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Air transport liberalisation and airport dependency: developing a composite index

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ABSTRACT

Air transport liberalisation in Europe has produced some major changes to the networks operated by airlines and the services available at airports. Within this context the degree of airport dependency in terms of market, spatial and temporal concentration is important to know from an economic geography and risk management perspective. A composite index called the Airport Dependency Index (ADI) is developed to measure airport dependency based on the concept of the relative Gini coefficient. Liberalisation has had varying impacts depending on the size and type of airport and so a comparison is made of the degree of dependency at a large sample of European airports using the ADI. The ADI has the potential to provide insight on the sustainability and worthiness of financing airport projects, and on whether airports should diversify further their activities by investing in the growth and expansion of their network.

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1. Introduction

The liberalisation of air transport markets in Europe means that airlines have greater freedom to choose where they fly to and from, and generally set fares, frequencies, capacities and routes according to commercial considerations. This has provided opportunities for airports to grow and expand their services. However, it has also meant that airports are exposed to a greater degree of risk from changes that airlines may make to the services that they provide. In a turbulent environment such as this, airports should understand the extent to which they are dependent on a single source for most of their traffic and seek to reduce dependency where possible in order to minimise their exposure to risk.

Consider an airport which is doing well from a pure accounting and financial point of view but which is almost entirely dependent on a single city, country, airline operator or season for its traffic. This may cause problems from a dynamic point of view if the operator goes bankrupt, or decides to serve an alternative airport or make changes to the services that it provides at the airport. Likewise, the airport may suffer a major blow if the primary city/country served falls into a serious recession or if its government decides to publish advice against travelling to the area where the airport is located. Moreover, in case of strong seasonality of

demand, the airport may be financially vulnerable to industrial action (e.g. strike of employees); disruption due to adverse weather conditions; or other unforeseen events occurring during the peak season. This means that in addition to exposure to economic trends in key markets, an airport that is dependent on a single city, country, airline operator or season for most of its traffic, will also be exposed to geopolitical and natural hazard events in both its key markets and its very location.

Changes in the concentration of traffic at airports as a result of liberalisation have been investigated by previous studies (e.g. Derudder and Witlox, 2009; Dobruszkes, 2009; Halpern, 2011; Papatheodorou and Arvanitis, 2009; Suau-Sanchez and Burghouwt, 2011). Developments in the relationship between airports and airlines as a consequence of liberalisation have also been investigated (e.g. Francis et al., 2003, 2004; Graham, 2013; Starkie, 2012). However, there has been little research on airport dependency per se. This is important to know from a strategic risk management perspective because of its ability to provide a 'new competitive edge' (Clarke and Varma, 1999) by measuring the degree of market, spatial and temporal concentration at an airport. The measurement of airport dependency can provide insight on the sustainability and worthiness of financing airport projects and on whether airports should diversify further their activities by investing in the growth and expansion of their network. It may also help identify whether there is a case for any state subsidy, which is particularly relevant today, given the European Commission's

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adoption of new stricter guidelines for state aid to airports in 2014 (EC, 2014a).

This paper provides an important methodological contribution to how concentration can be measured in the context of airport dependency. As will be discussed in this paper, there is a need for stronger techniques in this area that enrich those already in use. This paper meets that need by creating an innovative and focused measure called the Airport Dependency Index (ADI). This paper also provides an example of how the ADI can be applied to European airports. Section two presents the background to the study with a focus on the liberalisation of air transport markets in Europe, the dependency consequences for airports, and how such dependency can be measured. Section three outlines the methodological approach taken including the selection of airports, data sources and construction of the ADI. Section four discusses the main research findings of the study. Finally, section five provides a conclusion including policy and management implications and recommendations for future research.

2. European liberalisation and the airport dependency issue

Varying degrees of liberalisation of European air travel markets have occurred with a number of different developments. Intra-European airline liberalisation was achieved through three packages introduced in 1987, 1990, and between 1993 and 1997 (EC, 2007). Externally, a more liberal environment has resulted from Europe negotiating horizontal or other agreements on certain aspects of air services with about thirty individual states, and there remain open negotiations or agreements pending signature with many more (EC, 2014b). Furthermore, Europe signed a horizontal agreement with the West African Economic and Monetary Union in 2009 – the first horizontal agreement regarding air services with another regional organisation (EC, 2009). Perhaps most significantly, Europe negotiated three bilateral conventions with Morocco, Canada and the US during the 2000s (EC, 2014c). The vision for these so-called ‘open skies’ agreements is that traffic rights will be liberalised gradually so that a fully Open Aviation Area is established that is similar to Europe’s internal market. In addition, an aviation summit to enhance cooperation between the EU and the Association of Southeast Asian Nations (ASEAN) has already been held in 2014, and the ultimate objective is to create an EU-ASEAN open skies agreement (EC, 2014d).

Turning to the airport industry, the sector in Europe was traditionally characterised by public sector ownership and national requirements (Graham, 2014). However, at the same time as Europe’s internal air transport market was being liberalised, a number of governments in Europe began to transfer the ownership or operation of larger airports to the private sector. Many smaller airports in Europe are still publicly owned but the majority is now operated by corporatised entities. Overall by 2010, over 20 per cent of airports in Europe were privatised or operated as public–private partnerships, while 74 per cent of the remaining publicly owned airports were operated as corporatised entities (ACI-Europe, 2010).

Transformations in the way that airports are owned and operated mean that, just as airline decisions are driven more by commercial considerations, so too are the decisions of airports. Airports have relatively large fixed infrastructure costs but low marginal costs of processing extra passengers (Francis et al., 2003) who can provide additional revenue from commercial activities. This helps explain why it is so important for airports to seek growth and expansion. However, there are often investment needs associated with attracting new or expanded services, and the risk of investment is likely to be high given the relative freedom that airlines now have to enter and exit the market with aircraft that

are effectively mobile assets. Airports on the other hand generally have sunk assets (Starkie, 2012), and are therefore vulnerable to reductions in traffic or the withdrawal of services altogether.

One of the main consequences of air transport liberalisation is that airlines have become more footloose, being freer to choose where they fly to and from, and this, along with sustained long-term growth in demand for air travel, has provided airports with increased opportunities to attract new routes but also challenges associated with retaining existing ones (Halpern and Graham, 2013). Moreover new types of airline business models such as low cost carriers (LCCs) have emerged as a consequence of liberalisation (Gilroy et al., 2005; Graham and Shaw, 2008; Mason et al., 2013). These have provided traffic growth for many secondary and regional airports (Francis et al., 2003). Nonetheless, the growth often comes from a single operator and therefore adds risk to the airport business.

Since low operating costs are a key characteristic of LCCs, they actively use their bargaining power to secure favourable deals at airports (Francis et al., 2004; Gillen and Lall, 2004). They are also more likely to make changes to routes or withdraw from an airport if they are not satisfied with the deal that they are getting. As a result, there is generally a high degree of churn on point-to-point routes in Europe (Bush and Starkie, 2014; de Witt, this issue). In addition a number of larger LCCs in Europe, such as Ryanair and easyJet, are pan-European and operate from multiple bases. A complete withdrawal from a base is less likely because of the sunk costs that are associated with setting up a base. Nonetheless, withdrawal can happen, and LCCs do not hesitate to openly express their reasons for doing so, which may then add further pressure on the airport in terms of its ability to capture future business.

One of the more established airline business models in Europe is the leisure carrier offering mainly charter or non-scheduled services. These airlines traditionally offered airports, especially secondary or regional ones, the opportunity to grow their network despite serving smaller catchment areas than larger main airports. The problem with their type of operation is that it tends to be highly seasonal and therefore results in a temporal concentration of demand (Halpern, 2008). Major investment is often required to facilitate growth from leisure carriers at airports. Nonetheless, the inconsistent and uneven utilisation of the airport is likely to result in an inefficient use of resources and may not provide an adequate return on investment. LCCs are often viewed by secondary or regional airports with a high proportion of leisure traffic as being a good way of reducing seasonality of demand because of the scheduled, year round nature of their services. However, this is not always the case as LCCs may also operate scheduled services on a seasonal basis. Therefore many airports that had good relations with leisure carriers in the past face the difficult decision of whether to target LCCs in an effort to reduce seasonality and grow their business but risk losing their leisure customers as a result (Farmaki and Papatheodorou, 2015).

The traditional national carriers (and regional airlines that feed their networks or serve their own niche markets) have also reacted to the new and more competitive environment. Historically, they were bound to a hub airport by the regulation of routes and the network nature and geographic concentration of their business model means that they are generally less flexible than LCCs or leisure carriers. Their initial reaction was to strengthen their presence and that of their alliance partners at the hub airports. This meant that the latter were highly dependent upon a single operator or alliance group for most of their traffic (Dennis, 2005); nonetheless, for a number of airlines (such as SAS, Lufthansa, Air France/KLM and IAG: British Airways/Iberia) there is now a growing trend to use multiple hub airports (Bush and Starkie, 2014). Operating at multiple hub airports provides network carriers with the option to switch parts of their business between the different hubs.

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