Journal of Air Transport Management 53 (2016) 165–176

Contents lists available at ScienceDirect

Journal of Air Transport Management

journal homepage: www.elsevier.com/locate/jairtraman

Drivers of operational efficiency and its impact on market performance in the Indian Airline industry

Haritha Saranga [a, *], Rajiv Nagpal [b]

[a] Indian Institute of Management Bangalore, Bannerghatta Road, Bangalore, 560076, India
[b] Tata Motors, Dharwad, India

ARTICLE INFO

Article history:
Received 8 February 2015
Received in revised form
2 March 2016
Accepted 3 March 2016
Available online 16 March 2016

Keywords:
Indian Airline Industry
Operational efficiency
DEA
Market performance
GLS
Tobit

ABSTRACT

India is considered to be one of the toughest aviation markets in the world, due to high fuel prices, overcapacity and intense price competition. It is therefore important to identify critical drivers of performance, which enable the airlines to survive and succeed in this emerging market with huge growth potential. In the current empirical study, we investigate the linkages between various performance drivers, operational efficiencies and market performance. An extensive data collection using primary and secondary sources enabled us to gather data on all the airlines operating in India, both private and public, for the period 2005–2012, on a variety of important parameters. We carried out a two-stage empirical analysis, which involved estimation of operational efficiencies during the first stage using Data Envelopment Analysis, and determination of performance drivers during the second stage using a two-way random effects GLS regression and also a Tobit model. Our findings suggest that while some of the structural and regulatory factors have an undesirable impact on airline performance, the low cost carriers in India have managed to achieve significant operational efficiencies. In addition, we find that, while cost efficiency is driven by a variety of factors, it is the technical efficiency which brings in better market performance through pricing power in the Indian airline industry.

1. Introduction

India is touted as one of the toughest aviation markets (Bloomberg Business, 2015), due to expensive taxation (Economic Times, 2012) and highly price-sensitive customers. High fuel prices (50% more than the price in West Asian and European countries (BS reporter, 2011)), overcapacity and intensive price competition, exacerbated by the recent global recession have resulted in continued losses for majority of airline operators, with one of them, the Kingfisher airlines[1], shutting down operations in 2012 and the state owned carrier Air India being bailed out (India Today, 2012) by the Indian government with infusion of huge cash flows ($263.3 million in 2010–11)[2]. The total debt of major airlines in India is currently estimated to be $13 billion[3]. This scenario in India is more or less similar to other countries, wherein airlines have suffered from high levels of competition and economic pressure, with high volatility in fuel and foreign exchange rates adding to their financial woes (Merkert and Hensher, 2011).

Despite these setbacks however, one or two successful airlines have emerged in the recent past with consistently good performances and have demonstrated the potential for profitability in the Indian airline sector. Indigo airlines, the most profitable airline in India, is well known for its sharp focus on key deliverables (Business Standard, 2012) like on-time performance, low fares, and consistent on-board and ground service[4], despite being a low cost carrier (LCC) that made its entry into the airline industry a mere 8 years ago. While the case of Indigo substantiates the desirability of LCC strategy from the cost efficiency perspective as already documented by other studies in the literature (Barros and Peypoch, 2009; Merkert and Hensher, 2011), it also raises questions about there being more to the LCC strategy than just *low cost* benefits. As the ability of airlines to price their services based on additional frills that are less valued by customers decreases significantly in the face

* Corresponding author.
E-mail addresses: harithas@iimb.ernet.in (H. Saranga), rajiv.j.nagpal@gmail.com (R. Nagpal).

[1] http://en.wikipedia.org/wiki/Kingfisher_Airlines.
[2] http://indiatoday.intoday.in/story/government-clears-financial-bailout-package-for-air-india/1/184294.html.
[3] http://www.thehindu.com/todays-paper/tp-opinion/for-indian-carriers-season-of-new-hope/article4748696.ece.
[4] http://www.business-standard.com/article/companies/a-tale-of-two-airlines-kingfisher-vs-indigo-112022100014_1.html.

http://dx.doi.org/10.1016/j.jairtraman.2016.03.001
0969-6997/

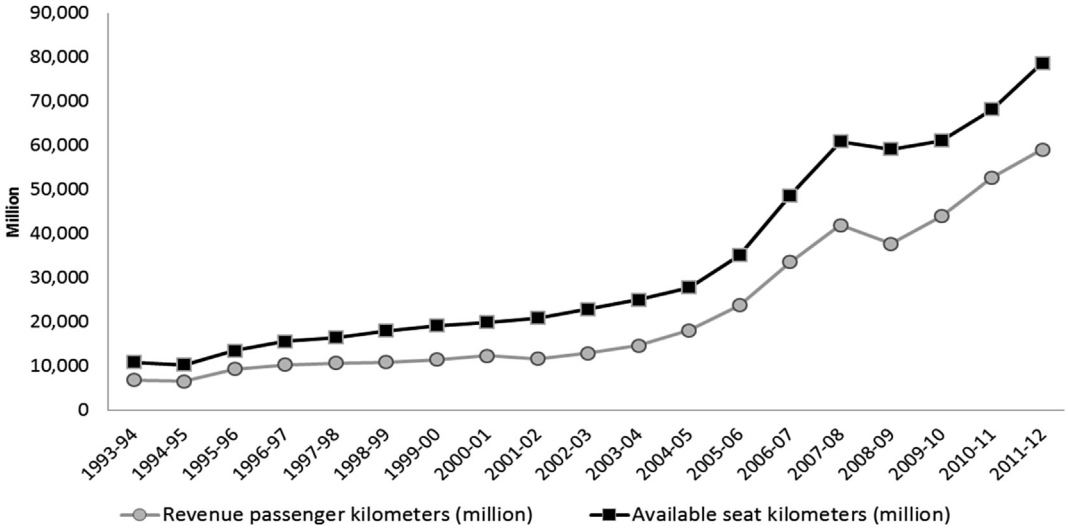

Fig. 1. Growth in RPK and ASK in Indian scheduled domestic carriers[8].

of intense price competition and over capacity, the need to identify drivers of yield has assumed greater prominence. One needs to be cautious of the fact that, better operational efficiencies do not automatically lead to superior financial performance in the airline industry (Scheraga, 2004). Therefore, given the tremendous pressure on airlines from the financial viability point of view and the inflection point (Financial Times, 2015) the Indian airline industry is currently at crossroads and there is an imminent need to identify not only the drivers of operational efficiencies, but their relationship with financial and market performance.

The continued losses of major airlines and the lack of large capital flows to sustain these airlines had forced the Indian government to open aviation sector to foreign entry in late 2012[5]. With airline seat per capita currently being only 0.07 in India, as compared to developed economies such as the US at 2.49, Australia at 3.35, developing countries like China at 0.29, Brazil at 0.68, Turkey at 0.44 (CAPA - Centre for Aviation, 2012), India's commercial aviation sector has a huge potential for growth. Ailing existing players (such as the Jet airlines) are forming new partnerships[6], and new players (e.g., the Tata Group[7]) have made entry into the industry by taking advantage of the growth potential of the Indian market and the availability of foreign capital. However, the industry analysts are uncertain about the impact of the increased capacity on the performance of existing and new players in an already ailing industry. While the cost of air travel is likely to come down in the short run, the survivability of airlines in the long run however will depend on whether they will be able to deliver services valued by the Indian customers at an affordable price and still remain profitable.

Our objective in this empirical study therefore is to investigate the driving factors of operational efficiencies and their impact on market performance in the Indian airline industry. Using primary and secondary data collected from the airlines and other sources, we examine the relative efficiencies of Indian operators of both domestic and international airline services during the seven year period 2005–06 to 2011–12, from technical and cost efficiency perspectives. We develop a theoretical framework that links various structural, executional and regulatory drivers to operational efficiencies of airlines in India. We use a standard two-stage approach (Banker et al., 1984)) to evaluate the operational efficiencies of the airlines and to identify the factors that drive these efficiencies. In the first stage, the Data Envelopment Analysis (DEA) is used to evaluate the *technical and cost efficiencies* and in the second stage, panel data based regression models are used to identify factors driving these efficiencies. Our results indicate that while there are multiple factors that drive operational efficiencies in the Indian airline industry, the operational efficiencies in turn drive market performance. Our findings therefore have significant implications for both existing players and new entrants, as they provide rare insights into successful strategies in one of the most challenging airline industries in today's emerging markets.

2. Indian Airline industry

India is currently the 9th largest aviation market with a passenger throughput of 159 million as of 2013. More than 85 international airlines operate to India and five Indian carriers connect over 40 countries. Until The Air Corporation Act (ACA) 1994 allowed private carriers to operate scheduled airline services in India, Air India and Indian Airlines, which were controlled by the Government of India, were the only two airlines operating in India. Jet Airways and Air Sahara started operations in 1994 and Air Deccan, the first low cost carrier (LCC), entered the domestic aviation industry in August 2003 after the liberalization (Hooper, 1997) of airline industry. Since then other LCCs such as Spice Jet, Go Air and Indigo have entered the market. Full Service Airlines (FSA) like Kingfisher and Paramount commenced operations in 2005. The period following the introduction of the LCCs has been one of rapid growth for the Indian airline industry. Fig. 1 below describes the growth of Indian airline industry in terms of available seat kilometres (ASK) and revenue passenger kilometres (RPK).

The number of scheduled aircraft departures has grown from 270,031 in 2003–04 to 704,554 in 2011–12 (an increase of 160%),

[5] To enable foreign capital flows into the ailing airline industry and facilitate growth, the Indian government permitted foreign carriers for the first time to invest up to 49% in airlines in India.

[6] Jet Airways has formed partnership with Etihad Airways by selling 24% stake.

[7] Tata Group is entering the airline industry through a low cost airline (in partnership with Air Asia of Malaysian airlines) and a full service airline (in partnership with Singapore airlines).

[8] Chart created using data from the DGCA website - http://www.dgca.nic.in/reports/stat-ind.htm.