Chapter 5
Impact of COVID-19 on the Global Network of Airports

Abstract  Airports have grown in number, size and function in the recent past, leading to vast economic spinoffs to many communities. They are critical global nodes that link the world and facilitate economic development. In 2020, the global aviation industry was brought to a near standstill by the COVID-19 pandemic, with devastating global economic and associated impacts. This study evaluated the impact of COVID-19 on the airports’ sector. Using archival and secondary data from authoritative sources such as the International Civil Aviation Organization (ICAO), EUROCONTROL and Flightradar24, it emerged that COVID-19 had a negative impact on airport operations mainly affecting their revenue streams. Travel restrictions and border closures had a debilitating impact on the airports and the aviation component of the tourism industry. With airlines grounded, the airports converted into parking lots and ghost towns. With this, there were drastic declines in receipt in landing, departure fees and non-aeronautical revenue. The remaining limited operations that continued in many airports related to service and facilitate the delivery of medical and other essential supplies, including food and critical raw materials. These could not raise adequate revenues to sustain many airports. Globally, the closure of airports also affected more than 6 million people directly employed in these airport-related services, including shops, car rental companies, airport restaurants and that of air navigation systems. The study recommends that the same support offered to the aviation industry in the form of grants, tax exemptions, preferential loans and so on be extended to airports. Airports play a central role in the global economy, tourism economy and future recovery efforts.

Keywords  Airport · Shopping · COVID-19 · Economic impact · Aviation relief · Disease control

5.1 Introduction

Airports have witnessed increased use and function over the past decades. This is as a result of increased global air traffic mainly driven by increased levels of tourism development. Besides acting as important transport nodes in the past, airports have
become economic hubs offering additional services, including shopping malls, car rental facilities, conference facilities, lodging and logistics for exports and imports. Evidence shows that airports are large cities with multiple functions.

A record of 8.8 billion travellers passed through the world’s airports in 2018, marking a 6.4% increase from the previous year (International Airport Review 2019). This showed that there was an increased demand for air travel. Indications were that trend was likely to continue in the foreseeable future as the demand for business and leisure travel increases. Figure 5.1 shows how traffic at airports grew and evolved over the past decade, with some significant events impacting aviation such as the economic recession and outbreaks of swine flu, Middle East respiratory syndrome (MERS) and Ebola. Data from the International Air Transport Association (IATA) show that the distance between travels is becoming shorter and shorter (IATA 2019). Hence, people are travelling more frequently today than ever before. As a consequence, there is a higher demand for airport usage, and the demand was expected to grow in the short and long term.

In 2019, airports contributed significantly to the global economy through aeronautical, non-aeronautical and nonoperating revenue. According to the Airports Council International (ACI), globally airports made US$178.2 billion, of which 59.9% came from aeronautical services, 39.2% from non-aeronautical services and the remainder from nonoperating revenue (ACI 2020a). The non-aeronautical revenue came from retail concessions (28.9%), car parking (20.4%), property and real estate (14.9%) and other services such as car rentals, advertising and food and beverages accounted for 35.8%. The data show the importance of different components of the airport ecosystem.

Given the number of people who use airports daily, the establishments are also part of the global disease transmission and control channels, with some of the

Fig. 5.1  Number of travellers making use of airports and annual passenger growth rate (2008–2018)
Source: Authors; data from ACI (2020b)
biggest airports facilitating millions of tourists per annum. Chung (2015) argues that the rapid commercialisation of the aircraft industry paved the way for disease proliferation at a faster rate. Given the history of pandemic and infectious diseases, the world has learned over time that the only plausible measures of controlling such diseases are screening, quarantines and isolations (Gensini et al. 2004; Safi and Gumel 2011; Hou et al. 2020). One of the greatest cities, the New York islands, is famously known for having been a smallpox quarantine site (Chung 2015). Isolation, social distancing and quarantine were also used in the COVID-19 outbreak, which led to restrictions in people moving across the world (Wilder-Smith and Freedman 2020; Adams et al. 2020). The travel limitations included ground, water, rail and air travel restrictions. A disruption in air traffic has implications for traffic flow, which affects revenue collection for airports. Airports make the bulk of their money from landing and departure fees, and airport taxes charged to customers.

Experience has shown that the aviation and tourism industries are vulnerable to political, economic and natural disasters. A review of the history of aviation revealed that several historical events had an impact on the aviation industry, including the oil crisis in 1973, the Iran–Iraq war in the 1980s, the Gulf War in the early 1990s, the Asian crisis of the late 1990s, the September 2011 (9/11) terrorist attack in the USA, the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, the global financial crisis in 2008 and 2009, the avian flu outbreak in 2013 and the MERS outbreak in 2016. The impact of some of the outbreaks is presented in Fig. 5.1. Looking at the trend, it appears that the number of shocks affecting the travel industry is increasing. Of interest is the increase in the frequency of outbreaks, epidemics and pandemics. The threat of epidemics and pandemics on the aviation industry led to the formation of a board tasked with coordinating international aviation’s response to public health risks – the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA). CAPSCA has since been formalised as a branch of the International Civil Aviation Organization (ICAO) (CAPSCA 2020). As a consequence, airport authorities have learned some invaluable lessons on how to manage disease pandemics from countries such as Japan (Fujita et al. 2011), Australia (Eastwood et al. 2010), Canada (Johanis 2007) and Singapore (Wilder-Smith et al. 2003).

The COVID-19 pandemic did not only threaten public health and wellness but also had an impact on the global economy. The International Monetary Fund (IMF) officially announced in March 2020 that the world had entered a recession (IMF 2020). An economic recession has an adverse impact on economic performance in every sector, including the aviation industry, and indeed traffic at various airports. Harvey and Turnbull (2009) documented the adverse impact of the 2008 global economic recession on aviation labour, which led to significant retrenchments and loss of income. However, Chung (2015) notes that in as much as disease epidemics harm airport economics, there is a lack of literature on the impacts of previous diseases. This is despite the fact that airports are often the last line of defence against exported/imported pandemics and other biosecurity risks (Warren et al. 2010; Melly and Hanrahan 2020; Yadav et al. 2020).
This study examined the impact of the COVID-19 pandemic on the global socio-economic network of airports. It also sought to document responses of various airports across the world to the challenges presented by the pandemic.

### 5.2 Literature Review

Besides their central economic role in various metropolitan areas across the world, airports are critical strategic national key points for trade and development. They play an essential role as biosecurity areas that can assist in screening tourists entering a country (Warren et al. 2010). Regardless of the responsibility placed on airports to control and eliminate the entry of disease and make (tourist) travel safe, measures put in place have often failed to curb the entry and spread of diseases (Malone et al. 2009). This resulted in diseases spreading faster due to the rapid development of the aviation industry. In a few minutes, hours or overnight, a disease could be spread from one national location to another, one country to another and one continent to another. The need to understand how disease spreads through airports and other transport networks has been of interest as academics try to model and understand the spread of epidemics and pandemics (Nicolaides et al. 2012).

Understanding how diseases spread through airports and airline networks is a critical aspect of addressing the spread (Briand et al. 2011). This is crucial in efforts to curb the spread of pandemic diseases, which appear to be on the increase and have an increased cost on the tourism and travel industries. When airports fail to detect diseases from arriving hosts through the use of mainly thermal scans, governments and authorities often resort to quarantines and border closures to limit the human and economic costs of a pandemic (Ulrich and Mariner 2018; Nussbaumer-Streit et al. 2020). Due to such restrictions, people cannot move freely, and this negatively impacts the airport business.

Since screenings are conducted at airports at destinations (Nishiura and Kamiya 2011), this usually discourages people from moving from their places of origin, leading to declining traffic from risky areas. Tourists and even residents are often afraid of being quarantined, particularly in a distant airport out of touch with family and relatives if they are to test positive to a pandemic disease (Blendon et al. 2006). The effectiveness and efficiency of thermal scanners have recently come into question amid the high rate of exportation of COVID-19 from the disease’s hotspots areas (Gostic et al. 2020).

As indicated earlier, airports are economic hubs with a significant impact on the neighbouring community and sphere of influence. However, they are equally vulnerable to economic downturns. The airports in the USA were affected by the economic recession of 2008/2009, resulting in some getting bailouts under the American Recovery and Reconstruction Act of 2009 (Bilotkach 2018). While the IMF declared that the COVID-19 pandemic had triggered the worst economic recession in history, projections were that the recovery would assume a “U recovery shape” (Nicola et al. 2020) – with a decline followed by some flattening at the bottom before upward
growth – as opposed to a V-shaped recovery (a sharp drop and a sharp rise). The study predicted that most of the impact would be felt in the tourism and aviation industries.

Preliminary studies had already shown the ravaging impact of the pandemic on the tourism industry. Rapid initial impact assessment carried out by Gössling et al. (2020) and another study by Brouder (2020) had found an imagined impact of the pandemic on travel, hospitality and attraction sectors of the tourism economy. A study by Dube et al. (2020) found that the restaurant and hospitality industry was almost decimated by the pandemic across the world. Concern was also being raised over the ramifications of labelling of Chinese nationalities as coronavirus carriers on the tourism economy (Zheng et al. 2020). The outbreak of the pandemic presented new scenarios for the tourism industry (Chen et al. 2020) and a possible opportunity to reset (Nepal 2020). The tourism reset, as proposed by Romagosa (2020), was likely to have implications for the aviation industry.

5.3 Research Design

The study took a global view that looked at multiple cases to draw a real narrative of the events. The basic foundation of the study was archival data from various aviation official sources. Jones (2010) and Webb et al. (2017) argue for the use of archival data in social research, outlining that it offers numerous advantages. According to Welch (2000:197), “using archival material provides longitudinal data, generates new theories about business networks and improves the validity and reliability of findings”. Since the data are available and have been collected periodically, such as in the aviation industry, the data are very rich, of high quality and authentic. Given the scope of the research, archival data were found to be inexpensive on the researcher’s part. Since there was a need for historical data, the researchers could not go back in time and start researching. Most organisations opened up access to some restricted data in the public interest and to foster an understanding of how the COVID-19 pandemic was affecting various sectors. The researchers took advantage of this publicly available data for this study.

The first port of call was data from the United Nations regulatory body the ICAO. The ICAO consolidates data on COVID-19 from sector organisations such as the ACI, Civil Air Navigation Services Organization (CANSO), IATA, International Air Cargo Association and World Health Organization. Data from the COVID-19 Airport Status app was used to track daily departures of aircraft across the world. The data was gathered from the COVID-19 NOTAMS (notice to airmen) and could be accessed via application programming interfaces (APIs) through ICAO’s API Data Service. The COVID-19 cases per day were sourced from the European Centre for Disease Prevention and Control, and this was updated daily.

There was also a specific focus on grounded aircraft in the Eurozone. To this end, data from the EUROCONTROL area were sought and analysed. The data were obtained from a collation made by EUROCONTROL and archived on their database. The data excluded military aircraft, circular flights, unknown operators and
special operators such as Airbus. The data on grounded aircraft were based on the identification of aircraft that last landed somewhere in the EUROCONTROL area between 15 February and 7 April 2020 and have been inactive since then. The researchers further looked at aircraft departures from China, as the initial epicentre of the pandemic, using data from Flightradar24 web archives.

Additional (secondary source) data were gathered from authoritative sources such as aviation media outlets and airport reports. The qualitative data were analysed through content and thematic analysis after Vaismoradi et al. (2013). Microsoft Excel Analysis ToolPak was used to analyse the quantitative (Dube and Nhamo 2019).

5.4 Results and Discussion

This section is divided into four subsections. The first subsection is dedicated to presenting the impact of the COVID-19 pandemic on the global airport networks in the various ICAO aviation regions, while the second subsection is reserved for examining the various interventions undertaken at various airports to deal with the fallout of COVID-19. The third subsection is dedicated to the impact of COVID-19 on the global airport retailing market, with the fourth subsection focusing on airport employment and economies.

5.4.1 Impact of COVID-19 on Global Airport Departures

The declaration of COVID-19 as a pandemic seems to have marked a turning point in departures. At that point, record lows in departures were reported. Observations revealed that the other wave of declines in departures, particularly in March 2020, was triggered by at least three incidences, including the USA imposing travel restrictions on Europe on 13 March 2020. By presidential proclamation, the USA initially imposed travel restrictions on 26 European countries that form part of the Schengen region. Britain and Ireland, which were at first excluded, were later included, and this led to a drastic decline in departures to and from the USA given the region’s share of traffic globally. Several countries later followed suit, which led to a global downscale of departures.

The study revealed that the pandemic drastically affected departures of aircraft across the world. The disruptions covered air traffic movement in ICAO’s seven aviation regions, namely, (i) Eastern and Southern Africa; (ii) Western and Central Africa; (iii) the Middle East; (iv) Central America and Caribbean; (v) Asia and Pacific; (vi) Europe and North Atlantic; and (vii) South America. An analysis of 6 months’ traffic data between October 2019 and April 2020 shows that at a global level, the maximum number of departures were over 33,500 sometime in October 2019 and the departures dropped to less than 2000 departures at the end of April 2020 (Fig. 5.2).
The outbreak of COVID-12 or its announcement resulted in a decline in global departures, with impacts starting to show at the end of January 2020. The impacts were more pronounced in early February 2020. The hardest knock was observed on 12 March 2020, as reflected in a marked global downward spiral of departures. This resulted in a decrease of about one-third of aircraft departures. In about 10 days after the pandemic declaration on 11 March 2020, departures plummeted to less than 10,000 aircraft globally. By the end of April 2020, there were fewer than 2000 departures on average. Globally an estimated 95% of the departures were lost. The bulk of aircraft departures and landing at airports mainly comprised cargo and domestic flights (particularly in the USA and China). Primarily, cargo aircraft was delivering medical supplies across the world, and the few passenger flights were as a result of slight relaxation-imposed travel restrictions, which also resulted in poor demand for air transport services.

It emerges that as new infections were reported globally, traffic was on the decline. CANSO data confirm these findings. Using measuring hours, the data show a drastic decline in flying hours across regions between January and April 2020. According to CANSO (2020), flying hours declined by 56% in North America and by 76% in Asia, with other regions recording much higher declines totalling as high as 90%.

The decline in departures across the global airport network could be attributed to several factors that took place in various aviation regions and affected aviation globally. A slight decline in departures in January and February 2020 could be attributed to the ban on people to leave or enter Wuhan during what is the busiest travel period in China. The travel bans led to a sharp decline of traffic at several airports, with airlines reporting traveller declines of between 85% and 90% for the 2 months year
on year comparison (Chua 2020). The Wuhan ban resulted in the cancellation of air flights and trains.

The slump in departures presented challenges for airports that generate up to half of their revenue from landing and departure fees. Ordinarily, airports make close to half of their revenue from the following revenue streams:

(i) Landing fees (determined by weight and origin)
(ii) Aircraft parking fees (determined by duration and aircraft size)
(iii) Passenger service charges (in most cases, these are charged only on departures) (ACI 2020b)

While airports rely on landing and departure fees, it has other revenue sources that are linked to landing and departure. Most notable is revenue from aviation fuel surcharges. Revenue from this source was not affected by reduced sales, relevant losses compounded by notable lower fuel prices because of an oil price slump emanating from squabbles Organization of the Petroleum Exporting Countries (OPEC).

The trend from both African regions (Figs. 5.3 and 5.4) shows similar patterns. However, the African regions were affected rather later, in mid-March 2020, and the departures dropped more abruptly than in any other part of the world. After the disease was declared a pandemic, there was a sharp decline in departures owing to movement restrictions imposed by various states. The few departures that were observed show that few airlines were conducting stranded citizen rescue and relief missions, especially at the end of March and early April 2020. As in other parts of the world, the bulk of emanating flights were largely cargo aircraft medical supplies and other essentials that were needed.

![Daily Departures vs COVID-19 New Infections](image)

**Fig. 5.3** East and South Africa – impact of COVID-19 on daily aircraft departures
Source: Authors; data from ICAO (2020)
5.4 Results and Discussion

The Middle East is one of the areas with a growing influence on aviation. It hosts some of the most prestigious airlines in the world, including Qatar Airways, Etihad Airways and Emirates. Figure 5.5 shows that the region was affected earlier, around February 2020, when it reported its first cases (Fig. 5.4). This could be attributed to its wide network, which resulted in exposure to the virus. The downward spiral of
airport departures started around 6 March 2020, 6 days earlier than the other regions. By the end of March 2020, very few aircraft departed from the region, with about 90 departures from a peak of around 3300 in February 2020. As in other regions, the 90 aircraft departures pertained to cargo flights. Interestingly some airlines turned their passenger flights into cargo airlines.

The USA market showed some resilience, with serious departure declines being witnessed only after the travel restrictions to the European market in early March 2020. The market has a robust domestic airline industry, hence the resilience that witnessed the market taking a bit longer than other markets to get to the bottom. However, it is important to note that the international and domestic policies adopted by the USA had huge significance for the local and international aviation markets and departures (Figs. 5.6, 5.7 and 5.8).

Figure 5.7 shows how both the European departures and the American departures were affected by the pandemic from January 2020. However, significant departure declines were witnessed from 6 March 2020 onwards. Europe suffered a huge blow when the USA banned travel to the region at the height of Italy’s massive infection rates and deaths. Cancellations affected flights between the two regions (the USA and the Eurozone).

Since COVID-19 emerged in China, the Asia-Pacific region recorded the first cases of both infection and death. The region witnessed a significant drop in departures, as can be seen in both Figs. 5.9 and 5.10. Departure declines were reported as far back as at the end of January 2020, with the highest infection spike on 17 February 2020. Daily new infections showed highs and lows since January 2020. In line with the global trend, there were very few departures at the airports in the

![Graph showing daily departures and COVID-19 new infections](source: Authors; data from ICAO (2020))
Asia-Pacific region. As a consequence, the regional board for airports (the ACI Asia-Pacific) reported that instead of the predicted revenue of US$12.4 billion in the first quarter of the year, they were expecting a revenue loss of US$3 billion (ACI 2020b).

Fig. 5.7  Europe and North America – impact of COVID-19 on daily airport departures
Source: Authors; data from ICAO (2020)

Fig. 5.8  South America – impact of COVID-19 on daily airport departures
Source: Authors; data from ICAO (2020)
They blamed the revenue loss on the suspension of the 80/20 slot rule by IATA, which triggered airline cancellations and led to a decline in “traffic and passenger demand, airports’ aeronautical revenues and non-aeronautical revenues” (ACI 2020a:1b).
On the busiest day in January 2020, China’s 25 busiest airports recorded more than 10,000 departures on average on a single day. This accounted for about one-third of global departures. China has 220 airports across the country. The busiest airport is Beijing Capital International Airport, which at the peak had over 900 departures per day. This figure reached an all-time low of 159 departures on 10 February 2020 due to restrictions on travel rules implemented to control the spread of COVID-19. COVID-19 severely disrupted the operations of the giant airport that services 89 international airlines (Beijing Capital Airport 2020). Figure 5.10 shows the trend at China’s 25 most busy airports, where an 80% decline in departures were observed over the period in question due to the impact of COVID-19.

5.4.2 COVID-19 and Airport Parking Challenges and Economies

In as much as the grounding of many airlines presented a huge financial blow from declining departure and related fees overall, there was an unforeseen opportunity for airports to generate revenue from parking fees. With many grounded flights, most airports struggled to find parking space, with some ending up using part of their runways as parking space. This led to the closure of some runways to accommodate the unprecedented number of aircraft piling up in several airports across the world. Figure 5.11 shows a situation playing out across several airports in the world, with aircraft parked on pavements and runways. Across the world, aircraft were parked at Paris’ Charles de Gaulle Airport as a result of groundings due to COVID-19.

![Aerial photograph of aircraft parked at Paris’ Charles de Gaulle Airport](https://example.com/airports.jpg)

Source: MAXAR Technologies (2020)
grounded due to COVID-19 travel restrictions. This led to pavement damage at some airports.

Among the most affected airports were those in countries with large fleets of aircraft such as the United Arab Emirates. The next section focuses on the airport situation in Europe (Figs. 5.12, 5.13, 5.14 and 5.15). Aircraft were piling up at various airports in Europe since February 2020, with the most significant number of parked aircraft witnessed mid-March 2020 (Fig. 5.12). Ryanair, Lufthansa and Turkish Airways had the highest number of parked aircraft, with a total of 915 (Fig. 5.13). The airports with the highest number of parked aircraft were in Madrid, Istanbul, London and Vienna (Fig. 5.14). On 17 April 2020, there were 5472 parked aircraft at 303 airports across Europe. As can be seen in Fig. 5.15, narrow-bodied aircraft formed the bulk of the parked aircraft, and a significant number were very large and wide-bodied aircraft.

The USA has a huge aircraft fleet and some airlines. Airport resorted to using closed airports or airports not frequently used as parking sites for grounded aircraft. These airports include the Victorville airport, California, and Marana, Arizona. Delta, FedEx and Southwest Airlines were some of the airlines that used this less frequented airport, probably to evade the high cost at other busy airports. The airport is also advantageous in that it has subhumid conditions. The dry conditions ensure that aircraft are rust free, which helps in lowering maintenance cost. Faced with substantial parking costs, probably for a more extended period, some airlines decided to retire their bigger aircraft. Airlines such as Lufthansa retired a sizeable number of wide-bodied aircraft.

![Graph showing trend in airport parking due to COVID-19 in the Europe region (March–April 2020)](image)

Fig. 5.12  Trend in airport parking due to COVID-19 in the Europe region (March–April 2020)
Source: Authors; data from EUROCONTROL (2020)
As already indicated, the piling up of aircraft presented several challenges for airports across the world. In Europe, there was a call to cut airport parking fees, which effectively reduced revenues. As such, the airports were also incapable of cashing in on the troubled airlines. Parking an aircraft at an airport is particularly expensive, especially if no business is going on. In India, for example, parking fees...
per day can be as high as US$1000 (Heathrow 2019a). Parking fees for a wide-bodied aircraft at Heathrow Airport are £59.35 and that for narrow-bodied aircraft £24.73 every 15 minutes, with the costs waived between 22:00 and 05:59 UTC (Ibid). While the parking costs could have been reduced by government and airport authorities through concessionaries and waivers, there were serious financial implications for airlines with wide-bodied aircraft and those with a large fleet (Figs. 5.13 and 5.15).

Due to the increased demand for parking, some airports had challenges resulting from damaged airport infrastructure. Istanbul had a capacity of parking space for 500 aircraft and could accommodate the large Turkish fleet. The airport was built at the cost of US$16.65 billion, and a significant portion of this amount was sourced through a build-operate-transfer process and a (US$5bn) loan from several banks, including Ziraat Bank, Halkbank and VakıfBank (Airport Technology 2019). The 90-million-passengers capacity airport that employs 31,000 employees (iGA 2020) reduced operations, which had a devastating impact on its employees. Thus, the disruptions caused by COVID-19 could hamper the period of the rate of return and the repayment process. Several airports across the world faced similar challenges.

The Southern Hemisphere saw the construction of many airports, with some not realising their capital investment. Observations revealed that in Southern Africa, there were new airports or major airport upgrades at Lanseria International Airport (South Africa), Victoria Falls International Airport (Zimbabwe), Cape Town International Airport (South Africa) and OR Tambo International Airport (South Africa). China reported the completion of facilities worth U$11.7 billion at Beijing Daxing International Airport, with a capacity to handle more than 100 million passengers per annum (Keju 2019). In the USA, there were 10 airport projects with a budget of over US$1.3 billion, with the highest having a budget of US$2.6 billion (Statista 2020) which were likely to be affected by the COVID-19 pandemic.
liquidity crunch. The liquidity crunch that affected airports is feared to have reversed the progress of carbon-neutral projects that were on the increase globally.

While airports could have modelled their investments in projected traffic figures based on financial gains and observations from trends in recent years, the pandemic upset that scenario and changed airport companies’ financial outlook. This had dire consequences for financially insecure airports, particularly private airports, with limited access to government funding. The pandemic led to a wave of disturbances throughout the tourism value chain and had a devastating impact on the airline industry. The placement under administration and/or ultimate collapse of a number of airlines have implications for the viability of airports going forward. No doubt the disturbances at Virgin Australia with its fleet of 120 aircraft (Flightradar24 database) may have a significant impact on the revenue of airports on its routes if it is allowed to fail. The airliner has been put under administration and is battling a credit bill of US$4.4 billion. The development has seen Perth Airport attaching some of the airline’s property. There are fears that many airlines that were financially fragile will go under after the pandemic, with implications for airports across the world.

The airline industry on the African continent has been identified as vulnerable to shocks owing to poor governance, restrictive taxes and poor route network planning (Dube and Nhamo 2019). The pandemic has had an adverse impact on South African Airways, which have been in trouble for years and depends on government bailouts. The pandemic might signal its demise as the government denied the perennial loss – making airline further bailouts due to a restricted fiscal space (Makinana 2020). With South African Airways one of the leading regional and continental airlines in sub-Saharan Africa, its liquidation and that of SA Airlink which made a loss of R365 million in November 2019 (Ramalepe 2020) and SA Express can cripple some of the airports in South Africa and the Southern African Development Community (SADC) region where the two airlines are dominant. These airlines are the only airlines servicing some of the airports in the SADC region, and their demise is likely to have negative implications for jobs and the sustainability of the affected airports. If these airlines eventually close down, major routes to tourist attractions via Kruger Mpumalanga International Airport, Victoria Falls International Airport, Livingstone International Airport (LVI, also known as Harry Mwanga Nkumbula International Airport), Skukuza Airport and Bisho Airport amongst others could be compromised, if not closed down altogether. This situation is not unique to South Africa.

5.4.3 Impact of COVID-19 on the Global Airport Retailing Market

Apart from getting revenue from aeronautical services, several airports get substantial revenue from retail, car rentals, property leases and ground transport. For example, Sydney Airport made AUS$1637, nine million in 2019 (SYD 2019). Figure 5.16
shows the contribution of each airport business unit to total revenue collected by the airport.

With millions of passengers using the airports and using various services and facilities, the closure of various retail units as a result of the grounding of airlines led to a loss of substantial revenue from various business units. Closed services in the space include airport restaurants, bars, airport lounges and car rental and ground transport facilities, all of which generate significant amounts of revenue for airport-owning companies.

Besides retail, some airports rent or lease hotel space all adding another revenue stream. With aircraft grounded, most shops (particularly restaurants, duty-free shops, electronic shops and souvenirs shops) and airport lounges shut down. The global airport retail value in 2017 was pegged at US$40 billion, with the figure expected to reach US$58.4 billion by 2022 (News Wire 2020). In 2019, the global retail market grew by 5%, with profit margins at 5.6% (Research and Markets 2019). It was estimated that the loss in potential revenue could have easily exceeded US$5 billion and came at a considerable cost to employees in the retail sector.

5.4.4 Impact of COVID-19 on Employment and Economies of Airports

Airports indirectly provide employment to a lot of people who provide cleaning services for airlines and airport facilities, security services and ancillary services such as baggage handling and airport shuttle services. Given that most of these employees are either semi-skilled or employed on a temporary basis, indications
were that the bulk of them were furloughed or dismissed due to reduced operations or the closure of airports across the world. Table 5.1 shows some of the cases where airport employees were either furloughed or dismissed.

While the aviation industry was advocating for bailouts from the share of emerging economic stimulus packages from governments to save tens of millions of jobs, it was clear that the employees were on the receiving end of the coronavirus attack. Using baseline data from the previous year (ACI 2020b) at the beginning of April 2020, the total loss for airports due to decreased passenger demand was estimated to be in the region of US$76 billion. This amount is significant as it equates to the financial budget of several developing countries. ACI (which represents 668 members operating 1979 airports in 176 countries) indicated that in a bid to protect viability, the airports had adopted a wide variety of 6+ measures (highlighted in Fig. 5.17).

It has to be stated that in most cases, the government were devoid of support to airports. If anything, governments and authorities instituted measures that put airports at a financial disadvantage. Although understandable, the call for fee reductions and suspension of slots increased the financial strain on airports across the world. With very little coming from aeronautical services, the airports’ other revenue streams (discussed earlier) were incapacitated because they were shut down as a control measure due to COVID-19.

Table 5.1 Impact of COVID-19 on selected airport labour and employment

| Name of airport/ground handling company | Number of dismissed/furloughed employees |
|-----------------------------------------|------------------------------------------|
| Leeds Bradford Airport                  | Up to 250 people directly employed by the airport were laid off |
| Houston Airport                         | Swissport temporarily laid off at least 50 full-time employees of its airport staff |
|                                        | United Airlines, which uses 60% of the airport and employs nearly 14,000 people in the Houston area, indicated the intention to lay off airport staff |
| Charlotte Douglas Airport               | 112 airport workers lost their jobs |
|                                        | More than 600 HMSHost employees lost their jobs after the airport closed restaurants and bars |
| John Menzies Axes                       | 17,500 employees in 200 countries were dismissed globally, which was 50% of its workforce (BBC 2020) |
| Airports in India                       | 35,000 ground handling agents were placed on forced leave without pay (Simhan 2020) |
| Heathrow Airport                        | Security guards and firefighters accepted a 10% reduction in their pay for 9 months |
|                                        | Other airport staff were forced to take a 15% salary reduction after business fell by 90% (Partridge 2020) |
|                                        | In 2019, the airport had, on average, 7827 monthly employees (Heathrow 2019b) |
| Bristol Airport                         | Furloughed 80% of staff (Gogarty 2020) |

Source: Authors
The COVID-19 pandemic also brought under the spotlight the effectiveness of thermal scanners in the screening of infected passengers. Thermal scanners were often used previously to control the outbreak of diseases such as SARS (John et al. 2005). Quilty et al. (2020) observe that out of 100 COVID-19 cases, an estimated 47% was not detected, 44% was detected at exit screening, 1% was detected as severe on the flight and 8% was detected at entry screening. This points to the need for continuous research and innovation to improve the efficiency and effectiveness of thermal scanners at airports. In most cases, however, screening is not done on departure and arrival, with experience showing that on departure airports hardly conduct any screenings.

5.5 Conclusions and Recommendations

The study investigated how COVID-19 pandemic affected the airport industry across the world. The study found that the industry, like any other industry, was adversely affected by the pandemic. This led to a loss of traffic around the world owing to plummeting departures. Initial assessment shows that the industry was set to lose about US$76 billion in the first few months of the pandemic. The loss in revenue due to reduced traffic had an adverse impact on individual airport revenues, which in turn, resulted in revenue losses for airports and air navigation companies. The airports responded by cutting back on capital expenditure, furloughing employees and closing sections of the airport as cost containment measures. Regardless of the challenges, some airports with bigger financial capacity took the opportunity to upgrade and conduct critical maintenance in preparation for the post-pandemic period.

There were fears that the impact of airlines closing down would seriously affect airports, particularly in Africa. This was because some airports and the tourism
industry would be crippled by the closure of individual airlines. With the airport industry expected to take a U-shaped (instead of a V-shaped) recovery path, countries with weak domestic travels were likely to have the worst affected airports. Due to revenue losses, the pandemic drastically affected loan repayments for airports whose projects were premised on forecasted revenue instead of cash balance. With several airports having capital projects lined up, some aimed at improving and ensuring seamless travel and promoting green airports, the postponement of some projects might compromise and reverse the gains made in ensuring green travel.

The study further found that there were still challenges in terms of the effectiveness and efficiency of thermal scanners at airports. This requires continued investment and attention to improve the apparatus used to ensure biosecurity at airports going forward, thereby protecting global economies. The ACI called for support for airports and aeronautical companies across the world in the form of providing financial relief packages to enable service sustainability post COVID-19 or when the economy is restarted. Other support measures could come through the protection of airport charges and revenues, the provision of tax relief, a concession fee waiver, continuity of air cargo operations and a comprehensive relief package that includes offering the industry concessionary grants, loan grants at preferential rates and subsidies to ensure the sustainability of airports.

The study highlights a need to support the sector to ensure the continued existence of affected airports and associated operations. There is also a need to protect airport employees from the impact of the COVID-19 economic shock, the magnitude of which had never been seen in history. The study recommends a post-pandemic impact assessment of airlines, air navigation systems and airports in countries and regions to better understand the impact of COVID-19 on the sector.

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