Short and Long Run Effects of COVID-19 on the Hospitality Industry and the Potential Effects on Jet Fuel Markets

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Introduction

This paper aims to investigate the short and long run effects of COVID-19 on the hospitality industry and the potential effects on the jet fuel market.

The potential impacts of COVID-19 on energy markets (Maijama et al. 2020; Albulescu 2020b; 2020a) has been analyzed by examining the impact on the demand for energy and oil prices but the impact on the hospitality industry (Ying et al. 2020; Jamal and Budke 2020; Lau et al. 2020) tends to focus on the link between the COVID-19pandemicand Chinese tourism. To our knowledge, there are no investigations of the impact of COVID-19 on the hospitality industry and the jet fuel market.

Our paper tries to fill this gap and makes the following contributions. *First*, it examines the short run effects of COVID-19 on the hospitality industry and demand for jet fuel. We examine the effect on airlines, and changes to demand for jet fuel and jet fuel prices. While the duration of COVID-19 is still unknown, our main findings shows that the hospitality industry is deeply impacted in the short term. Implementation of measures to slow the spread of COVID-19 have caused the tourism industry to collapse. Demand for jet fuel has decreased, and prices have fallen. From January to April, the price of U.S. Gulf Coast kerosene fell about 58% . *Second,* it provides an overview of the potential long run effects of COVID-19 on the hospitality sector and the jet fuel market which are likely to be affected also by Hospitality Industry 4.0 and changes to consumer behaviors.

The paper is organized as follows: section 2 discusses the context of COVID-19 and its effect on the hospitality industry, sections 3 and 4 examine the respective short and long run impacts of COVID-19 on the hospitality industry and the potential consequences for jet fuel demand, and section 5 provides some conclusions.

Context

Coronavirus 2019 or COVID-19 is a new infectious disease first identified in December 2019 in Wuhan, capital of China's Hubei province. It spread rapidly across Asia and worldwide, causing a global public health crisis within a short period of time. On March 11, the World Health Organization declared COVID-19 a pandemic. Several measures including national lockdowns and school closures have been implemented to slow the spread of COVID-19.

Tourism accounts for 10% of world GDP and jobs (WEF, 2020) and is among the sectors worst affected by COVID-19. The hospitality industry is in crisis due to worldwide panic about COVID-19 whose duration and scope are still unknown. Many countries which depend heavily on tourism are experiencing a devastating economic blow. However, the impact of COVID-19 on tourism is a global concern; passenger numbers have decreased dramatically, trips have been canceled, and major public events have been canceled or postponed putting many jobs at risk and causing much decreased revenue from tourism. According to the World Travel and Tourism Council (2020), up to 75 million jobs are at risk and this figure could change as the virus evolves which would cause huge loss to the world economy.

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UNWTO (2020) made an initial assessment based on the 2003 SARS scenario, on the size and dynamics of global travel and current disruptions, and the geographic spread of COVID-19 and its potential economic impact. It estimates (UNWTO, 2020) that global international tourist arrivals could decline by between 1% and 3% in 2020 compared to an early January 2020 forecast increase of 3% to 4%.

Given the major impact on the hospitality industry of COVID-19, the jet fuel market will also suffer. Fewer flights will result in lower demand for jet fuel. In the succeeding sections we describe in more detail the effect of COVID-19 on the hospitality sector and the potential consequences for jet fuel demand in the short and long runs.

Short run impacts of COVID on the hospitality industry and the potential consequences for jet fuel demand

Dramatic fall in flights

The first cancellations of commercial flights occurred in Wuhan, China. Since restricting travel seems to be effective, many countries around the world have implemented similar measures to slow the spread of COVID-19. Fig. 1 shows the changes to the number of total and commercial flights per day between January 13 and April 11.

According to Flight Radar 24 data, the number of daily flights on January 13 was 171,632 and this had dropped to 62,592 on April 11 - a 64% decrease over three months. On January 13 the number of daily commercial flights was 112,827 falling to 24,975 on April 11 – a decrease of around 77% in three months. In fig. 1, the vertical lines indicate the dates when the U.S., Germany, France, Italy, Spain and the U.K. introduced travel restrictions after which the number of flights fell sharply.

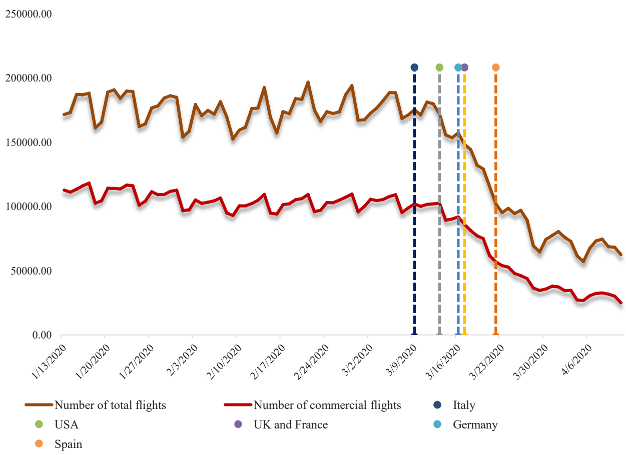

Figure 1. Total daily flights and commercial flights

Many airlines are now facing heavy cost cuts, layoffs of large numbers of employees and closure of many non-essential routes. IATA (2020a) made an assessment based on the scenario that severe travel restrictions could remain in place for three months. This would mean a fall in full year passenger revenues of $252 billion compared to 2019 and a fall in demand of 38% which would have a severe impact and result in demand in the second quarter of 2020 falling by 71% and a net loss of $39 billion. At the same time, the aviation sector is liable for "unavoidable costs" including reimbursement of tickets sold for flights that have been cancelled, accounting for around $39 billion.

On April 14, IATA (2020b) published an updated analysis showing that airline passenger revenues drop by $314 billion in 2020, a 55% decline compared to 2019. These figures reflect the effects of severe domestic restrictions lasting for three months, some restrictions on international travel extending beyond the initial three months and a severe impact worldwide. In Q2-2020, $61 billion of airline cash balances could be burned. COVID-19 will have drastic consequences for the hospitality industry since the companies in the sector are receiving no revenue and therefore have no cash.

Demand for jet fuel

COVID-19 has hit the energy market hard. Demand for fuel and oil products has decreased and prices have fallen. Among the different fuel markets, we expect jet fuel to be affected the most due to the mass suspension of flights which has had a direct impact on demand for jet fuel. According to Rystad Energy (2020), current global jet fuel demand has fallen by almost 31% year-on-year or by at least 2.2 million barrels per day. Demand for jet fuel in 2019 was around 7.2 million barrels per day while Rystad Energy (2020) predict jet fuel demand in April 2020 to be around 2.6 million barrels per day and in May to be about 2.4 million barrels per day.

The cost of jet kerosene continues to fall with flight numbers. Fig. 2 shows the number of total daily flights worldwide and the U.S. Gulf Coast kerosene price ($/gallon). After the imposition of travel restriction by many countries (fig. 2 shows the start dates of travel restrictions imposed by Italy, the U.S., Germany, the U.K., France and Spain), there was a dramatic fall in flights and jet kerosene prices. According to the Energy Information Administration (EIA) data (see fig. 2), on January 13 the price of U.S. Gulf Coast kerosene was $1.821 per gallon, falling to $0.765 per gallon on April

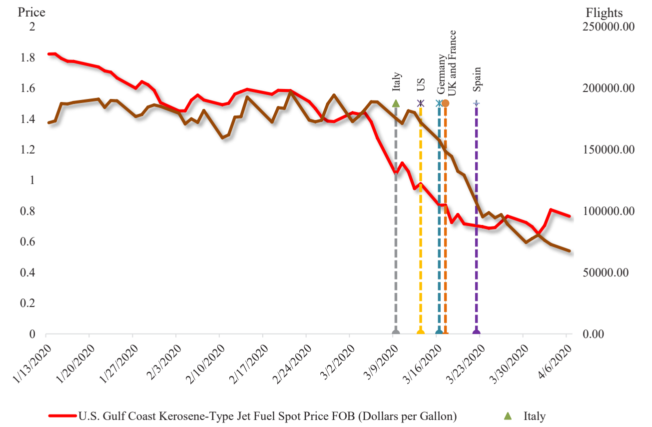

Figure 2. U.S. Gulf Coast Kerosene-Type Jet Fuel SPot Price FOB (Dollars per Gallon) and number of total daily flights

6. From January to April, the price of U.S. Gulf Coast kerosene fell by about 58% with the lowest level reached on April 1 ($0.65 per gallon). The price of jet kerosene is linked to air traffic: low air traffic levels reduce demand for jet kerosene which results in a price fall.

Fig. 3 shows the weekly price of U.S. Gulf Coast kerosene from April 2019 to April 2020 based on EIA data. The biggest fall was in March-April 2020 but no increases are expected in the coming months since lockdowns are continuing in many countries.

Social distancing will continue to have a major impact on the hospitality industry through the second quarter of this year. As many countries are continuing their quarantine to prevent the spread of COVID-19, tourism, travel and accommodation will continue to suffer. Since the duration of the pandemic is unknown, this summer will not experience an increased number of flights, and consequently, demand for jet fuel will continue to be low.

Long run impacts of COVID on the hospitality industry and the potential consequences for demand for jet fuel

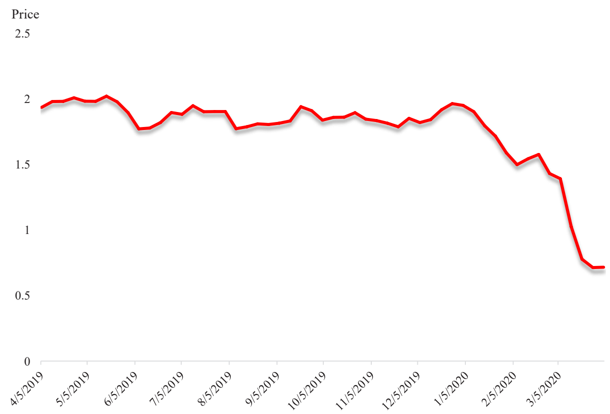

Figure 3. Weekly U.S. Gulf Coast Kerosene-Type Jet Fuel Spot Price FOB (Dollars per Gallon)

Hospitality Industry
Increased use of Virtual Tourism

The rapid spread of COVID-19 has resulted in the shutting down of tourism activities around the world. With many world countries continuing their quarantine, airlines are warning of bankruptcy, hotels are closed and tourist buses remain empty. Social distancing has emptied destinations which for many years have suffered from over tourism but despite the lockdowns, would-be travelers can experience virtual tourism. It has been suggested that virtual reality (VR) could substitute for actual travel (Cheong, 1995; Sussmann and Vanhegan, 2000). Over the last few years, the number of VR experiences on offer has grown, and in the present circumstances are being welcomed. Since COVID-19 has rendered travel impossible and tourist attractions have been closed, interest in virtual tours have increased significantly and are expected to continue to grow. Virtual tourism allows customized and accessible information. It enables online visitors to visit museums and a range of attractions, to learn about specific objects of interest, to read blog postings about exhibitions, to read about the history of the attraction they are "visiting", etc.

Changes to consumers' preferences (climate change and COVID-19)

The global response to COVID-19 has changed behaviors, resulting in a reduction in greenhouse gas emissions. IATA's (2020c) most recent economic assessment expects a 38% reduction in air travel in 2020 which would be equal to a 352.7 Mt fall in global civil aviation emissions year-on-year. Previous infectious disease outbreaks such as avian flu in 2005, MERS flu in 2015 and SARS in 2003 caused a decrease in the number of flights but did not result in long-term changes to demand for air travel. Although air traffic decreased briefly during these outbreaks, in each case it recovered within a few months (IATA, 2020c). However, COVID-19 is a new virus and its duration remains unknown. The number of cases of COVID-19 in April 2020 is more than 2 million worldwide and many people are working from home and not traveling. There is a chance that these interim effects and behavioral changes could result in long term shifts which might have a lasting impact on global CO_2 emissions.

What might change?

We know that the pandemic will be controlled at some point but we do not know when. In the meantime, many elements of the hospitality industry will change and it will look different in the future.

First, technology will have an effect on business travel. The emergence of new technologies and their increased use should lead to different air travel behavior in the future. Social distancing has forced many people around the world to work remotely. Conferences are being held online exploiting several available platforms. Zoom a videoconferencing platform, is experiencing record activity resulting in a 100% rise in its stock price since January (Reinicke, 2020). Microsoft's Teams software has surged in popularity with the addition of 12 million new customers in a single week in March 2020 (Swartz, 2020). Videoconferencing will affect travel especially to far off destinations and will reduce costs and time. Videoconferencing facilities will continue to be used in the long term based on their proven effectiveness during the COVID-19 pandemic.

Second, the rise in virtual tourism will continue after the pandemic. Popular destinations are moving to virtual tourism, allowing people to visit different attractions in a virtual way from their homes. Even after the outbreak is declared to be over, many people will be reluctant to travel and the recovery of the tourism industry is likely to be prolonged. The major effects of COVID-19 on the global economy include many businesses asking people to work part time or firing staff. Many people will be unable to afford to travel, and will chose domestic rather than international destinations. People may be nervous about traveling for a long time to come, and may prefer the experience offered by virtual tourism.

Third, travel options will be reduced in the future. Those airline companies that survive will cut their routes to small regional destinations which will result in fewer tourists requiring accommodation in these destinations, and many hotels closing down. There is likely to be more demand for longer-term stays to reduce the amount of travel and exposure at large airport hubs and on airplanes. There will be less mass tourism.

To sum up, in the future people will travel less which will mean lower demand for jet fuel.

Conclusions

It is too early to draw any conclusions about the impact of COVID-19 on international tourism. The effects of COVID-19 on tourism so far are not sufficient to allow firm conclusions since the impact of the virus will depend on how the pandemic evolves and how long it lasts. In the short run, the hospitality industry has been affected by the dramatic fall in flights, potential bankruptcy of airlines, hotel closures and cancelations of international events. Demand for jet fuel has decreased and is expected to continue to decrease in the second quarter of this year. In the long term, hospitality will be characterized by a change in consumer behavior and a rise in the use of technologies. We can expect less travel in the coming years which will mean lower consumption of jet fuel.

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