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Air transport services in regional Australia: Demand pattern, frequency choice and airport entry

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ABSTRACT

In this study, we investigate the development of the aviation market at Australia's top 50 regional airports during the 2005–2013 period. Our demand estimation results suggest that a higher commodity price increases the traffic volume in markets where the local economy is heavily reliant on mineral resources and that appreciation of the Australian dollar decreases the passenger flow in tourism-dependent areas. The presence of leading airlines and low-cost carriers and the availability of international services all contribute positively to market growth. Airport entry analysis reveals that the major carriers engage in clear strategic interactions. The Qantas airline group uses Jetstar as a fighting brand, such that Jetstar flies to a destination if and only if the regional airport is also served by Virgin Australia, the group's major competitor. Unlike the routes connected to major airports, the demand at regional airports is not sensitive to flight frequency. Our empirical results support the introduction of a consistent aviation policy across Australia, especially for issues related to airline competition and demand stimulation. However, special consideration needs to be paid to regional airports to help them deal with economic shocks and cover fixed costs.

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1. Introduction

As an input into numerous types of economic activity, including tourism, trade, and investment, air transport is an important factor in achieving economic development and welfare enhancement. Air services to distant and small markets are particularly important, because there is no close substitute for this travel mode due to the tyranny of distance (Pagliari, 2010). This is particularly the case for Australia, which is geographically remote and large. Regional Australia accounts for about one third of the total population and two thirds of the national export income. Air services thus play a vitally important role in connecting the regional areas of Australia to the capital cities and the rest of the world by facilitating the movement of goods and people.

In 2014, the passenger movement (the sum of passenger arrivals and departures) at Australian regional airports reached 24.3 million, an increase of 45% from 16.8 million in 2005. The total passenger movement in the domestic market was 115 million in 2014, an increase of 42.5% from 80.7 million in 2005. Much of the traffic is concentrated at the relatively large airports, with the top 50 regional airports handling 22.8 million passengers in 2014, or 94% of the total passenger movement

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at all regional airports (BITRE, 2015). According to the Bureau of Infrastructure, Transport and Regional Economics (BITRE), the annual growth in passenger traffic at regional airports has been consistently higher than that at airports in major cities in the last 10 years.

Many studies have examined the determinants of air traffic volume in metropolitan areas (Zhang and Zhang, 2016). Liu et al. (2006) contend that the likelihood of a major air passenger market emerging is primarily determined by the size of the metropolitan population and the levels of employment in professional, scientific, technical, and management services. Discazeaux and Polese (2007) examine the determinants of air traffic volume in the 89 largest urban areas in the U.S. and Canada, and confirm that urban size and the local industry structure remain the primary determinants. Dobruszkes et al. (2011) report that gross domestic product (GDP), the level of economic decision-power, tourism functions, and the distance from a major air market are the most important factors influencing air traffic flows in Europe. However, efficient and competitive aviation services can also increase traffic volumes by offering positive feedback to demand generation. Because increased flight frequency generally reduces passengers' schedule delay (Douglas and Miller, 1974), consumers' willingness-to-pay and travel demand usually increase with flight frequency (Richard, 2003; Zhang, 2012; Fu et al., 2014). Strong airline competition often leads to lower prices and improved service quality, which substantially increase the traffic volume (Windle and Dresner, 1995, 1999; Dresner et al., 1996; Fu et al., 2011; Adler et al., 2014).

In comparison, less attention has been dedicated to the aviation markets at regional airports. Humphreys and Francis (2002) note the worldwide traffic concentration at large airports and underused capacity at regional airports. Graham and Guyer (2000) argue that the U.K. aviation policy largely focuses on capacity shortages at large airports in southeast England and the privatization and commercialization of the country's airports, and contend that the issues affecting regional airports, such as sustainability and pro-competition policy, should be given more consideration. Humphreys and Francis (2002) examine the U.K. aviation market and conclude that regional airport performance depends greatly on the decisions of airlines. Thus, it is important to balance the interests of all stakeholders when formulating airport planning and regulatory policies. Forsyth (2006) simulates the costs and benefits of regional airport subsidies using a computable general equilibrium model, and argues that although it is possible for a region to enjoy economic gains as a result of an airport subsidy, the effect on nationwide welfare is uncertain. Adler et al. (2013) study the efficiency of 85 European regional airports via data envelopment analysis and second-stage regressions, and conclude that regional airports have inefficient daily operations, have failed to explore business opportunities, and have missed the opportunity to break even with small traffic volumes. Although these studies offer rich insights into the regional aviation issues, they do not directly analyze the market development patterns at regional airports. Airline services and traffic volumes are critically important factors in the management of an airport. Together, they directly determine the capacity use, operational costs, and airport revenue and indirectly determine the regulatory policies and regional economic development. Thus, it is important to examine the demand patterns and market dynamics to ensure that appropriate recommendations are made for regional airports.

In this study, we aim to fill this gap by empirically examining the market development patterns in Australia's top 50 regional airports during 2005–2013.¹ The remainder of the study is organized as follows. In Section 2, we review Australia's air transport policy and the aviation activities at regional airports. In Section 3, we describe the data and methods used to analyze the demand patterns, frequency choices, and airport entry decisions. In the final section, we summarize the key findings, discuss the policy implications, and suggest possible directions for future studies.

2. Australia's air transport policy and the aviation activity at regional airports

Since 1990, Australia has gradually removed the capacity, airfare, and market entry constraints and the limits on foreign ownership of domestic airlines. Interstate regional services have been completely deregulated and are now subject only to the competition laws that also apply to other industry sectors. Although the state and territory governments have the power to regulate intra-state air services, intra-state air services in Victoria, Tasmania, Northern Territory, and the Australian Capital Territory have been completely deregulated. Some low-volume routes in New South Wales, Queensland, South Australia, and West Australia are still subject to regulation. Low-volume routes are licensed on a one-route, one-license basis. Competition is encouraged on higher-volume routes where licensing is not required.

By 2003, all of the major domestic airports in Australia had been privatized and formal price regulation replaced by "light-handed regulation" (Forsyth, 2002, 2003; Yang and Fu, 2015). The LeighFisher (2011) report notes that the overall cost levels at Australian airports are lower than those in North America and Europe. Forsyth (2004, 2008) and Assaf (2010) reached similar conclusions. In contrast to the good performance of major airports, the overwhelming majority of Australia's regional airports, which are mainly owned by local governments and councils, are inadequately resourced to provide sufficient maintenance and infrastructure upgrade services and to attract qualified and skilled personnel (Donehue and Baker, 2012). The Australian Airports Association estimates that up to 50% of regional airports operate at a loss each year and are heavily reliant on cross-subsidization from their local government owners (AAA, 2012).

The Australian Department of Infrastructure and Regional Development defines regional aviation as the scheduled commercial airline activity between regional areas or between regional areas and capital cities, while regional airlines are those

¹ Our sample only includes the top 50 regional airports because the government statistical reports only contain information on the top 50 regional airports. The passenger movements at the top 50 airports account for 95% of the total movements at all regional airports.

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