

Report on Bachelor Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Lilit Mehrabyan
Advisor:	Mgr. Roman Kalabiška
Title of the thesis:	Impact of Covid-19 Pandemic on the U.S. Aviation Market

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Please provide a short summary of the thesis, your assessment of each of the four key categories, and an overall evaluation and suggested questions for the discussion. The minimum length of the report is 300 words.

Short summary

The thesis analysis the impact of Covid-19 on the aviation industry in the US. It compares the effect of the pandemic on low-cost airlines and on full-service airlines. In particular, it regresses the logarithm of the number of passenger miles on several different measures for Covid-19 and on a set of control variables, to identify the effect of Covid-19 on the airlines.

Contribution

The unique contribution of the thesis consists of separately investigating, and comparing, the impact of Covid-19 on low-cost airlines and on full-service airlines. It claims to be a first study to implement a regression analysis making this distinction. This is a meaningful and interesting distinction and a useful contribution to the literature. That said, the economic interest of the analysis is somewhat limited by the use of passenger miles as an outcome variable, rather than of financial or economic variables that would be more informative of the implications of the different business models of low-cos and full-services airlines.

Methods

The author reasonably well describes the data and the methodology used.

I have, however, several comments on the methodology used.

Major comments:

1. It appears that each regression is base on a single time series, rather than panel data, even though the data originally covers individual airlines. It is not explicitly explained, but my understanding is the author collapses the data across airlines (either all of them or separately low-cost and full-services ones). Keeping the analysis at the level of individual carriers would allow a richer and more robust analysis. What is the justification for collapsing the panel data into time series?
2. The main focus of the thesis is on comparing low-cost and full-service airlines. The author makes comments on which experience a greater drop due to Covid-19, but she does not discuss whether the differences between the two types of airlines are statistically significant. For example, in Table 7.1 the differences in the estimated effects are relatively small and likely not statistically significant. This is likely related to the previous point: a panel model would allows estimating the effects in one regression that would include an interaction with the type of airline, giving immediately information on whether the differences are significant. This is harder to do with the data in the time series form.
3. The paper does not comment on the effects on domestic vs. international flights and whether different share of each type of flights among low-cost versus full-services airlines could be driving the results. Again, my understanding is the data used would allow making this distinction. To me this this is an important omission.
4. The author does not discuss a major limitation of the study due to the fact that it looks at passenger-miles rather than financial data. Given the many differences in the business models of low-cost and full-services airlines, the relative financial impacts could be very

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different from the relative impacts on passenger miles. I suppose the advantage of passenger miles is that they are reported at higher frequency than passenger miles, but this decision and its implications should be discussed in detail.”

5. In the case of model 3, the author concludes that „COVID-19 itself in April and May 2020 has not affected“ the number of passenger miles. I believe this is an incorrect interpretation of the results, because it does not take into account the presence of the variable $1/\text{COVID19m}$ in the model.
6. The author does not offer any explanation for the results, specifically why we should expect a greater impact of Covid-19 on low-cost or full-service airlines.

Minor comments:

7. In the beginning of the methodology section, the author says she decided to use OLS because „it is effective in assessing causality“. This is a curious statement, given that in many (most?) contexts, without an explicit identification strategy, a simple OLS model is actually not very good in accessing causality.
8. Figures 5.2 and 5.4 would be much easier to read if the numbers for low-cost and full-services airlines were normalized to the same initial level.

Literature

The thesis shows an adequate command of the related literature, which is discussed with clarity and appropriately cited. That said, the literature, the approaches it uses and their limitation could be discussed in more detail and with more clarity.

Manuscript form

The thesis is well structured and appropriately formatted. One issue I have noticed is that the references do not use uniform formatting, and references following after Zhang are not in alphabetical order, as if they were glued on later.

Overall evaluation and suggested questions for the discussion during the defense

The thesis asks a relatively simple question – how much did Covid-19 reduce the number of passenger miles of low-cost and full-service US airlines – and answers it with a reasonably straightforward analysis based on time-series OLS regressions. The thesis makes an original contribution to a small literature on the topic and it is generally reasonably well executed and written.

The analysis, however, has multiple methodological issues and limitations outlined above, which pulls down the overall evaluation of the thesis.

The thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, and I recommend it for the defense and suggest a grade B.

During the defense, the committee may want to ask the following questions:

1. You write in the thesis that OLS models are „effective in assessing causality“. What do you mean by that? Can you think of situations when this is not the case?
2. Explain how your models 1-3 differ and what are their relative advantages and disadvantages?
3. Explain intuitively your variable $1/\text{COVID19m}$ and discuss how it affects the interpretation of your model 3.
4. How would you expect your results to differ if the outcome variable was capturing firm financials rather than passenger miles?
5. Why can we expect different results for low-cost and full-service airlines?

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SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	20
<i>Methods</i> (max. 30 points)	15
<i>Literature</i> (max. 20 points)	15
<i>Manuscript Form</i> (max. 20 points)	17
TOTAL POINTS (max. 100 points)	67
GRADE (A – B – C – D – E – F)	D

NAME OF THE REFEREE: *Matěj Bajgar, DPhil.*

DATE OF EVALUATION: *3th June 2023*

*Digitálně podepsáno (3.6.2023):
Matěj Bajgar*

Referee Signature

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EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F