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## The effect of enhanced international air access on the demand for peripheral tourism destinations: Evidence from air itinerary choice behaviour of Korean visitors to Australia



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### ABSTRACT

Our study aims to contribute empirical evidence on the capacity of aviation policy to stimulate greater tourism in peripheral destinations. Specifically, we examine the extent to which enhanced air service availability to a peripheral destination will translate into greater number of tourists. By using choice experiments, the research design addresses the generative effect of new air services on tourism demand, as well as the broader tourism context in which the air itinerary choices are made. In the context of Koreans travelling to Australia, the market share effects of the changes in the factors both external and internal to aviation policy are simulated. Although the results suggest that changes in the flight itinerary attributes can generate additional tourists for peripheral destinations, the extent to which the aviation attributes can generate tourism is strongly dependent on the tourists' length of stay in Australia. The key implication is that institutional changes such as the length of leave entitlements or visa arrangements for foreign travellers are important contextual factors that can significantly enhance or depress the effect of the destination's aviation policy and air service attributes designed for tourism development.

## 1. Introduction

### 1.1. Background and aims

Consistent and affordable air services are crucial for many tourism destinations, and often tourism is an important source of air travel demand. Despite the interdependencies, however, conflicting interests may result in the provision of the level of aviation services inadequate from the viewpoint of destination stakeholders in the periphery. For instance, economies of density, whereby unit cost decreases as route-level demand increases (e.g., [Caves et al., 1984](#); [Swan and Alder, 2006](#)), is partly to blame because it tends to favour the development of dense transport corridors. The issue is relevant to those without air services as well as the peripheral communities and destinations desiring greater air service links ([Nolan et al., 2005](#)).

Although there are exceptions (for instance, airline strategies may involve niche and exclusive market development ([Dobruszkes, 2006; 2013](#)), from an airline's perspective, finding the ideal market is linked to the problem of choosing an optimal aircraft size and

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flight frequency mix in a network environment (e.g. Wu, 2010; Givoni and Rietveld, 2009; Wei and Hansen, 2005). As a result, while peripheral destinations with relatively low demand density can sustain low frequency in smaller aircraft, the resulting higher unit cost impedes the airline's ability to offer lower fares. Furthermore, in maximizing yield, airlines tend to seek out 'ideal' passengers and not necessarily 'ideal' tourists, who are of interest to destinations. The former is often, but not always, *business passengers*, while the latter are often *leisure visitors*. Thus, peripheral destinations may not have the demand density, nor the passenger mix with strong airline revenue potential, to support regular direct non-stop services from key tourism originating regions.

Obviously, transport accessibility is an important determinant of tourism demand; and to some extent, availability of direct air services and tourism demand are endogenous. If the main driver of the airline network planning and scheduling process is the existing pattern of demand, the pattern of demand itself will be reinforced by the airline network. Consequently, peripheral destinations by default will miss out on the opportunity to tap into the potential "virtuous circle". Because tourism can be an important part of a region's development strategy, enhancing international air services links to peripheral destinations can be antecedents for government policy. Air route development process may be able to directly tackle the issue of "low demand – high cost – low demand" loop; for instance, the International Civil Aviation Organisation (ICAO) has in the past, proposed an aviation route development subsidy for tourism development (ICAO, 2005). Similarly, Duval and Winchester (2011) considers cost-sharing agreement as a viable alternative for small economies experiencing difficulty attracting consistent services from foreign carriers.

Aviation policy for tourism development falls under a broad umbrella of research literature on vertical arrangements, incentives, procurement and policies to attract, risk-share or/and sustain air services in a variety of contexts, involving both the rural/small regions as well as large hubs (for instance, a non-exhaustive list includes: Ramos-Perez, 2016; Halpern and Graham, 2015; Merkert and O'Fee, 2016; Fu and Oum, 2014; Brathen and Halpern, 2012; Malina et al., 2012; Grubestic et al., 2012; Grubestic and Wei, 2012; Matisziw et al., 2012; Fu et al., 2011; Hazledine and Collins, 2011; Pagliari, 2005; Nolan et al., 2005, etc.). Research has focussed on many significant dimensions of these programs, such as efficiency (Grubestic and Wei, 2012; Nolan et al., 2005), airport marketing research processes (Halpern and Graham, 2015), effectiveness of route subsidy and development funds (Hazledine and Collins, 2011; Pagliari, 2005), geographic coverage (Grubestic et al., 2012) and type of vertical arrangements (Fu et al., 2011; Duval and Winchester, 2011) - only to name a few.

In addition to above, tourism dimensions of these programs, although mainly in regards to international air liberalization, have been subject of research for some time (Koo et al. 2017; Dobruszkes et al., 2016). The key interest is in quantifying the effect of air policy (or the associated changes such as the increases in the number of flights) on tourism demand. For instance, Zhang and Findlay (2014) examine the effect of air liberalization (by constructing an index) on aggregate international tourism flows between countries in the Asia-Pacific, while Warnock-Smith and Morrell (2008) use a liberalization scale to examine the indirect effect of regional air policy on air traffic growth in a tourism-dependent economies of the Caribbean. Gillen and Hinsch (2001), as part of their modelling of the impact of air liberalization in Hamburg Airport, estimate the elasticity of tourist flow with respect to flights, as well as the elasticity of tourism employment with respect to tourist flows. In the case of Forsyth (2006), a computable general equilibrium (CGE) model is used to examine the effect of air liberalization on the Australian tourism sector. Hazledine and Collins (2011) apply a cost-benefit analysis to assess the effectiveness of the proposed route subsidy scheme between the nations in the South Pacific (Cook Islands, Tonga and Samoa) and Los Angeles. The study incorporates the spending by different tourism market segments (e.g., holiday and visiting-friends and relatives) in the analysis.

Against this background, our study aims to contribute empirical evidence on the capacity of aviation policy to stimulate greater tourism. In doing so, we focus specifically on estimating the extent to which enhanced air service availability to a peripheral destination will translate into greater number of tourists. However, in contrast to earlier studies, most of which are based on aggregate flow information, we consider an alternative (disaggregate) approach where a choice model is built using a purpose-designed stated choice experiment. Using the choice modelling results and market share simulations, the paper attempts to establish the lower and upper bounds of the impact of enhanced direct air service availability on tourism demand, while accounting for the potential substitution effects between the competing options on the same route. These estimates can serve as some evidence, at least within the context of the study population, on the extent to which aviation can influence greater peripheral tourism.

To develop a robust understanding of the impact of air travel attributes on tourism potential, we embed in the research design the capacity to address (1) the generative effect of the new air services on tourism demand (by designing an itinerary choice experiment with a no-travel option), and (2) the broader tourism context in which the air itinerary choice decisions are made (by incorporating other tourism attributes and contexts such as length of stay in the choice experiment). Without the first, the findings would be limited to the understanding of substitution patterns among existing and new air itineraries. The study aim, however, requires insight into the potential of the itinerary to grow by tapping into the latent demand, which from a destination perspective is essential. The second point is important because there is a wealth of evidence suggestive that tourism choices, including decisions about air travel, are closely interrelated with one another (for instance, Tang et al. (2017) show how a stopover air itinerary may induce a stay-over tourism trip). The capacity of aviation policy to influence tourism demand will thus be limited by the weight given to aviation attributes relative to other travel attributes and circumstances such as length of stay, purpose, budget and travel companion.

The paper is organized as follows. First, a review of related work is provided, highlighting the potential importance of tourism variables in air travel itinerary choice analysis. Then the paper identifies the type of operationally feasible air travel itineraries the international aviation policy is most likely to produce in our study context – Korean inbound tourism to Australia. Following this, the choice experiment designed to evaluate tourists' behavioural responses to hypothetical itineraries is presented. A panel mixed logit model is then estimated. The final section discusses the key results from the perspective of tourists and aviation policy.

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