More expensive flights to save the climate? – Abatement through Corrective Taxation in Commercial Aviation*

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May, 2025

Abstract

Corrective taxation has the potential to reduce the negative environmental impacts of aviation, particularly carbon emissions, as well as air pollution. However, in a setting with demand heterogeneity and imperfect competition, the need for corrective taxation is unclear. In the aviation market, the findings reveal that the carbon damages are already corrected by the market power. Additionally, in a model with two types of consumers, the demand curvature of each type reveals substantial heterogeneity among consumers: lower-elasticity consumers are 7 times more price-sensitive than business consumers, and they represent the majority (92%). However, it is the higher-elasticity consumers who are purchasing in the market, making the observed pass-through rates similar for both products offered by the firm, in the range of 85%-115% and centered around full pass-through. I show the biases from estimating a unique elasticity. I also show how the introduction of different taxes affects welfare. I simulate two alternative taxation schemes in Denmark (jet fuel taxes and a fixed per-flight tax, as in Norway) and find that taxes have limited efficacy in internalizing externalities when considering only the social cost of carbon.

JEL classification: H22, H25, L13,
Keywords: Externalities, Redistributive Effects, Environmental Taxes and Subsidies; Business Taxes and Subsidies; Oligopoly and Other Imperfect Markets

1 Introduction

The airline industry is experiencing rapid growth. Global air travel is projected to fully rebound to 9.5 billion passenger trips in 2024 and surge to over 12 billion by 2030.[1] This expansion, combined with the lack of commercially viable low-emission technologies, raises serious concerns about the feasibility of decarbonizing aviation quickly enough to meet climate targets of limiting warming to 1.5–2°C. Aviation already contributes substantially to environmental externalities: as of 2022, flights departing from EU27+EFTA countries accounted for about 4% of total greenhouse gas (GHG) emissions (12% of transport-sector GHG). In terms of local air pollutants, the aviation sector is responsible for roughly 14% of overall nitrogen oxide (NOx)

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[1] For the next two decades, air traffic is expected to more than double (by a factor of 2.4) with the global fleet expanding in parallel (Airbus Global Services Forecast, 2024-2043). Airbus (*Global Market Forecast*) and Boeing (*Commercial Market Outlook*) respectively forecast a global annual increase of around 4.5% in revenue passenger kilometer (RPK), and an annual global commercial fleet growth of 3.2%, with a more than doubling in the wide-body fleet.