Title Page

Paper Title
Domestic air transport factors and tourism destination competitiveness indices: examples from Australia and Brazil

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Domestic air transport factors and tourism destination competitiveness indices: examples from Australia and Brazil

Abstract:
For large geographically countries, the provision of domestic air transport is a vital contributor to tourism destination competitiveness as it creates opportunities for internal dispersal of domestic as well as international travellers. Among the various studies on tourism destination competitiveness, the Travel and Tourism Competitiveness Index (TTCI) is one that makes specific use of air transport data. Air transport is one of the fourteen indicators (or ‘pillars’) to comprise the TTCI, consisting of variables such as available seat kilometres (ASK), number of departures per population, airport density, number of airlines, among others. Making use of Shaw’s (1982) aviation factors (including safety, network coverage, service consistency etc) relevant to tourism development and the use of comparative case studies between Australia and Brazil, we argue that the existing air transport variables comprising the TTCI do not properly measure tourism destination competitiveness, particularly in the case of a developing, geographically large country such as Brazil.

Keywords: domestic aviation; tourism; competitiveness; geographically large countries; Australia; Brazil

1. Introduction

Competitiveness has become a major theme as destinations mature and tourism activities intensify, leading to a search for those factors that enhance the comparative and competitive advantage of different places (Dwyer, Forsyth, & Rao, 2000; Enright & Newton, 2004). One of the factors consistently present in the studies dealing with tourism destination competitiveness is transport and the various dimensions related to it: e.g. facilities (Enright & Newton, 2004), availability of public transport (Mangion, Durbarr, & Sinclair, 2005) and its range, quality and cost (Crouch & Ritchie, 1999).

The World Economic Forum (WEF) - Travel and Tourism (T&T) Competitiveness Report is one of the most comprehensive studies on tourism destination competitiveness, providing a T&T Competitiveness Index (TTCI) for over 130 countries around the world. In the TTCI, the final score given to each country is obtained after weighting a number of sub-items measured by hard data and qualitative ratings provided by expert opinion surveys. A total of fourteen indicators (‘pillars’), grouped around three major sub-indexes – regulatory framework; business environment and infrastructure; human, cultural and natural resources - made up the final score (see Table 1).
Table 1. The three sub-indexes and the fourteen pillars comprising the TTCI (source: compiled from World Economic Forum 2009).

<table>
<thead>
<tr>
<th>Regulatory framework</th>
<th>Business environment &amp; infrastructure</th>
<th>Human, cultural &amp; natural resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy rules and regulations</td>
<td>Air transport infrastructure</td>
<td>Human resources</td>
</tr>
<tr>
<td>Environmental sustainability</td>
<td>Ground transport infrastructure</td>
<td>Affinity for T &amp; T</td>
</tr>
<tr>
<td>Safety and security</td>
<td>Tourism infrastructure</td>
<td>Natural resources</td>
</tr>
<tr>
<td>Prioritisation of travel and tourism</td>
<td>ICT infrastructure</td>
<td>Cultural resources</td>
</tr>
<tr>
<td>Health and hygiene</td>
<td>Price competitiveness of T &amp; T</td>
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Air transport is one of the fourteen indicators. It is made through a combination of ratings and hard data (domestic and international available seat-km [ASK], number of domestic and international departures, airport density, and number of operating airlines) and qualitative ratings on the quality of international air transport network and the quality of air transport infrastructure. While it is hard to evaluate those two qualitative variables, as they were obtained through a survey with stakeholders and experts from the air transport sector in different parts of the world, the remaining data can be verified and analysed. Data availability is a major constraint in capturing a more accurate description of the quality of air services (especially if this is to be obtained for tens of countries), we argue that some indicators used in the air transport pillar are limited in its capacity to highlight air transport’s influence on T&T competitiveness.

Against this background, this paper aims to highlight the underlying domestic aviation factors that are of significance in determining competitiveness of tourism destinations, particularly the TTCI. In order to achieve this, we present a comparative case study analysis between the domestic aviation environment in Australia and Brazil. We structured our description of the aviation sector in these two countries around key aviation factors identified in the literature as relevant to tourism (Shaw, 1982): e.g. safety, network coverage, airline service consistency, adequate capacity at airports and by airlines, and aviation policy. While in different stages of economic development, Australia and Brazil, as geographically large countries, have significant domestic aviation markets. This provides an opportunity to analyse not only the role that air transport has in generating domestic trips, but also facilitating the intra-national dispersal of international visitors.

In the next section we undertake a conceptual discussion on key domestic aviation factors that are relevant to tourism destination competitiveness, while Section 3 presents a comparative analysis of domestic aviation issues between Australia and Brazil. Section 4 discusses the correlations between the key aviation factors and the relevant T&T competitiveness indicators, before conclusions are drawn.
2. The implications of domestic aviation factors for tourism

The symbiosis between aviation and tourism has been explored in the literature from a number of different perspectives, which include fiscal (Abeyratne, 1993) and policy implications (Forsyth, 2006; Papatheodorou, 2002), sustainability and climate change (Bows, Anderson, & Peeters, 2009; Peeters, Gossling, & Becken, 2006). We base our discussion of aviation and tourism on Shaw (1982), which provides some guidance to better understand the aviation factors that influence tourism, including:

- Safety: is pivotal in the success of the industry where accidents, although comparatively rare, results in high number of fatalities and are broadcasted around the world.
- Network coverage: is particularly relevant for large countries where air travel offers a decisive advantage in access over other modes of transport.
- Service consistency and adequate capacity: are necessary to ensure the long-run growth and investments into tourism destinations. This includes adequate capacity at airports, which can be a major constraint for air transport development.
- Airline efficiency: airlines have to be efficient and profitable so that costs remain low (thence the capacity to provide lower fares) and service levels (seats, frequency) remain consistent. Inefficient airlines have a greater chance of withdrawing services in a competitive environment and cause irregularity in air access for air transport-reliant destinations. Air service irregularity can contribute to uncertainty and risk; consequently hampering private investment flows into destinations.

We add that domestic aviation policy dynamics exert significant influence on all of these factors. The stringent regulation of domestic air transport sector meant that aviation was a major source of constraint for the development of tourism, which was largely free from regulations and barriers (Dwyer and Forsyth 1992). Consequently, the deregulation process of civil aviation sector is one of the main underlying factors affecting tourism.

There are important variations with respect to the performances of the above mentioned factors across different nations. With different starting points (e.g. different socio-economic parameters), domestic aviation reform had varying effects. For example, in a study examining the effects of domestic aviation deregulation in developed and developing country contexts, Hooper (1998) demonstrated that Australian experiences of deregulation have been relatively smooth compared to India, where in the latter the rapid changes in the aviation sector following deregulation has placed the Indian government in a “reactive position” (p.114), which created the need of continuous intervention, producing an uncertain policy environment for private airlines to operate within. Hooper argued that this is partly the result of lack of prior evaluation of policy and monitoring, which is symptomatic of a developing country. Indian domestic aviation policy environment was much more uncertain and volatile compared to Australia. As noted by Hooper (1998), it appears that Indian aviation market in the 1990s experienced relatively minor changes in efficiency and network coverage outside the trunk routes, due to the lack of opportunity for low-cost carrier services, as well as the disjointed nature of the partnership between regional carriers and major domestic carriers in India – both of which have been relatively minor issues in Australia.
In a similar vain, Fayed and Westlake (2002) observed that developing nations are characterised by issues such as: low air traffic density (thus, cannot capitalise on economies of density); infrastructure shortages; financial constraints of the government and private investments; and the inconsistency in the international air transport and tourism policies. Some of these challenges are apparent in developed economies as well; for instance, Canada after following US domestic aviation policy has experienced ‘competitive weakness’ (p.186) due to its small domestic market (compared to US), insufficient demand distribution for major hub-spoke operations, and dominance of the incumbents on few high density routes (Small 1993).

Furthermore, economies of density has meant that high costs on low-density routes providing access to peripheral destinations are problems experienced by all air transport sectors, regardless of their socio-economic parameters. Nonetheless, as Fayed and Westlake (2002) argued, developing economies often lack the “necessary financial and human resources to assess the impacts of several policy options and to supervise subsequent developments” (p.449). Moreover, airport capacity constraint is an issue among developing nations due to the financial constraints of the government, which often maintains ownership and management of airports, and the resultant lack of private sector investments. Domestic airport infrastructure (or the lack of) is a key aviation factor limiting tourism competitiveness - a view echoed by Turton (2004), who in the context of Zimbabwe aviation policy and tourism, has shown that lack of airport infrastructure (e.g. runways for more efficient aircraft for the demand) was a key inhibitor of the development of direct services into major tourism destinations in the country.

The research literature highlighted fundamental aviation factors important for tourism, such as air transport safety and network coverage among other factors outlined above, as well as the important differences with respect to the performances of these factors between developed and developing countries. These included the quality and quantity of air transport infrastructure, constraints in human resources, uncertain policy environments, and efficiency of the air transport sector. In the following section we take a more in-depth look at these issues using Australia and Brazil as contexts.

3. Domestic aviation in Australia and Brazil

Comparative analysis have been widely employed in air transport studies, either dealing with airlines (Barbot, Costa, & Sochirca, 2008), airports (Nijkamp & Yim, 2001; Oum, Yu, & Fu, 2003; Wang, Ho, Feng, & Yang, 2004), networks (Reynolds-Feighan, 2010) or countries as a whole (Lohmann, Albers, Koch, & Pavlovich, 2009).

The two nations’ similarities and dissimilarities provide an opportunity to explore the reality of domestic aviation in two geographically large countries. Australia and Brazil are comparative in domestic available seat km (ASK), ranking 5th and 6th respectively (see Table 2). The two nations are similar in geographic size (surface area), and commenced deregulation of the domestic aviation sector in the early 1990s. Both nations are large countries with significant domestic air transport sector as part of their economies.
While the two nations in a broad sense are similar in their geographic contexts, the key dissimilarities are in their socio-economic (and political) contexts. Clearly, Brazil’s domestic aviation has the potential to grow much larger than the current levels as income increases, and with it, tourism share of GDP will probably increase and so will the government prioritisation of the travel and tourism industry. Australia, on the other hand, exhibits the characteristics of a developed economy with high GDP per capita. Tourism is also a priority in Australian government policy relative to most countries. Comparative studies can help us to determine the relevance of the experiences of developed economies to developing economies, which is especially important given the latter often do not have the resources to conduct studies to evaluate and monitor policies (Hooper 1998). In the absence of an opportunity for controlled experiments, the two cases in this paper provide a useful foundation for comparing the links between domestic aviation and tourism competitiveness in developing and developed country contexts.

3.1 Australia

Prior to 1990, Australian government enforced a duopoly on inter-state domestic aviation industry, coined with the two-airline policy, the privately owned Ansett Airlines and the government-owned Trans Australia Airlines. In October 1990, the two-airline policy was terminated removing constraints for domestic airlines in the following areas (BTCE 1991): control aircraft imports; capacity allowed and supplied on trunk routes by each airline; abolishment of the Independent Air Fares Committee in setting fare levels, and entry/exit barriers to domestic trunk routes.

Over the past twenty years, capacity and network coverage improved in Australia. In the first decade following 1990, capacity growth has been relatively gradual, followed by a steep decline in capacity due to the collapse of Ansett. Capacity recovered to pre-Ansett collapse levels by 2004, with Virgin Blue and Jetstar adding significant ASKs to the domestic aviation market (refer to Figure 1). Slight decentralisation of traffic distribution occurred since deregulation; for instance, capital city airports accounted for 82% of total domestic airport traffic in 1992/1993 but this has decreased to 80% in 2008/2009. Although this seems a small change, this equates to a 159% increase in the incoming passengers among non-capital city airports from 3.4 million to 8.8 million (based on BTRE data 2010).

<table>
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<th>Table 2. Key indicators: Australia and Brazil (source: compiled from World Economic Forum 2009).</th>
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<tr>
<td><strong>Country</strong></td>
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<tr>
<td>Population (million)</td>
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<tr>
<td>GDP/Capita (US$)</td>
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<tr>
<td>Surface area (1,000 square km)</td>
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<tr>
<td>Tourism share of GDP (direct contribution)</td>
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<tr>
<td>Quality of air transport infrastructure (world rank)</td>
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<td>Airport density (airport per million people world rank)</td>
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<tr>
<td>Departures per 1,000 population (world rank)</td>
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<tr>
<td>Government prioritization of travel and tourism industry (world rank)</td>
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<tr>
<td>Domestic ASK (world rank)</td>
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With exception of a duopoly period between the full service carriers in 1994-1999, competition was strong in the domestic market. In the period between 1990 and 1993, two low-cost carriers entered market. They were met with strong competition by the incumbents, TAA (acquired by Qantas in 1996) and Ansett, and subsequently ceased operation within a year of starting operation (Forsyth 2003). However, despite the failure of two new entrants in cementing their positions, their effect on competition perpetuated because it fostered greater competition between the two incumbents (Sinha 2001). Following a duopoly period between 1994-1999, Impulse (1994-2001) and Virgin Blue (inaugurated in 2000) entered the market adopting the low-cost model. Impulse was absorbed by Qantas in 2000, while Virgin Blue was successful in cementing a position in the domestic aviation market, partly helped by the collapse of Ansett in 2001. In the second decade (2000-2010) a further three carriers entered the market (OzJet, Jetstar and Tiger) of which Jetstar (as a subsidiary of Qantas) and Tiger cemented positions in the domestic market along-side Qantas and Virgin Blue.
The effects of competition can be seen on price levels. Figure 2 shows that levels of discounting increased significantly over time (evident by the decreasing discount ticket fare levels) and the gap between high fares and low fares widened. These are consistent with the post-deregulation effects observed in the U.S. (see, for example, Borenstein and Rose, 1994). Although the trend of increasing price disparity somewhat subsided during the duopoly period, widening of the price dispersion continued from the onset of the wave of new entrants from 1999. Forsyth (2001) has shown that Australian domestic airlines have improved in productivity during the 1990s, and argued that the gains have been passed onto consumers, despite limited competition. While the same cannot be said for the years 2000-2010 due to limits in data, the combination of strong competition and the proliferation of low-cost carrier services (and the longevity of their presence in the market) may be indicative of improvements in airline efficiency.

Figure 2. Domestic airfares in Australia 1992 – 2008 (source: compiled from BTRE 2010)

Similarly, over the past twenty years, reform took place to improve the performance of Australian airports. As part of a series of microeconomic reform in many sectors of the economy, Federal Airports Corporation (FAC) was established by the Australian federal government in 1988, administering 22 airports in Australia (Hooper, Robert, & White, 2000). Using airport revenue as proxy for airport performance, Hooper et al. (2000) argued the reform was beneficial with airports
experiencing large increases in revenues/employee, however, they also noted that the government preferred full privatisation to a corporatised structure in order to reduce government debt. All major airports managed by the FAC were eventually privatised in 1997 and 1998; Sydney Kingsford Smith, in 2002 (Kain and Webb 2003). Pricing caps were removed on aeronautical charges in most airports in 2002, while pricing reforms also took place in the air traffic control and airspace management services provided by Airservices Australia, which involved moves toward user-based and cost reflective pricing strategies (Kain and Webb 2003). It appears that Australian airport performance has improved following privatisation as evidenced by an increase in revenue per world load unit (WLU) and decreases in operating costs per WLU, and significant private sector investments undertaken to meet airport infrastructure and capacity upgrades (URS Australia 2007).

Finally, but probably the most fundamental aviation factor, is the safety of commercial air services. Australian Transport Safety Bureau (ATSB) data show that between 1999 and 2008, an average of two fatal accidents occurred each year. Accidents (including non-fatal accidents) fluctuated between 14.4 and 30.9 accidents per million departures, while the rate of fatal accidents ranged between zero and four per million departures. During this period, there were no occurrences of fatal accidents among high capacity regular public transport (capacity greater than 38 seats) commercial air transport. Overall, Australian domestic aviation appear to have performed well against the key factors examined, which included capacity, network coverage, safety and efficiency of airlines.

3.2 Brazil

While large part of Australian policy has remained relatively unchanged since October 1990 (when deregulation was officially implemented at a national level), Brazilian policy has been comparatively more volatile and dynamic. First, the regional services were deregulated (excluding services between state capitals) in 1992, followed by the deregulation of main domestic routes (routes between state capitals) in 1998 (Williams, 2002). This was followed by re-regulation of the industry in 2003, including the granting of code-shares between the two main carriers, as well as limits on frequency and new aircraft import in response to the airline financial crisis in 2002. All of which occurred before reverting to the pre-2003 deregulatory state (Bettini & Oliveira, 2008).

Air transport underwent a major transformation in Brazil over the past twenty years. The sector was deregulated in the 1990s and, as a result, some of the badly managed airlines such as Transbrasil, Vasp and Varig went out of the market, while new efficient competitors were established, the prominent example being Gol Airlines. In 2007, Gol bought Varig, which for many decades was the largest domestic and international airline in Brazil. The only incumbent airline to survive from this period was TAM Airlines that now dominates the domestic market in a duopoly with Gol/Varig (in 2008, TAM and Gol/Varig accounted for approximately 92% supply of seats in the domestic market – in ASK). The remaining airlines were composed of several small and medium regional airlines, in addition to Webjet and Azul, the latter two being considered as low cost carriers (LCC). The entry of these airlines (such as Gol, Webjet and Azul) has contributed to decrease airfares. Oliveira (2008) points out that, in 2002, Gol’s yields (in R$/passenger-km) were 0.21, at least 38% less compared to TAM (0.29), Varig (0.31) and Vasp (0.27). A study conducted by BNDES (2010) shows that the yield of Brazilian airlines has decreased by nearly 50% since the major deregulation process of 1998 (from an average of R$0.48/ pax-
km, in 1997, to 0.26, in 2008), although it is still higher than other airlines around the world.

The impact of the deregulation on capacity is clearly seen in Figure 3. The significant increase in terms of capacity (ASK) and demand (RPK – Revenue Passenger-km) after 1998 was also followed by an overall increase in the load-factor (although much lower than Australian domestic load factors), suggesting that airlines are not only offering more seats and carrying more passengers, but also being more efficient. Bettini & Oliveira (2008) have shown that Brazilian GDP, a strong national currency, connectivity and the presence of a LCC in a particular route (Gol), had a positive effect on capacity increase. On the other hand, code-sharing and the capacity in adjacent airports (particularly in the cases of Rio de Janeiro, São Paulo and Belo Horizonte, the largest multi-airport cities of Brazil) had a negative impact on the growth of seat capacity.

Figure 3. Domestic ASK, RPK and load factors in Brazil 1992-2008 (source: Brazilian National Civil Aviation Agency)

In addition, a number of inter-related factors hampered the growth of domestic aviation capacity. According to Costa, Lohmann, & Oliveira (2010), one of the negative aspects of the deregulation process in Brazil was the concentration of traffic at a few airports, particularly Brasília, Congonhas and Guarulhos, the latter two located in the city of São Paulo. They describe how the concentration of traffic, in addition to the deficiencies of the airport and air traffic management authorities triggered two of the worst fatal air accidents ever to take place in the country. In October 2006, a mid-air collision between a Gol Boeing and an executive jet killed all 154 passengers and crew onboard the Boeing 737 from Gol Airlines. Less than a year later, in July 2007, an Airbus A320 from TAM slipped off the Congonhas’ airport runaway, in São Paulo, and crashed into a building killing 200 people. The period between these two accidents and throughout 2008, many flights were delayed or cancelled and there were long queues at the major airports for what has been called the ‘air transport crisis’ in Brazil. This was a consequence of the changes imposed by the civil aviation authority to decentralize the traffic from the congested airports,
particularly Congonhas, in addition to a work-to-rule tactic used by air traffic controllers who were being blamed by the 2006 accident. The study also claimed that the air traffic control system was underfunded and rigidly managed under the military control.

A related point is that while deregulation was beneficial to competition, airport infrastructure and air traffic management did not measure up to the growth in passenger traffic and airplane movements. Airports in Brazil are managed by Infraero, which controls 67 airports that handle approximately 95% of the passenger traffic, while CINDACTA (Center of Air Defense and Air Traffic Control) is responsible for the air traffic management. Both sectors are still managed by public centralized entities that do not have the same managerial flexibility as the private sector. Some researchers have conducted a series of studies on the performance of major domestic Brazilian airports (Pacheco & Fernandes, 2003; Pacheco, Fernandes, & Santos, 2006); findings that while individually those airports present very different performances, some being considered as very efficient, they do not reflect the overall performance of Infraero as a whole. Our argument is that they can be efficient considering the organizational structure of a public monopoly, however these studies do not take into consideration the performance they would have under a decentralized management structure. Currently, there is no competition among the major Brazilian airports with the whole system handling a comparatively low number of domestic passengers (total of 99.97 million passengers, in 2008), with a few congested airports struggling with capacity to accommodate passenger traffic, particularly the two major airports in São Paulo (CGN, GRU) and Brasília (BSB). Altogether, these three airports represented approximately 34% of the domestic passenger traffic in 2008. A cross-subsidy between the profitable airports and the rest of the system is used by Infraero, raising further issues as to the efficiency of some of the airports.

4. Discussions and conclusion

The analysis of the Australian and Brazilian domestic aviation sectors provides an interesting opportunity to reflect on some of the factors considered by the TTCI report as well as the domestic aviation factors proposed by Shaw (1982). For three indicators presented in the TTCI air transport infrastructure pillar (see Table 3), the underlying drivers influencing the quality and performance of the domestic aviation sector is not well captured, as explained below:

- Domestic ASK (measured by average weekly scheduled ASK between Jan-July 2008): while Australia and Brazil scored highly on domestic ASK (as a measure of domestic aviation capacity), our discussion in the previous section has shown that the two countries differ markedly with respect to load factors, and consistency and volatility in the levels of capacity. In Australia, domestic capacity is supported by consistent load factors (around 80%), and it has been this way for many years, despite significant increases in capacity. In Brazil, load factors have remained around 60% until 2003, and although this has risen to 70% for a brief period (2004-2006), more recent increases in capacity was not followed by an increase in demand (see Figure 3). Hence the high ASK in Brazil is not a measurement of a stronger competitive advantage, raising question as to the aviation sector’s ability to meet demand conditions efficiently;
• Number of operating airlines (measured by average number of airlines with scheduled flights originating in country between January and July 2008): in domestic markets, both countries have been dominated by only two, sometimes three airlines. Previous research has raised questions over whether or not a domestic air transport sector in Australia are able to sustain competition of more than two or three trunk-route carriers (Hooper 1998). What has been learnt from the experiences of Australia and Brazil is that smaller number of airlines does not necessarily suggest limited competition and competitiveness of the airfares. More important than the number of airlines is the type of service they provide, as it has been seen from the two countries that low-cost carriers can have an impact on decreasing airfares and improving seat availability;

• Airport density (measured by the number of airports per million of population, in 2007): the differences between Australia and Brazil are in part a reflection of the fact that the Brazilian population is almost ten times bigger than the Australian population, in spite of comparable geographic size of the countries. While this indicator may be suggestive of the level of access the population has to airports, in highly urbanised countries (as that of Australia and Brazil) airport capacity is an important consideration (therefore the quality of airports), in addition to the relative number of airports. The TTCI report does not account for the type of operations these airports have nor the sort of governance they have with the destinations they serve.

Table 3. Rank position of Australia and Brazil for the air transport infrastructure indicator (source: WEF 2009)

<table>
<thead>
<tr>
<th>Air transport infrastructure</th>
<th>Australia</th>
<th>Brazil</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available seat km, domestic</td>
<td>3</td>
<td>46</td>
<td>-43</td>
</tr>
<tr>
<td>Available seat km, international</td>
<td>5</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td>Departures per 1,000 population</td>
<td>12</td>
<td>18</td>
<td>-6</td>
</tr>
<tr>
<td>Airport density</td>
<td>22</td>
<td>62</td>
<td>-40</td>
</tr>
<tr>
<td>Number of operating airlines</td>
<td>26</td>
<td>32</td>
<td>-6</td>
</tr>
<tr>
<td>Quality of air transport infrastructure</td>
<td>19</td>
<td>101</td>
<td>-82</td>
</tr>
<tr>
<td>International air transport network</td>
<td>23</td>
<td>68</td>
<td>-45</td>
</tr>
</tbody>
</table>

Considering some of the limitations provided by the indicators used in the TTCI report, we discuss below some other attributes that could be used to improve the measurement of tourism destination competitiveness from an air transport point of view.

Safety

Aviation accidents and incidents have substantive implications for the viability of the air transport sector. The slump in Brazilian capacity in 2006 is related to the two fatal medium-jet commercial aviation accidents (Figure 3), which is an on-going safety issue of the Brazilian aviation industry. This seems to be part of the wider problem of poor ‘safety and security’ rating of the Brazilian travel and tourism competitiveness, and poor air transport safety record is a serious constraint for the
growth of travel and tourism sectors. In contrast, it was shown that Australia’s performance in air transport safety is comparatively very low with no fatal accidents among high capacity air transport (above 38 seats) in the past decade. Safety, along with the government regulation and policy dynamics (see below), are important determinants of the consistency of services, which is a key aviation attribute from a tourism competitiveness viewpoint.

Regulatory and policy dynamics

Rapid changes in the Brazilian aviation environment have partly resulted in the need for the government to re-intervene after deregulation. Re-regulation, which involved the approval of code-sharing between two major incumbents and government imposed limits on capacity increases, has reduced domestic aviation capacity and increased market concentration (Bettini and Oliveira 2008). Such shift in the policy environment is not uncommon among developing economies, with India having experienced similar uncertainty in air transport policy post-deregulation (Hooper 1998). Overall, this contrasting experiences between Australia and Brazil illustrate how two nations differ with respect to ‘policy rules and regulations’ in the air transport industry.

Having highlighted volatile policy dynamics, it is also important to appreciate the air transport policy environment in the context of longer-run prospects for tourism. Perhaps one of the most important aspect with respect to tourism in countries with significant domestic aviation sector is the need to implement policies that will nurture national carriers. For this to occur, domestic aviation can be used to help foster internationally competitive national carriers. This may mean the use of domestic aviation policy to protect the national carrier from competition until it develops a critical level of efficiency and networks to be competitive in international markets (Fayed & Westlake, 2002). Thus, from a more long-run perspective, the temporary protection given to the main carriers in Brazil, despite its effects on inconsistency and volatility in the level of air services over the short-term, may contribute towards securing consistency of air services in the long-run. From this perspective, the Brazilian aviation sector will contribute to Brazil’s tourism competitiveness in longer-term.

Network coverage

Both countries domestic capacity is dominated by a small number of high-density routes. Low-density routes suffer from high costs (as a result of poor economies of density) and limited competition. This is probably the most important commonality between the two countries. In Australia this problem has been partly resolved through two channels. First, regional carriers and domestic carriers have significant interline partnerships to efficiently funnel regional traffic into trunk routes, which was the case in Australia (Hooper, 1998). Furthermore, low-cost airlines in Australia have been very aggressive in their entry into regional airports, especially to those serving resort destinations along the Eastern coast of Australia (Koo et al. 2010), improving capacity and access to regional destinations. There are some evidence to suggest that this is happening in Brazil, especially as airlines look to avoid heavily congested hub airports. However, partnerships of the scope in Australia between regional and large domestic carriers have not occurred in Brazil. Such issues of high access costs are not endemic to Australia and Brazil, but for all geographically large and dispersed regions, and imposes a fundamental challenge for the overall competitiveness of tourism.
Efficiency of management and infrastructure

The relatively poor performance of Brazil compared to Australia can be seen across most sub-items of the air transport infrastructure pillar (Table 3), particularly in the quality of air transport infrastructure ratings (Australia ranks 19th whereas Brazil ranks 101st of 133 countries), which is measured by expert opinion survey. Inadequate airport infrastructure is an issue particularly in newly industrialising nations (Fayed and Wake 2002, Button 2006), and as discussed previously, there were significant disparities in the way airports were managed between the two countries. In fact, serious capacity and congestion issues were noted in Brazil, and how these were closely related to issues of air transport safety and efficiency. Furthermore, currently there is an absence in the strategic use of air transport infrastructure and capacity in Brazil. For instance, in Australia, Brisbane and Gold Coast airports are located within 100km to each other and the latter has become a terminal focused on the low-cost carriers and the leisure domestic and international travel market. Such specialisation has not yet occurred in Brazil.

Final comments

The close links between air transport and tourism have been recognised in tourism research for some time. However, the performance of key domestic air transport factors such as network coverage, service consistency, safety and policy dynamics, despite their significance for tourism, are largely discussed within the confines of air transport research literature. With rising affluence and increasing recognition of the importance of tourism, there is a growing need to examine the relevance of these factors in influencing key tourism indicators, such as travel and tourism competitiveness of a nation. This paper has highlighted a significant gap between key aviation factors influencing tourism competitiveness and the extent to which these factors are accounted for in tourism competitiveness measurements. The authors are currently investigating an important extension to this study, which is to examine the various ways these underlying aviation factors can be appropriately quantified and measured within the framework of travel and tourism competitiveness indices. Eventually this could be expanded to include other large geographically countries such as Canada, US, China, Russia and India.
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