

INTRODUCTION

Aviation facilitates trade, plays an instrumental role in the development of tourism, and provides employment to millions of people. At the same time, airlines have traditionally been viewed as national symbols, which has resulted in heavy regulation and significant artificial barriers to competition, even in such otherwise open and developed economies as the United States. Industry liberalization, which commenced in 1978 with the Airline Deregulation Act in the US, has brought about significant innovations and explosive growth to this industry: new airlines offering low-price travel made it possible for millions of people to travel by air, forcing the “old” carriers to adapt to a new reality. Most recently, however, consolidation in the deregulated airline markets has led to reduced competition, threatening to reverse some of the gains of liberalization. At the same time, many important markets in the global airline industry remain regulated, with passengers forced to pay high airfares, and airlines unable (or perhaps unwilling) to offer convenient scheduling options to their customers.

On an average day in 2015, airlines worldwide operated over 100,000 commercial flights, carrying nearly 9 million passengers and 140,000 tons of cargo. Aviation activities then represented about 3.4 per cent of global GDP, which would make aviation the twenty-first largest economy in the world, if it were a country. According to Airbus Industrie forecast, the commercial passenger airline industry is expected to double within the next 15 years. The main drivers of this expected growth will be increase in demand for air travel and further liberalization of the airline markets. Therefore, understanding the airline industry is impossible without understanding how airlines compete and

develop their business. This book describes the airline and related industries from the market and competition perspective, using the basic toolkit of economics. The aim is to explain how demand and cost structure, coupled with the regulatory regime and, not infrequently, restrictions to open competition, produce the airline industry we see today. The book will examine how airlines compete, choose prices and other product characteristics, and whether unrestricted competition is necessarily a good thing for the travelling public.

Scheduled commercial air services have more than a 100-year history, beginning with the St Petersburg–Tampa flights that operated for about four months in 1914, through to the introduction of passenger jet aircraft in the 1950s, to the entry of wide-body aircraft into service in the 1970s, all the way to the use of composite materials in aircraft manufacturing we are observing today. Another current trend, which began later, is market liberalization. US domestic market deregulation in 1978 was the first major step in this journey. Now, most domestic markets are open to competition (although foreign airlines are usually not allowed to play any appreciable role).

International markets are, however, much less open. While significant progress has been made on the route towards a truly open global airline market, much remains to be done. In fact, nearly half of all passengers on international flights still travel on heavily regulated routes, potentially paying airfares that are too high. Further liberalization of international aviation will remain both a driver of development for the airline industry, a challenge and a goal for the unfortunately distant future. A complicating factor here is that international aviation is often tangled up with international politics. Disagreements between countries, either economic or political, occasionally lead to the suspension of commercial flights. For example, Ukraine and Russia suspended commercial services between the two countries in 2015, about a year after Russia illegally annexed Crimea in violation of international law and its treaties with Ukraine. Russian carriers continue flying into Simferopol on the Crimean peninsula in violation of the Chicago Convention on International Civil Aviation and in defiance of the closure of Crimean airspace by the Ukrainian authorities. Another similar case involves Turkish air carriers flying to northern Cyprus – a self-proclaimed republic, which is only recognized by Turkey. There are, not surprisingly, no direct flights between Turkey and Cyprus.

The book comprises four semi-autonomous parts. Part I provides a general introduction to the aviation sector of the economy and the airline industry.

It includes a discussion of the key relevant concepts from consumer choice theory and the theory of the firm, as they apply to the airline markets. The language is kept as simple and jargon-free as possible, to make the discussion of the underlying economics concepts accessible to all readers, regardless of their prior exposure to economics. The discussion of the airlines' cost structure leads us to challenging the commonly used distinction between "full service" and "low cost" carriers (LCCs). This classification is based on either the common measure of airline's cost performance (cost per available seat mile), or upon a set of business strategies, conventionally associated with the LCCs. The former approach is clearly arbitrary, as it requires setting a subjective threshold for a continuous variable; while the latter fails to acknowledge that some of the cost-increasing business strategies airlines employ also increase the quality of the product they offer their passengers. Part I concludes with a discussion of price setting in the airline industry.

Part II of the book examines competition between the airlines, with particular emphasis on the innovations introduced since deregulation (such as the establishment of hub-and-spoke networks and the rapid growth of LCCs), the waves of mergers in the industry, and the establishment of global airline alliances. This part of the book discusses the most important trends that are currently shaping the airline markets. Market liberalization brings with it the potential for substantial gains to the travelling public, as new airlines enter the market, incumbent carriers adjust their business strategies to offer a better product to their customers, and the industry innovates. The airline industry has, in particular, been an avid adopter of information technology. You can now purchase your ticket and check-in online, print your boarding pass at a self-service kiosk or even display it on your smartphone screen, obtain up-to-the-minute information about any travel disruptions, etc. Paper tickets have become a thing of the past – in fact, the last paper ticket issued by IATA can be found at this organization's office in Brussels. At the same time, the industry has recently undergone a wave of mergers, and with alliances dominating the global travel scene some experts begin to question whether we actually have enough competition remaining on the market.

Competition between airlines is not only about airfares, which is one of the central points developed in the relevant chapter. One key question, so far not clearly answered, about the airline markets is whether and to what extent the so-called low-cost carriers can be considered competitors to what

we conventionally call full-service airlines. I argue that while the LCCs are taking some of the traffic away from their more established competitors, they are also expanding the market by covering the segments that have previously not been served by the airlines at all.

Part III evaluates external effects of aviation, both negative (air and noise pollution, and congestion) and positive (economies of agglomeration and productivity improvement in various sectors of the economy). Airport congestion, and air traffic delays are some of the most visible and noticeable external effects of airline markets. Expected growth in air traffic will mean that managing congestion will become an increasingly important policy issue. While economists have long advocated the use of congestion pricing (basically, higher charges at peak times to provide incentives to the airlines to move their services to off-peak periods) to manage traffic at overcrowded airports, its implementation has until now not been politically feasible.

Other negative effects of aviation include air and noise pollution. While they represent a small fraction of total aviation related costs, these issues are often very controversial and visible. Aircraft noise frequently becomes a key issue behind airport construction and expansion debates, despite considerable improvements in technology that have made airplanes much quieter over recent decades. An attempt to include aviation into the EU Emissions Trading Scheme from 2012 has met considerable resistance from the US and Asian governments, leading to the EU limiting application of ETS to aviation to only intra-EU services.

The positive effects of air traffic are well known (both airports, airlines, and politicians like bragging about – and taking sometimes undue credit for – new jobs created by airport expansion or new flights), but measurement of those effects is a tricky issue, as direction of causality is not easy to establish. Further, aviation can impact different industries to a different extent: for instance, air traffic is shown to have a stronger impact on tradeable services (such as hotels and restaurants) than on non-tradeable (e.g., financial service industry). The other relevant issue is the impact of connectivity facilitated by aviation on a region's attractiveness to business. It is generally acknowledged that a well-connected airport can influence firms' decisions on locating their headquarters or regional offices.

Part IV describes the economics of markets, most directly related to the commercial passenger airline industry: airports, air traffic control, and aircraft

manufacturing sectors. Airports are viewed differently on the two sides of the Atlantic. In Europe, airports are acknowledged to be regular enterprises that provide the infrastructure that aviation industry players require. Most of the European airports are privately owned or under concession by a private operator, and many are not restricted in pricing of their services. In the USA, airports are considered to be infrastructure objects, and are owned by the local authorities, operating as heavily regulated public enterprises. In either case, airports receive their revenues from both aviation users and related non-aviation services (most notably, terminal space rental and passenger parking charges). The largest airports in the world obtain about as much revenue from aeronautical charges as from non-aeronautical sources.

Air navigation services are provided differently in different parts of the world. Within Europe, these services are provided by over 30 different providers, their zones of responsibilities largely coinciding with the national borders. Their operation is harmonized by EUROCONTROL. This decentralized structure is in stark contrast to that of the United States, where a single government agency (Federal Aviation Administration or FAA) manages the airspace of about the same size. On the surface, FAA appears to do this job more effectively. US FAA employs nearly 40 per cent fewer staff as compared to EUROCONTROL organizations. Further, FAA has to control 70 per cent more flight hours in an airspace that is nearly twice as dense. One of EUROCONTROL's missions is to facilitate the creation of Single European Sky, which should increase the system's efficiency and reduce its running costs. Yet, achieving this goal requires overcoming some very stiff resistance from the interest groups in this sector.

The aircraft manufacturing sector is in the process of undergoing some significant changes. It is well-known that Airbus and Boeing act as the two main competitors on the market for commercial passenger aircraft with 120+ seats in a typical configuration. A Chinese manufacturer Comac is planning to enter this market in the foreseeable future. The smaller jets (100 seats or less) segment is dominated by Bombardier and Embraer, with Sukhoi and Mitsubishi being recent entrants. Recent innovations in aircraft manufacturing include launching what is currently the largest commercial airplane ever built (Airbus A-380) and the use of composite materials in aircraft manufacturing in order to improve fuel efficiency (with Boeing-787 and Airbus A-350 being the first wide-body aircraft where such materials are extensively

employed). Moreover, the newest generation of both Boeing's and Airbus' narrow-body aircraft will become capable of performing longer-haul commercial passenger services, which will allow their deployment on some transatlantic routes. This innovation has the potential to upset the current equilibrium in the long-haul airline market segment.

Overall, the airline industry is currently going through some very interesting times. As the airlines have been able to weather the storms after several significant adverse events in the first decade of this century (the attacks of September 11, 2001, the SARS epidemic, and the recession that followed the 2008 financial crisis), they have also learned to compete better and use their resources more efficiently. While in the 1990s few airlines were able to report load factors over 75 per cent, now most carriers on competitive markets are able to achieve load factors that are 80 per cent and higher. As the no-frills low-cost business model is becoming increasingly more accepted by passengers throughout the world, more airlines are adopting it, while network carriers are learning to profitably offer their product to business travellers, who value frequency of service, convenience, and the benefits provided by the frequent flier programs. Liberalization of some key international markets has opened up new possibilities for both passengers and airlines smart enough to take advantage of new opportunities. New aircraft manufacturing technologies are being deployed, and hopefully we shall see innovations in air navigation implemented over the next couple of decades. Safety in the airline industry is at the highest levels it has ever been.

At the same time, the industry faces some significant challenges in the future. The key issue policy-makers will need to confront is managing expected growth in air travel in a responsible way. Aviation does generate congestion, air and noise pollution, and while some progress has been made on all fronts, much remains to be done to ensure airlines do not contribute to destroying our environment in their quest for growth and profit. Liberalization of international markets proceeds slowly, and recent movement towards protectionism in some of the key economies does not make one feel optimistic about the future in this area. While the airlines have learned to operate their flights safely, maintaining security against both conventional and cyber-terrorism will remain an ever-present challenge. Last but not least, while the airline industry has had several good profitable years recently, a big unknown is whether it is ready to face the next downturn, the nature and timing of which is anyone's guess.