

MEETING THE UNEXPECTED: THE VERY SENSITIVE BEHAVIOUR OF THE AIR TRANSPORT SECTOR DURING THE COVID-19 PANDEMIC AND THE LESSONS LEARNT

DANIELA-LUMINITA CONSTANTIN

Bucharest University of Economic Studies

daniela.constantin@amp.ase.ro

ANA-MARIA MARCU

Bucharest University of Economic Studies

marcuana19@stud.ase.ro

Abstract

From a ‘future states’ typology perspective (Stimson et al., 2006), the COVID-19 pandemic can be placed between unpredictable and chaotic future. Most of the forecasting models did not even take into consideration the risks of a pandemic outbreak, making their predictions useless and exposing the corresponding social-economic activities to huge perturbations, with low chances of fast recovery. When confronted with this situation, the academic environment reacted with a plethora of research studies in various affected fields. However, many of them addressed specific, narrow aspects, lacking the integrative frameworks, able to offer all-embracing views of investigated phenomena, from the forms of manifestation to in-depth, multi-sided evaluations as well as strategies and policy measures to face the entailed challenges. This paper aims to join those studies which have sought to fill this gap, proposing a comprehensive perspective on one of the most severely hit sectors by the COVID-19 pandemic, namely the air transportation. The emphasis is placed on the better understanding of the very sensitive behaviour of this sector when confronted with a pandemic crisis, as a way of increasing the preparedness to react and, consequently, to diminish the severity of negative effects. As a general note, the paper supports the orientation towards holistic, resilience/prosilience-based approaches instead of returning to the old routines, described by ‘business as usual’ syntagma.

Keywords: air transport, COVID-19, risk, uncertainty, holistic approaches

JEL Classification: D80, F69, R41

1. INTRODUCTION

Nowadays, more than ever, the future’s predictions face major challenges, given the general international context marked by the COVID-19 pandemic, the US – China rivalry, the war against Ukraine, the Middle Est conflicts, the resulting food and energy crises, mounting inflation, debt tensing, climate emergency, world output growth decelerating, etc. (UN, 2023). The different factors coming together or following each other transform these crises from temporary periods of risks, loses, damages into long, permanent state of multiple, overlapping crises, in other words, into a permacrisis (Brown et al., 2023; Gizapedia, 2023; Patache et al., 2021). Under such circumstances, countries, regions, firms, local communities and individuals altogether need to be not only adaptive to change but also “*to be proactive in developing strategies to address and shape their futures*” (Stimson et al., 2006, p.v). Consequently, it is of a major importance to gauge the “future states” of the future, with their “*different levels of control and ability to predict*”, as Stimson et al. (2006, p. 193), proving a visionary thinking, stated almost two decades ago. Even more, they proposed a typology of those states, depending on the predictability degree and controllability, as described in Figure 1.

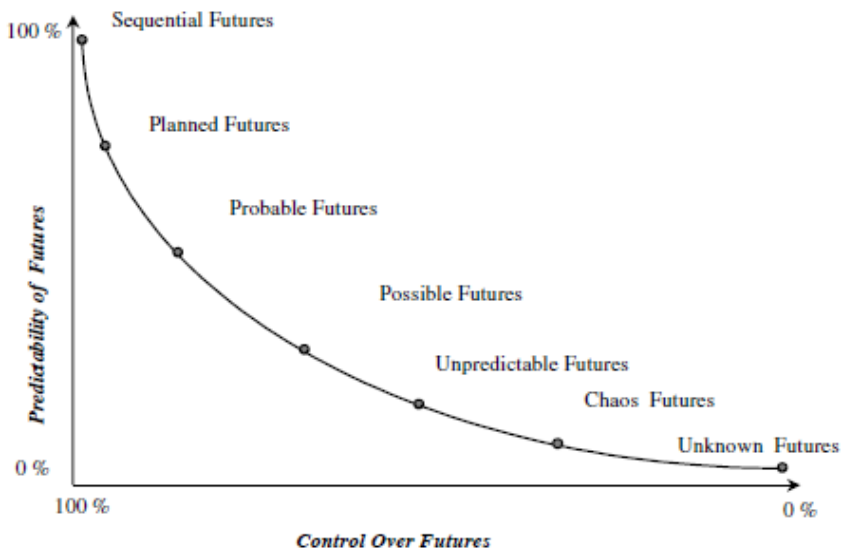


Figure 1: Possible future states: control levels and predictability

Source: Stimson et al., p. 194

In the current context, two ‘future states’ of this typology are of the utmost interest, namely unpredictable and chaotic futures. The unpredictable futures refer to events with little or no control, their form, time, magnitude and duration being

hard to predict. The chaotic futures point to events which are highly or totally unpredictable and out of control, with high danger degree (Stimson et al., 2006).

A relevant example in the area between unpredictable and chaotic future is the COVID-19 pandemic. It is described by Batty (2021) as follows: “... *the emergence of the virus was a surprise, an entirely unexpected event to most, and its course over the last two years has been anything but predictable*” (p. 3).

Despite the attempts of modern society to control or reduce uncertainty by applying norms, rules, recommendations, etc., the continuous changes and transformations do not allow to generate the necessary conditions for a stable condition of certainty. Even more, the ‘classical’ distinction between risk and uncertainty has become questionable, the two terms being used interchangeably: “*risk is often regarded as uncertainty, especially, as is often the case in today’s society, when many risks are not measurable and thus increase uncertainty*” (Loretta et al., 2021).

In a related register, most of the forecasting models did not even take into consideration the risks of a pandemic outbreak, making their predictions useless and exposing the corresponding social-economic activities to huge perturbations, with low chances of fast recovery.

When confronted with this situation, the academic environment reacted with a plethora of research studies in various affected fields. However, many of them addressed specific, narrow aspects, lacking the integrative frameworks, able to offer all-embracing views of investigated phenomena, from the forms of manifestation to in-depth, multi-sided evaluations as well as strategies and policy measures to face the entailed challenges.

Based on these overall considerations, this paper aims to join those studies which have sought to fill the above-mentioned gap, proposing a comprehensive perspective on one of the most severely hit sectors by the COVID-19 pandemic, namely the air transportation. The emphasis is placed on the better understanding of the very sensitive behaviour of this sector when confronted with a pandemic crisis, as a way of increasing the preparedness to react and, consequently, to diminish the severity of negative effects. As a general note, the paper supports to orientation towards holistic, resilience/prosilience-based approaches instead of returning to the old routines, described by ‘business as usual’ syntagma.

2. RESEARCH METHODOLOGY

The methodology derives from the purpose of an overarching review of the studies addressing the most relevant aspects of the air transport confrontation with the COVID-19 crisis. Thus, rather than concentrating on a certain aspect of this complex phenomenon, the aim has been to provide an all-embracing view, combining a well-defined theoretical framework with the discussing of relevant subjects proposed by solid empirical studies with regard to the very sensitive behaviour of the air transport during the COVID-19 pandemic and the lessons learnt. The papers have been selected by means of an automatic search engine (Publish-or-

system, namely the epidemic shock, the pandemic stalemate and the endemic recovery. They are synthesized in Figure 3, which also shows how the aviation sector reacted in each phase.

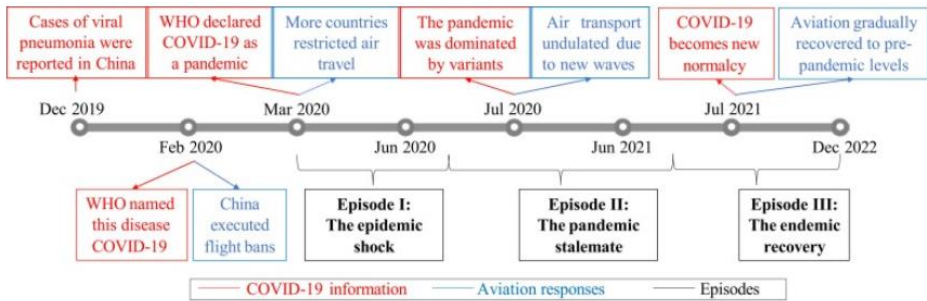


Figure 3: *The COVID-19 phases and the impact on aviation*

Source: Sun et al., 2023, p. 14

The same authors (Sun et al., 2021) have examined the impact of the COVID-19 crisis by reviewing the scientific literature on air transport in this field. Three categories of studies have resulted and we have selected from our own title list those papers considered highly relevant for each of them. Thus, the first category envisages the analysis of the global air transport system during the pandemic (air transport as a medium of disease transmission and spreading, the impact of suspension (e.g. Choi et al., 2022; Quintyne et al., 2021); the second category deals with the impact of passenger-centered flight experience (airport screening, airplane boarding and in-flight experience) (e.g. Kozicki, 2022; Vermooten, 2023; Tirpakova, et al. 2022); the third category focuses on the long-term impact on the aviation sector, discussed in terms of airline financing, prediction of passenger demand and the future trends and challenges (e.g. Kurt, 2022; He & Lu, 2021). (Choi et al., 2022; Quintyne et al., 2021; Kozicki, 2022; Vermooten, 2023; Tirpakova, et al. 2022; Kurt, 2022; He & Lu, 2021)

Going into more detail, the central themes refer to (Sun et al., 2022): airlines (revenue management, aircraft operations, customer relationship, competition effects); airports (security/safety, testing strategies, social distancing, technologies); passengers (choice modelling, perceptions, travel bookings, attitudes); labour force (job insecurity, crew management, education training, health), markets (spatio-temporal resolution, time-series analysis, prediction); epidemiologic correlation); contagion (screening strategies, simulation, containment strategies, aircraft superspreading), sustainability (fuel consumption, emissions, subsidies, green aviation), economies (financial health, state aid, bailouts, legal complications).

The central lesson learnt from all these studies is that “*what we need to avoid is coming back to a business as usual as a part of the recovery, without actually changing the underlying system*” (Sun et al., 2022, p. 2 - 12). An important emphasis is placed on the development of forecasts “*to mitigate uncertainty*” (Song and Choi, 2020, p. 1 - 16) and “*to plan recovery strategies effectively*” (Li et al., 2021, p. 394

- 409), “to provide the various players with the necessary tools to correct strategies and re-orientate their businesses”, while the transformation of the air sector will strive “to preserve business survival and invigorate growth in the background of accelerated social transformation to e-societies and environmental sustainability” (Gudmundsson et al., 2021, p. 1 - 7).

Adopting a business resilience framework (Kumar & Kasat, 2020) and business models which apply sustainable approaches in the long-run, with long-term decarbonisation policies (Cavallaro & Nocera, 2023), are seen as ways to respond ethical and reputational issues in the air transport sector, including the respect for customer rights as well (Suau – Sanchez et al., 2020). These proposals converge to a “holistic approach across the entirety of the air transport value chain and ecosystem” (Deloitte, p. n.d.). It will offer the necessary guidance to the air transport in order to prevent operation risk and decrease vulnerability. Moreover, the resilience mechanisms developed during the COVID-19 crisis create a solid basis for pro resilience, i.e. the proactive responses that help to get prepared for next challenges even before they happen (Hoopes, 2017).

4. CONCLUDING REMARKS

The air transport has been one of the most severely hit industries by the COVID-19 pandemic, all components of this so complex system being challenged in new, unexpected ways.

The main message resulted from the solutions applied and the lessons learnt is that the return to the old practices – or ‘business as usual’ is no longer possible, unless high risks are accepted, with unpredictable consequences. The in-depth research undertaken at international level suggests holistic approaches oriented towards sustainability and resilience, which can create the necessary framework for striving in the permacrisis times.

REFERENCES

- Batty, M., (2021). The COVID years: Predictable unpredictability, *Environment and Planning B: Urban Analytics and City Science*, 49(1), 3-6, <https://doi.org/10.1177/23998083211072588>
- Brown, G., El-Erian, M., Spence, M. & Lidow, R. (2023). Permacrisis: A Plan to Fix a Fractured World, available online at <https://gizapedia.org/permacrisis-definition-concept-history>
- Cavallaro, F. & Nocera, S. (2024). COVID-19 effects on transport-related air pollutants: insights, evaluations, and policy perspectives, *Transport Reviews*, 44 (2), 484-517, <https://doi.org/10.1080/01441647.2023.2225211>
- Choi, Y., Zou, L. & Dresner, M. (2022). The effects of air transport mobility and global connectivity on viral transmission: Lessons learned from Covid-19 and its variants, *Transport Policy*, 127, 22-30, <https://doi.org/10.1016/j.tranpol.2022.08.009>

- Delloite (2023). Decarbonizing air transport: taking a holistic approach, available online at <https://www.deloitte.com/global/en/Industries/energy/blogs/decarbonizing-air-transport.html>
- Gudmundsson, S.V., Cattaneo, M. & Redondi, R. (2021). Forecasting temporal world recovery in air transport markets in the presence of large economic shocks: The case of COVID-19, *Journal of Air Transport Management*, 91, 1 - 7, <https://doi.org/10.1016/j.jairtraman.2020.102007>
- He, Y. & Lu, M. (2021). Research on warning and monitoring mechanism of economic operation of air passenger transport economic operation under the impact of COVID-19, IEEE 3rd International Conference on Civil Aviation Safety and Information Technology, 401 – 407, <https://doi.org/10.1109/ICCASIT53235.2021.9633396>
- Hoopes, L.L. (2017). Prosilience: Building Your Resilience for a Turbulent World, available online at <https://www.amazon.com/Prosilience-Building-Resilience-Turbulent-World/dp/0998781703>, <https://doi.org/10.1111/deci.12549>
- Kozicki, B. (2022). Carriage of passengers by air transport in the context of the COVID-19 pandemic emergence, *Logistics, Transport and the COVID-19 Crisis* (1st Edition) ImprintRoutledge.
- Kumar, M.R. & Kasat, R. (2020). How airports can sustain the COVID-19 crisis and thrive beyond it, 2-6, <https://www.internationalairportreview.com/whitepaper/>
- Kurt, Y. (2022). Corporate Social Responsibilities in Air Transport: A Research Agenda on the Effects of the COVID-19 Pandemic, *Corporate Governance, Sustainability, and Information Systems in the Aviation Sector*, 1, 53 – 71, https://doi.org/10.1007/978-981-16-9276-5_4
- Li, X., Groot, M. & Back, T. (2021). Using forecasting to evaluate the impact of COVID-19 on passenger air transport demand, *Decision Sciences*, 54 (4), 394-409
- Loretto, L., Piu, D., & Bellizzi, S. (2021). Uncertainty in Pandemic Times, *Anxiety, Uncertainty, and Resilience During the Pandemic Period – Anthropological and Psychological Perspectives*, IntechOpen, 1- 11, <https://doi.org/10.5772/intechopen.99454>
- Patache, L., Chiru, C. & Pîrvu, I. (2021). Study on Romanian Regional Convergence Under the Impact of the Health Crisis. *Romanian Journal of Regional Science*, 15(2), 37-52
- Quintyne, K.I., Kelly, C., Sheridan, A., Kenny, P. & O'Dwyer, M. (2021). COVID-19 transport restrictions in Ireland: impact on air quality and respiratory hospital admissions, *Public Health*, 198, 156 – 160, <https://doi.org/10.1016/j.puhe.2021.07.008>
- Sond, K.H. & Choi, S. (2020). A study on the behavioral change of passengers on sustainable air transport after COVID-19, *Sustainability*, 12(21), 1- 16, <https://doi.org/10.3390/su12219207>

- Stimson, R. J., Stough, R. & Roberts, B. (2006). Regional Economic Development – Analysis and Planning Strategy, *Springer*, 193 – 194, DOI: 10.1007/3-540-34829-8
- Suau-Snachez, P., Voltes-Dorta, A. & Cuguero-Escofet, N.(2020). An early assessment of the impact of COVID-19 on air transport: Just another crisis or the end of aviation as we know it?, *Journal of Transport Geography*, 86, 2 – 8, doi: 10.1016/j.jtrangeo.2020.102749
- Sun, X., Wandelt, S., Zheng, C. & Zhang, A. (2021). COVID-19 pandemic and air transportation: Successfully navigating the paper hurricane, *Journal of Air Transport Management*, 94, 2 – 11, doi: 10.1016/j.jairtraman.2021.102062
- Sun, X., Wandelt, S. & Zhang, A. (2022). COVID-19 pandemic and air transportation: Summary of Recent Research, Policy Consideration and Future Research Directions, *Transportation Research Interdisciplinary Perspectives*, 16, 2 – 12, doi: 10.1016/j.trip.2022.100718
- Sun, X., Zheng, C., Wandelt, S. & Zhang, A. (2023). Air transport and COVID-19: A tale with three episodes, *Transport Economics and Management*, 1, 13-21, <https://doi.org/10.1016/j.team.2023.05.001>
- Tirpakova, M., Blistanova, M. & Hanak, P.(2022). Process mapping as an effective safety tool in the air transport process, *Management Research and Practice*, 14 (2), 17 – 24
- United Nations (2023). World Economic Situation and Prospects 2023, *DESA Publications*, New York, ISSN: 2411-8370 (online)
- Vermooten, J. (2023). Impact of COVID-19 restrictions on South African air transport and tourism indicators, *Journal of Transport and Supply Chain Management*, 17, 1 – 14, DOI: <https://doi.org/10.4102/jtscm.v17i0.812>