1733112	1733112	1733112	1733112	1733112	1733112
Mar	1171988	1171988	1171988	1171988	1171988	1171988	1171988	1171988
Apr	0	0	0	0	0	0	0	0
May	1407789	1608902	1810014	2011127	1407789	1608902	1810014	2011127
Jun	3723289	4255187	4787086	5318984	3951473	4407310	4863147	5318984
Jul	4632166	5293904	5955642	6617380	5201261	5671756	6144899	6617380
Aug	4415256	5046006	5676757	6307508	5226401	5586560	5947349	6307508
Sep	3798773	4341454	4884136	5426818	4728929	4961740	5194008	5426818
Oct	3004102	3433259	3862417	4291574	3923786	4046525	4168835	4291574
Nov	1533435	1752498	1971560	2190622	2096644	2127970	2159296	2190622
Dec	1503515	1718302	1933090	2147878	2147878	2147878	2147878	2147878
Total	28710859	32142048	35573237	39004426	33376697	35251176	37127961	39004426
EACR (%)	-36%	-29%	-21%	-13%	-26%	-22%	-18%	-13%

*Provisional data announced by the ministry

** Decline in demand is at the same level for each month

*** Decline in demand will recover with equal proportion month by month

EACR: Estimated Annual Change Rate

As shown in Table 5, if the number of foreign visitors comes true by 70% as constant for the previous same months of the year, the rate of change will be -36% compared to 2019 due to the two-month border closure. But, if the demand would be recovered by an equal proportion from the basis rate, the change will be -26%. If the rate of demand has been as 80% compared to the previous year, as constant for the same months of 2019, the demand will decline by 29% due to the two-month border closure. In the event of Scenario B, demand will decline by 22%. As can be seen in Table 4, the number of tourists will drop 13% even if the demand remains the same.

Estimated number of foreign visitors and annual change rates are shown in Table 6 for two scenarios if border closure lasts three months.

Table 6: Estimated number of foreign visitors and the rate of percentage change (what if borders closed for three months)

Months	Scenario A.4.**				Scenario B.4.***			
	Hypothetical monthly decline rate and estimated numbers				Hypothetical monthly decline rate for the first month and estimated numbers			
	30%	20%	10%	0	30%	20%	10%	0
Jan*	1787435	1787435	1787435	1787435	1787435	1787435	1787435	1787435
Feb*	1733112	1733112	1733112	1733112	1733112	1733112	1733112	1733112
Mar	1171988	1171988	1171988	1171988	1171988	1171988	1171988	1171988
Apr	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
Jun	1861644	2127594	2393543	2659492	1861644	2127594	2393543	2659492
Jul	4632166	5293904	5955642	6617380	4963035	5492425	6066152	6617380
Aug	4415256	5046006	5676757	6307508	5046006	5424457	5886797	6307508
Sep	3798773	4341454	4884136	5426818	4612795	4829868	5155477	5426818
Oct	3004102	3433259	3862417	4291574	3862417	3948248	4148665	4291574
Nov	1533435	1752498	1971560	2190622	2081091	2081091	2154039	2190622
Dec	1503515	1718302	1933090	2147878	2147878	2147878	2147878	2147878
Total	25441425	28405553	31369680	34333807	29267402	30701138	32645086	3433807
EACR (%)	-44%	-37%	-30%	-24%	-35%	-32%	-28%	-24%

*Provisional data announced by the ministry

** Decline in demand is at the same level for each month

*** Decline in demand will recover with equal proportion month by month

EACR: Estimated Annual Change Rate

As shown in Table 6, if the number of foreign visitors is 70% at the same level for each month of the rest of year, the estimated rate of change is -44% compared to 2019 due to the three-month border closure, but if Scenario B comes true, the change of demand will be -35%. If the rate of demand is 80% compared to the previous year, at the same level for each month, the demand will drop 37% due to the three-month border closure. If Scenario B comes true, demand will drop 32%. As can be seen in Table 6, the number of tourists will drop 22% even if the demand remains the same.

If border closure lasts four months for two scenarios, estimated number of foreign visitors and annual change rates are shown in Table 7

Table 7: Estimated number of foreign visitors and the rate of percentage change (what if borders are closed for four months)

Months	Scenario A.5.**				Scenario B.5.***			
	Hypothetical monthly decline rate and estimated numbers				Hypothetical monthly decline rate for the first month and estimated numbers			
	30%	20%	10%	0	30%	20%	10%	0
Jan*	1787435	1787435	1787435	1787435	1787435	1787435	1787435	1787435
Feb*	1733112	1733112	1733112	1733112	1733112	1733112	1733112	1733112
Mar	1171988	1171988	1171988	1171988	1171988	1171988	1171988	1171988
Apr	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0
Jul	2316083	2646952	2977821	3308690	2316083	2646952	2977821	3308690
Aug	4415256	5046006	5676757	6307508	4793706	5298307	5802907	6307508
Sep	3798773	4341454	4884136	5426818	4449991	4775600	5101209	5426818
Oct	3004102	3433259	3862417	4291574	3736585	3948248	4119911	4291574
Nov	1533435	1752498	1971560	2190622	2059185	2102997	2146810	2190622
Dec	1503515	1718302	1933090	2147878	2147878	2147878	2147878	2147878
Total	21263698	23631007	25998316	28365625	24235963	25612517	26989071	28365625
EACR (%)	-53%	-48%	-42%	-37%	-46%	-43%	-40%	-37%

*Provisional data announced by the ministry

** Decline in demand is at the same level for each month

*** Decline in demand will recover with equal proportion month by month

EACR: Estimated Annual Change Rate

As shown in Table 7, if the number of foreign visitors is 70% at the same level for each month of the rest of year, the estimated rate of change is -53% compared to 2019 due to the three-month border closure, but if Scenario B comes true, the change of demand will be -46%. If the rate of demand is 80% compared to the previous year, at the same level for each month, the demand will drop 48% due to the three-month border closure. If Scenario B comes true, demand will drop 43%. The number of tourists will drop 37%, even if the demand remains the same as seen in Table 7.

5. Conclusion

Tourism is one of the most sensitive sectors to crises. Coronavirus pandemic is one of the biggest health crises that the world faced in the modern era. According to the UNWTO, global economic crises affected world international tourism arrivals -4% in 2009, another health event, SARS in 2003 affected world international tourism arrivals -0.4% (UNWTO, 2020). The number of foreign visitor of Turkey declined 30% (can be seen in Table 2) in 2016 due to the 15 July coup attempt by the FETO/PSS.

After the first case was seen in China, Turkey started to take precautions to struggle with the COVID-19. Depending on the developments, preventive measures against pandemic extended from day by day. According to recent information, it aimed to estimate the indirect effects of COVID-19 on the number of foreign visitors to Turkey under alternative hypothetical scenarios. The findings of the study show that if border closure lasts one month, demand will decline by 5%, for 45 days closure decline will be 9%, there will be 13% decline on demand for 2-month closure, 24% decline for 3-months and, 37% for 4- months, compared

to 2019 if there is no demand decline, which is the optimistic scenario. As our estimation of hypothetical Scenario A, in which a decline in demand is at the same level for each month, results show that the demand of foreign visitor could decline between 14% to 53% due to the border closure. If Scenario B will be realized, in which the decline in demand will recover with equal proportion month by month, demand will decline between 10% to 46% under different alternatives due to border closure and decline rate scenarios. This can be regarded as the most influential phenomenon as a health crisis for Turkish tourism in the late 20th and early 21st century. These effects will be recovered within the years, but we should not forget that being healthy is the most important thing for human beings.

According to the estimation results of alternative scenarios, the decline in demand is expected to be in the range of 5% to 53%. This means, if the worst scenario comes true, it will be one of the worst tourism crises that Turkey has experienced. This result shows that COVID-19 will be more effective than other health outbreaks such as SARS (Wall, 2006; McAleer et al., 2010), Avian Flu (Brahmbhatt, 2005), Swine flu (Haque and Haque, 2018) observed in last two decades. Under the assumption that the spending of a foreign visitor remains the same as in 2019 at \$642, Turkish foreign visitor receipts will decrease to \$13.7 billion (52.8%) as the worst, and \$27.4 billion (5.3%) as the best alternative scenario for 2020. It means a loss of tourism revenues to \$15.2 billion as the worst, and to \$1.5 billion as the best alternative scenario for 2020. Recent news about COVID-19 shows that the future of the pandemic is still unclear. On the other hand, we also carry optimistic views. To minimize the harm of the COVID-19 pandemic to Turkish tourism, it is necessary to develop recovery plans and implement them urgently.

The study has some important limitations, and the findings should be handled under these limitations. The study was conducted by using alternative probabilistic scenarios to forecast the number of foreign visitors to Turkey. In this respect, the findings of the study should be considered under hypothetical scenarios. On the other hand, providing information and shedding light on stakeholders for planning and future decisions makes the study important. It is suggested to estimate and determine the potential and probable effects of COVID-19 on tourism receipt and economic growth for future studies depending on tourism.

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Fatih Günay, received Ph.D. degree in Tourism Management from Mersin University Graduate School of Social Sciences, Turkey in 2019. He is currently working as research assistant at Mersin University Faculty of Tourism. His research interest includes finance, financial management, tourism, accounting, tourism economy, tourism demand, and recreation. ORCID: 0000-0003-0892-514X



Engin Bayraktaroğlu, received Ph.D. degree in Tourism Management from Anadolu University Graduate School of Social Sciences, Turkey in 2019. He is currently working as assistant professor at Anadolu University Faculty of Tourism. He is the associate editor of Anadolu University's Journal of Tourism, Leisure and Hospitality. His research interest includes destination value, destination development, tourist mobility, philosophy of tourism. ORCID: 0000-0002-9956-2593



Kahraman Özkul, received his Bachelor's Degree in Hospitality Management from Kocatepe University School of Tourism and Hotel Management. He is currently working as editor at Mavi Deniz Publications. In addition to working in various social responsibility projects, he also serves as the chairman of an educational CSO, namely 'Eğitim İçin Varız.' His research interest includes hospitality management and tourism education. ORCID: 0000-0002-2124-9636