
Editorial

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Biographical notes: Paul Hooper is Vice-President of the Air Transport Research Society and Adjunct Associate Professor at the School of Aviation, University of New South Wales. Also, he is an advisor to the Abu Dhabi Department of Transport on aviation policy, economics and regulation.

Chunyan Yu is a Professor of Air Transport Management in the College of Business at Embry Riddle Aeronautical University, Daytona Beach Florida. Her expertise is in performance measurement and benchmarking of airports; airport ownership forms, pricing and cost recovery issues, and regulatory policy analysis.

Stefano Paleari is Rector of the University of Bergamo, President of the CRUI (Conference of Italian University Rectors), board member of the board of the European University Association (EUA), and Full Professor of Finance at the Department of Engineering, University of Bergamo. He is also the Scientific Director of International Center for Competitiveness Studies in the Aviation Industry (ICCSAI).

The Air Transport Research Society (ATRS), since 1995, has provided a forum for aviation researchers and, each year, its World Conference attracts participants from all around the world. In 2013, on 26–29 June, this event was convened in Bergamo, Italy by the University of Bergamo. The venue in this beautiful city inspired active discussion and networking, but one measure of its success is that the authors represented 37 countries spread across the globe. Another is that they presented 266 papers on a variety of aviation

topics. The ATRS is a Special Interest Group (SIG) of the World Conference on Transport Research Society (WCTRS), and in 2013 it was time for the WCTRS triennial World Conference. This was held on 15–18 July at Rio de Janeiro, Brazil, during which the ATRS organised several sessions devoted to air transport topics. These two world conferences in 2013 generated a wealth of research material and, in this special issue of the *International Journal of Aviation Management*, we have selected nine papers which, in various ways, reflect a theme of applied air transport economics.

The first paper, by *Guzhva, Curtis and Borodulin*, reports on a market analysis for small and mid-size commercial turboprop aircraft. The authors argue that large turboprop aircraft can be the most efficient choice for serving short-haul regional routes. However, most small and mid-size manufacturers of this type of aircraft have gone bankrupt or have discontinued production. The authors, on the basis of industry statistics about fleet ageing in addition to their own survey, mount a case that a market exists for turboprops capable of carrying 20–50 seats, particularly if manufacturers can incorporate improvements in performance and design characteristics.

Randt, Jessberger, Plötner and Becker turn their attention to long-term forecasts of air traffic growth, energy, and the environment to the year 2040. Their paper sheds light on the key drivers, the challenges, and the opportunities presented for aviation. The approach taken is to develop scenarios that account for the increasing scarcity of resources, the change of global climate, and the growing demand for mobility. These scenarios were designed to provide realistic variation in conditions as a basis for developing robust strategies while at the same time they reveal which factors require particular attention. The paper thus provides an excellent example of scenario analyses suitable for strategic planning.

In the third paper, by *Schmidt, Ploetner, Öttl, Isikveren and Hornung*, provide another illustration of the value of scenario analyses in addressing the challenge raised in the first paper – providing a sound evaluation of the technical and economical feasibility of future air transport concepts. They focus on life-cycle costs (LCCs) and then assess the implications of three scenarios encompassing possible variations in socio-economic factors, technological development and input prices, notably the price of oil. Regression models based on historical values were used to map the relations between the key scenario factors and scenario-driven LCC parameters. The model allowed the authors to identify cost drivers under different conditions and thus provides a basis for evaluating different aircraft concepts.

The paper by *Siachou and Flouris* adds depth to our understanding about how business models evolve, particularly considering the risks associated with innovation. They point out that attempts to adapt to changing conditions in a dynamic competitive environment cannot be guaranteed to deliver expected improvements in overall productivity and operational efficiency and hence they risk failure in producing the necessary value proposition for customers. The authors view threats related to imitation from competitors, and the short life cycle of products, services or processes as variables of the best risk function of business model innovation. The conceptual framework they construct from this perspective will be of interest to researchers and practitioners alike.

The theme of costing is picked up again in the fifth paper. There are many countries that have remote communities that rely on air transport to provide year-round access and, as a matter of public policy, governments sometimes provide financial support for what are generally called public service obligations. There are different models governments can adopt in this situation, but the approach taken in Taiwan is by no means unusual.

Chiou, Liu and Hsieh describe how that government regulates air fares and provides subsidies for local residents and carriers based on costs of service provision for specific routes. The authors offer a rigorous, transparent approach by analysing monthly panel data of domestic air routes in Taiwan during a six-year. Their analysis identified stage length and aircraft type as the two key drivers of total cost, and they also observed that aircraft age has the largest effect on both direct cost and average cost. The paper illustrates very well how such an analysis provides valuable policy advice in relation to regulation of air fares and in the design of subsidy schemes.

From costing we turn to pricing. *Waguespack and Curtis* focus on the strategy of unbundling the airline product and pricing the components separately, a practice that has become known as ancillary pricing. Although one can argue that unbundling can provide greater choice for consumers, it also is controversial. As a result, the Department of Transportation in the USA proposed new rules on how airlines must report and display such ancillary offerings. The authors contribute to policy debates on the subject by exploring the concept of price fairness pre- and post-flight, taking account of the way ancillary offerings are communicated to consumers at the time of purchase. Their findings emphasise the importance of communication and information in gaining consumer acceptance of a pricing strategy that can be of mutual benefit to airlines and their passengers.

There is a well-developed and growing body of literature on measuring the connectivity of airports. Such connectivity indicators provide a summary view on the supply offered at an individual airport and can be useful for the comparison of the accessibility of airports and regions, but *Nieße and Grimme* argue that current tools take insufficient account of the quality of connections. To address this shortcoming they propose two new measures based on a shortest path search algorithm that calculates the shortest travel time as a function of the time of departure. This allowed the authors to combine the number of frequencies offered and the travel time into one indicator value. The resulting connectivity indicators reflect quality differences in shorter travel times and higher numbers of connections, and their application with two case studies amply demonstrates the feasibility of accounting for quality in connectivity measurement.

Ryley and Zanni consider quite a different perspective on connectivity or, rather, its associated concept of accessibility. They examine how passengers travel to and from a regional airport and especially in the context of increasing usage of public transport to reduce emissions. Based on a survey of passengers at Robin Hood Airport Doncaster Sheffield the authors use cluster analysis to identify five distinct passenger groups in terms of their choice of surface access mode. Perhaps not surprisingly there is a segment of the market that is favourably disposed to using public transport, but the study reveals that car users are reluctant to change their travel behaviour. As a result the authors conclude that it will be very difficult to reduce the environmental impact of passenger trips to and from regional airports.

The final paper by *Schaefer* also addresses sustainability of commercial aviation and develops a forecast of carbon dioxide (CO₂) and nitric oxides (NO_x) emissions generated by commercial aviation until 2030. These gases, of course, influence atmospheric chemistry and may contribute to global warming. The author provides details of a simulation model which uses flight schedules for a base year in combination with traffic growth assumptions and a fleet rollover simulation. Estimates of fuel consumption and emissions were derived from aircraft performance software and the fleet rollover simulation incorporated the current inventory of aircraft as well as models representing

aircraft of the near future. No doubt there will be readers who are interested in the transparent documentation of the methodology used in this type of application, but there also will be considerable interest in the results – including the number of flights, passenger-kilometres, fuel consumption, CO₂ and NO_x emissions for air traffic from 2010 until 2030.

The World Conferences held in 2013 were immensely successful and we, the editors, take this opportunity to thank the many people who organised these events and to the authors and participants whose active participation greatly promoted the cause of research. We are particularly grateful to those authors who continued to develop their material after the conference as well as to the expert reviewers who, acting anonymously, provided valuable, constructive advice. As a result we have been able to assemble a set of papers for this special issue that document current research on applied topics in air transport economics. We are confident that this special issue will encourage further research on these subjects, but the papers offer valuable insights that will be of interest to practitioners in industry and government. We commend them to you.