

SUMMARY OF ARTICLE: [HTTPS://DX.DOI.ORG/10.12795/REA.2022.I43.09](https://dx.doi.org/10.12795/rea.2022.i43.09)

Air transportation and the COVID-19 pandemic: Towards a change of the path in the spanish airport network?

Roberto Díez-Pisonero

rdpisonero@ghis.ucm.es  0000-0002-7817-628X

Cándida Gago-García

cgago@ucm.es  0000-0003-2315-7943

*Departamento de Geografía, Facultad de Geografía e Historia. Universidad Complutense de Madrid.
C/ Profesor Aranguren s/n. Ciudad Universitaria. 28040 Madrid, España*

KEYWORDS

Air transportation
COVID-19
Airports
Air connectivity
Spain

The COVID-19 coronavirus pandemic has been a deep setback for the global economy in general, and in the aviation industry in particular, as it is directly affected by the numerous restriction and containment measures to stop the spread of the virus.

Unlike previous crises (Gulf wars, terrorist attacks of 9/11, financial crisis of 2008), the deep recession caused in the sector has led many experts to classify it as the worst in the entire history of commercial aviation, with notable effects on all study metrics: while the prediction of world traffic for 2020, before the declaration of the pandemic by the WHO in March 2020, was 9.4 billion passengers, the figure declined to 3.8 billion (ICAO, 2020). According to some authors, this crisis is even worse than the scenario generated after the 9/11 terrorist attacks, when the airline industry took about a decade to fully recover (Wyman, 2020).

The outbreak of the coronavirus in Wuhan (China) and its rapid expansion to the rest of the world forced many countries to implement restrictive and containing measures to stop the spread of the virus, which has dealt a very violent blow to the entire airline industry. Within days, nearly all flights were cancelled, airports closed, the global fleet on the ground, and thousands of employees laid off. The confinement and closure of borders decreed almost simultaneously by governments around the world to contain the Covid-19 outbreak resulted in a reduction in all study metrics.

In this sense, the first objective of this work is to present and quantify the impact of the pandemic on the commercial aviation sector on a global scale and by major world regions, based on official data and statistics from the main organizations of the aeronautical industry (IATA, ICAO, EUROSTAT, AENA). According to the different monthly studies that the IATA has been publishing on its website during the course of the pandemic, and according to the estimates for the month of December (2020), it is confirmed that the possible impact of COVID-19 on the air travel industry will be very high, although the real impacts will depend on the duration and magnitude of the outbreak, containment measures, the degree of consumer confidence in air travel, economic conditions and the progress of the vaccination process, among other factors. It is, therefore, that



the authorities warn that a return to normality is not on the agenda for the foreseeable future, since the industry is expected not to return to the activity levels of 2019 until 2024 (IATA, 2020).

Secondly, the work aims to evaluate Spanish airport connectivity (domestic and international) and, consequently, analyze the degree of national structuring between urban systems (national connectivity) and the evolution of the participation of many of the Spanish airports in the global scenario during the pandemic (international connectivity), through a diachronic analysis, with a “photograph” of the years 1970, 2015, 2019 and 2020. The first two years (1970-2015), 45 years apart, offer an adequate time frame to understand and visualize the trajectories that have occurred in the Spanish airport network. These must be essentially related to the restructuring of the sector, with special emphasis on the consequences derived from the liberalization process and the increase in international tourism (Díez-Pisonero, 2016). The consideration in the analysis of the last period, years 2019-2020, aims to show and evaluate the pre-pandemic situation (2019) and the impact of the COVID-19 pandemic on the airport network (2019-2020).

Data on connections and frequencies between pairs of cities, both domestic and international traffic, have been used for the analysis, extracted from those known in the sector as ABC Guides; in 1970, in paper format “ABC World Airways Guide, October 1970” and, in 2015, 2019 and 2020, in digital format “Comber International Guides Database - OAG”. The data refer in any case to the months of the end of summer (August and September).

These have been subjected to a statistical treatment, using for the analysis the calculation of a topological connectivity coefficient (Córdoba and Gago, 2010). For the interpretation, data on air frequencies between pairs of cities have also been used, when logic recommends it, from the aforementioned sources.

Regarding the first period (1970-2015), it can be corroborated how in these 45 years the degree of cohesion of the system has evolved favorably, both nationally and internationally, since the number of links and air frequencies has increased considerably, consolidating a very dense and vertebrate network. Thus, in the face of the two-headed structure of 1970 articulated by two dominant centers in a manifestly centralist system, it has evolved to another where, although Madrid and Barcelona continue to dominate internal relations, new emergent centralities appear to be linked to a revaluation of central regional structures in the national territory's organization.

It is in the international network where a profound metamorphosis has been observed. While in 1970, when Spain still had a great regulation of air traffic and Iberia exercised the role of flag company with the main hub in Madrid, Spanish international traffic was entirely directed by the capital of the country. The rest of the Spanish cities did not register any connection outside our borders, except for tourist destinations (archipelagos and the Mediterranean coast), but only through charter flights. In this way, if a passenger wanted to go abroad by plane at that time, they had to go through Madrid first in most cases. This is why it is considered that the Spanish network was strongly polarized.

However, in 2015, the situation is very different, with a generalized growth experienced in a large number of airports as a consequence of the liberalization of the sector, the entry of Spain into the European Union, the great tourist specialization of the country, the internationalization of the Spanish economy in the European and world context, its progressive consolidation as a connecting bridge with Ibero-American countries or the generalization of low-cost companies, among other factors.

Regarding the second period analysed, the impact of COVID-19 on air transport is assuming a true turning point in aeronautical history, regardless of the scale of analysis and the metrics taken into consideration. In Spain, the frequencies and air connections of all its airports have been reduced during the hardest months of the confinement, not having achieved the “expected recovery in the summer of 2021”, although there is an evident growth with respect to the first year of the pandemic. This trajectory already speaks to us of a far-reaching impact and, at least, in the case of Spain, of a slow recovery process. The analysis carried out presents the changes for a very specific period, but as it is an ongoing process, no general conclusions can yet be drawn about what happened.

Against this background, it is essential to provide certainty in health and safety to rebuild trust in society. Some measures have been implemented in most of the world's airports, such as the disinfection of terminals, the use of masks, gloves, and disinfectant gels, the control of the capacity of shops and restaurants, so



cial distancing, etc. The airlines have also adapted in this sense, implementing measures such as those proposed by Harvard University, that is: the ventilation system and periodic air renewal in the cabins, the use of masks, the disinfection of airplanes, passenger monitoring, and education and awareness. In addition, the sector has adapted by offering greater flexibility in reservations, for example, increasing experiences with little contact (low-touch) in both airports and hotels, allowing travelers to carry out their procedures at the airport remotely through from their mobile phones, or offering rapid diagnosis health services at airports (PCRs) to present at those destinations that require it. Proof that airlines and airports are already applying these measures successfully is that the risk of transmission on board is low (Wyman, 2020).

But, in view of the fear of new outbreaks and waves around the world, it is not possible to predict exactly when all restrictions on movement will be lifted and when it will return to a pre-COVID "normal" situation. It is, for this reason, that we believe that future challenges that should prioritize the action strategy in the field of air transport should focus on guaranteeing certainty in health and safety. Thus, despite the setback experienced during the last year as a consequence of the pandemic, experience justifies the need to continue investing in an essential sector to guarantee economic and social interaction.