

## **Air Transport and Tourism - A Systematic Literature Review (2000-2014)**

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### **ABSTRACT**

This paper reviews literature at the intersection between air transport and tourism research. While, air transport and tourism are mutually dependent sectors, there is little research on their interaction. A systematic literature review method was used to select and analyse relevant journal articles published in 54 ABDC (Australian Business Dean Council) A\*, A or B ranked journals from 2000-2014. Research themes, leading researchers, their institutions and geographical locations are discussed. An extended framework for classification of the literature is developed through the content and thematic analysis. Among the identified research themes, 'environment', 'passengers' and 'airlines' are found as the most common. The use of a systematic review has identified gaps in the literature and directions for future studies. Some of the identified areas that are showing a growing interest in the interrelationship between aviation and tourism include air route/service development; passenger experiences; LCCs and their impact on tourism; implications of new direct long-haul flights; and carbon offsets.

**Keywords:** *Air transport; Aviation; Tourism; Systematic literature review*

### **Introduction**

Air transport, airport infrastructure, efficient and safe airline services and worldwide air transport networks are essential support for tourism (Lohmann & Duval, 2015). In 2014, more than half of all international tourists (54%) travelled by air (UNWTO, 2015). Air transport has a significant influence on a destination's economy, including the tourism sector and vice versa (Henderson, 2009; Lian &

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Denstadli, 2010). Tourism has stimulated development of charter airlines (Bieger & Wittmer, 2006), opened new destinations and tourism markets, and influenced development of destinations specialised as gateways, hubs, or stopovers. (Lohmann & Duval, 2014). There are few air transport literature reviews (Ginieis, Sánchez Rebull, Hernández, & Planas, 2011; Ginieis, Sánchez-Rebull, & Campa-Planas, 2012; Kaps & Philips, 2004) and only one prior review examines tourism and transportation. In the only existing literature review on this topic, Duval (2013, p. 495) identified three themes: “(1) the economic regulation of international commercial air transport; (2) the relationship between destinations, connectivity and airline business models; and (3) the relationship between aviation-related emissions and climate policies”. This systematic literature review (SLR), extends this framework for classification and analysis and identifies areas for future research.

## **Background**

Air transport is a primary mode of transport for international leisure travel (UNWTO, 2015), and an important influence on destination development. Air transport and tourism are mutually dependent (Duval, 2013; Forsyth, 2006, 2008), with airlines often involved in the planning and development of tourist destinations, while tourism destinations may invest in local airports or the development of new routes (Lohmann & Vianna, 2016). International airline alliances affect tourist destinations by influencing fares and total travel time, connectivity and cooperative promotion (Morley, 2003a). Low-cost carriers (LCCs) have been found to stimulate demand for destinations in case studies from Korea (Chung & Whang, 2011) and Southern Italy (Donzelli, 2010; Macchiavelli & Vaghi, 2003). Aviation regulatory regimes, aviation liberalisation, air transport policies and “open skies” agreements underpin growth in air travel (Dobruszkes & Mondou, 2013; Zhang & Findlay, 2014), since regulation can influence the range of routes operated by airlines, hence determine competition, and spatial patterns of tourist travel (Forsyth, 2008). Growing tourism demand requires new airport infrastructure (Martín-Cejas, 2010), development of new airport routes (Halpern & Graham, 2015, 2016), and coordination between airline, airport and destination strategies (Lohmann, Albers, Koch, & Pavlovich, 2009).

A variety of different review methods are available to select and analyse a relevant literature, including meta-analysis, narrative review, and SLR (Jesson, Matheson, & Lacey, 2011; Timulak, 2009; Tranfield, Denyer, & Smart, 2003). Tourism is a multidisciplinary field of study, leading to literature review papers on topics as diverse as tourism and sport (Weed, 2006; Weed et al., 2014) and Chinese tourism (Keating & Kriz, 2008; Tseng, Wu, Morrison, Zhang, & Chen, 2015; Zhong, Wu, & Morrison, 2015). In addition, a reviewer may apply a range of bibliographic techniques such as co-authorship (Ye, Li, & Law, 2013) and geographic analysis (Shen et al., 2014). This paper provides an SLR on the interrelationship between air transport and tourism using thematic and content analysis methods.

### **Methodology**

Systematic review papers differ from traditional narrative reviews in the way they provide objective, replicable, systematic, and comprehensive coverage of a defined area (Weed, 2006). The SLR requires a meticulous documentation of the procedures used to survey the literature and to select papers (Pickering & Byrne, 2013) such that another researcher can replicate it (Ginieis et al., 2012). The advantage of this type of review is that similar results should be obtained if the procedure is repeated.

In this SLR, relevant journals were chosen from the Australian Business Deans Council Journal Quality List (ABDC), a source commonly used by Australian academics to classify and rank academic publications, particularly in the management fields of study. Journals were selected if they were listed between the years 2000 and 2014 as belonging to the Field of Research (FoR) of tourism (1506) and transport (1507). This choice of two specific FoR is needed to limit the number of journals analysed; otherwise, our approach would not be replicable and objective. The ABDC list comprises only journals published in English and only those classified as A\*, A, and B journals (the most influential ones) were chosen. We did not include C-ranked journals, as usually, they are not the preferred choice for publication for management/business academics, albeit we acknowledge that these journals can eventually move into higher categories. It is worth highlighting that the approach proposed here is just one method to select academic publications and that there are other ranking systems apart from the ABDC list.

A two-stage approach for the sampling of “air transport” and “tourism” journal articles was undertaken. In the first step, only papers where a selected number of words, i.e. ‘tourism’, ‘tourist’, ‘airline’, ‘aviation’, ‘air transport’ and ‘air transportation’, existed in the title, abstract or keyword sections were chosen. The purpose was to develop a broadly understanding on how “air transport” and “tourism” interface has been progressing. In a second stage, only papers where “air transport” and “tourism” related words were located within three words from each other in the text were selected and analysed, as described below.

### ***Stage 1***

A total of 74 journals from the 2013 ABDC list were identified for FoR 1506 (tourism) and 1507 (transport). Out of these 74 journals, 12 journals were eliminated, as their focus clearly was not directly relevant to the interface between tourism and air transport. These journals examined topics such as ‘accident investigation’, ‘technology’, ‘safety’, ‘infrastructure’, ‘information technology’, ‘automotive technology’, ‘vehicle engineering’ and ‘quality assurance’. Eight other journals not readily available in the university online library catalogue were also excluded. The journals excluded are listed in Note 1 of Figure 2. From the first 74 tourism or transport related ABDC journals, 54 journals were further analysed and papers from the 15-year period 2000-2014 selected using two criteria:

- 1) For tourism journals, papers were selected with any of the following words, ‘aviation’, ‘airline’, ‘air transport’ *or* ‘air transportation’, either in the title, abstract or keyword sections;
- 2) For transport journals, papers whose following words were found in the title, abstract or keyword: ‘tourism’ *or* ‘tourist’ together *with* either ‘airline’, ‘aviation’, ‘air transport’ *or* ‘air transportation’ were chosen.

A total of 329 journal articles were selected from 36 different journals. Hence, 18 of the original 54 journals did not publish any paper as per these criteria, indicating that academics had a very specific target of journals even when deciding where to publish on tourism and transport FoR. These journals are listed in the Note 2 of Figure 2.

### ***Stage 2***

DEVONThink Pro<sup>TM</sup> software was used to identify if a relationship existed between the terms “air transport” and “tourism” in the 329 papers identified. DEVONThink Pro is a software for database of selected search terms, organising data, research and gathering ideas into groups. It applies metadata tags to documents, words and phrases and can sort this metadata to create sub-groups. The Boolean ‘NEAR’ function was used to determine the number of occasions where words related to air transport [‘aviation’, ‘airline’ or ‘air transport’] were within three words of terms related to tourism [‘tourism’ or ‘tourist’ (“touris\*”).]. This criterion ensures that only papers with a very strong inter-relationship between tourism and aviation were included. A total of 157 journal articles were identified by following this criterion. Again, by providing an objective set of parameters for the identification of our sample, the method is replicable and consistent with a systematic approach to review the literature.

As a result of Stage 2, 172 articles were excluded (329 minus 157) and not considered for further analysis because the chosen words were not three or fewer words close to each other. Randomly selecting and reading ten out of the 172 papers that were excluded validated this approach as none of the excluded papers matched the interrelated topic of air transport and tourism. As an example, the excluded papers were related to topics such as tourism and hospitality human resources; tourism destination image; trade in airline services; airline market segmentation; environmental reporting in the airline industry; measurement of air traffic volume; destination and market share analysis; airline sales; space tourism; and airline deregulations. Hence, while related to either “air transport” *or* “tourism”, these papers did not necessarily have a strong link to both “air transport” *and* “tourism”. Thus, 157 out of the initial 329 articles were in scope for further thematic analysis.

### ***Data analysis***

The next step was to analyse the relevant data from all the 329 journal articles after inputting into an Excel spreadsheet the following data collected:

- Authors: names of authors were standardised as in some instances the same author had used different names in various papers;
- Affiliation of authors: we standardised all institutions, for example removing “the” in front of the names of some universities. As much as possible, we tried to write

the full name of the institution, avoiding acronyms and abbreviations. In some occasions, authors listed their departments, rather than their universities and we made sure that the name of the organisation was used instead. In rare circumstances, we amended the name of the institution where mistakes were found;

- Country of affiliation: in the cases where authors noted multiple affiliations we used the first one provided;
- Year of publication;
- Title of paper;
- Title of journal;
- Keywords: all keywords as provided by the authors in the journal articles.

From the spreadsheet, a descriptive analysis of the data was created with the aim to understand how the field has evolved through the years and to identify the principal authors/institutions and journals that publish on the interface between “air transport” and “tourism”.

A thematic analysis was also undertaken. Describing the predominant research themes and topics within the selected articles is an important objective of any literature review paper (Zhong et al., 2015). The second step in the data analysis was to identify the research topics of the selected 157 papers using the text of their abstracts. According to Fereday and Muir-Cochrane (2006), thematic analysis is a search for themes through a process of theme identification by careful reading and re-reading of the data. For the purpose of this study, both inductive and deductive analysis approaches were used.

From a deductive approach, the structure provided by Ginieis et al. (2012) was considered appropriate as it identified main themes in the air transport body of work between 1997 and 2009. These authors identified eleven themes used as an initial deductive analytical framework:

- **airports**: including airport infrastructure, airport taxes and different case studies;
- **alliances**: agreements among various airlines;
- **costs**: air transportation costs;
- **environment**: covering issues such as CO<sub>2</sub> and fuel emissions, sustainable development;

- **finances:** the capital structures of airlines, profitability, productivity and efficiency;
- **management:** air transport management, notably airline crews, industrial policies and flight scheduling;
- **modelling:** referring to models, algorithms and mathematical formulas for calculating different variables related to air transport;
- **networks:** air routes and airspace configuration;
- **passengers:** passenger demand, pricing and ticketing;
- **regulation:** air transport deregulation, privatisations and transport regulatory reforms;
- **safety:** passengers' health and safety, travel-related diseases and aviation accidents.

An inductive approach was also applied (Goddard & Melville, 2004) using the Leximancer software. Leximancer differs from other content analysis software (e.g. NVivo, ATLAS, CATPAC) as it does not apply word frequency or coding of terms and phrases. Leximancer extracts the central concepts and ideas (Tseng et al., 2015) and uses a quantitative method to conduct qualitative analysis by using different algorithms for four stages of data analysis. Leximancer has been used by psychologists to study human language, in qualitative health research and in undertaking literature reviews (Tseng et al., 2015). Leximancer has also been applied in tourism and hospitality research to identify changing the image of an event in newspaper reports (Scott & Smith, 2005), and to analyse travel blogs as a destination image formation agent (Tseng et al., 2015). The analysis using Leximancer identified two new themes (airlines and tourism destinations) and four themes previously identified by Ginieis et al. (2012), i.e. airports; alliances; management and environment/sustainable development. In total, 13 different themes were then considered in analysing the 157 selected papers.

## **Results**

This section is divided into two main parts. The first one provides a descriptive analysis of the 329 journal articles initially identified with tourism and aviation topics.

A thematic analysis is then carried out with the 157 selected articles where a stronger link between aviation and tourism was obtained.

### *Descriptive analysis*

Figure 1 shows the number of air transport and tourism publications in the period 2000 to 2014. The graph shows a flat trend to 2007 and then, between the years 2008 and 2014, a continuous growth with an increase from 22 journal articles in 2008 to 37 journal articles in 2014. Over the 15-year period, the number of publications per year has more than tripled, from 12, in 2001, to 37, in 2014.

*Figure 1: Number of air transport and tourism publications per year (2000-2014) - n=329.*

<FIGURE 1 HERE>

The journals that most commonly featured papers in air transport and tourism are shown in Figure 2. Out of a total of 36 journals publishing 329 journal articles, only a quarter was transport-specific journals (n=9), responsible for publishing only 17% (n=56) of the total number of journal articles. Hence, it appears tourism journals are the preferred outcome for publications on air transport and tourism. Tourism Management is the most popular journal with 54 articles, followed by the Journal of Air Transport Management (JATM) with 30 and the Journal of Travel and Tourism Marketing with 27 publications. After the JATM, the second-ranked transport journal is the Journal of Transport Geography, ranked 13<sup>th</sup> overall, with nine articles in the 15-year period analysed.

*Figure 2: Number of published articles in tourism and transport journals (2000-2014) - n=329.*

<FIGURE 2 HERE>

### Notes:

(1) List of the journals that are excluded from the search: Accident Analysis and Prevention; IEEE Transactions on Intelligent Transportation Systems; IEEE Transactions on Vehicular Technology; Journal of Safety Research; Transportation Research Part C: Emerging Technologies; European Journal of Transport and Infrastructure Research; Information Technology & Tourism; International Journal of Automotive Technology; International Journal of Vehicle Design; Journal of Vehicle Engineering, Automotive Technology and Components; Journal of Quality Assurance in Hospitality Tourism; Journal of Transport and Land Use; Journal of Transportation Engineering; Journal of Transportation System Engineering and Information Technology; Journal of Urban Planning and Development; Place

Branding and Public Diplomacy; Supply Chain Management Review; Transportation Journal; Transportation Letters; Transportation Research Record.  
 (2) List of journals where no papers were found: Transportation Research Part B: Methodological; Transportation Research Part E: Logistics and Transportation Review; Journal of Advanced Transportation; Journal of Transport Economics and Policy; Transportation Research Part F: Traffic Psychology and Behaviour; Transportation Science; Visitor Studies: Theory, Research and Practice; International Journal of Event and Festival Management; International Journal of Heritage Studies; International Journal of Sustainable Transportation; Journal of Ecotourism; Journal of Heritage Tourism; Journal of Hospitality and Tourism Education; Journal of Intelligent Transportation Systems: Technology, Planning, and Operations; Journal of Policy Research in Tourism, Leisure and Events; Journal of Public Transportation; Journal of Sport Tourism; Transportmetrica.

Some 551 researchers have published in the field of air transport and tourism. The most frequent authors, with eight publications each, are Stefan Gössling and Paul Peeters, followed by Sunghyup Hyun, with six, and Frédéric Dobruszkes, Peter Forsyth, Rob Law, Davoud Nikbin, Beverly Sparks and Richard Tol, each with five publications. Figure 3 provides the names of researchers who have authored at least three publications.

*Figure 3: Researchers with at least three publications (2000-2014) - n=551*

<FIGURE 3 HERE>

\* Group of authors: Assaf; Baum; Chang; Chen, C.; Chen, M.; Cohen; Dekay; Duval; Fenclova; Hall; Ismail; Lee; Lei; Limpanitgul; Mak; Marimuthu; Raven; Rosselló; So; Toh; Wang; Warnock-Smith; Zhang

Authorship per publication, or the share of authorship, is widely discussed in the literature as a measure of collaboration (Newman, 2001). If two scholars publish a co-authored article, they are “cooperative” as publishing a co-authored paper is a formal manifestation of scientific research cooperation. While joint authorship demonstrates collaboration and is associated with richer and more robust academic contributions, sole authorship is also important. Ye et al. (2013) indicate that authorship groups in the tourism research field are not large. In their study sample (n=4,615 papers), the most significant number of articles was solely authored (40.5%), followed by articles with two authors (37.7%) and three authors (17.19%). Racherla and Hu (2010) found 72% co-authored articles in the sample of 1,181 papers published in top three tourism journals (Annals of Tourism Research, Journal of Travel Research, and Tourism

Management). In China, the percentage of tourism papers with a single author has decreased rapidly in the recent decade (Zhang, 2015).

In the present study, 84 journal articles (25.5%) were solely authored, 137 journal articles had two authors (41.6%), 78 journal articles (23.7%) had three authors, and 26 journal articles (7.9%) four authors. These results can suggest that air transport and tourism requires interdisciplinary engagement, fostering teamwork collaborations.

To analyse the contribution of individual authors we allocated the author of a sole authorship paper a weight of 1, two authors (0.5 each), articles with three authors (0.33 each) and so on. All the shares were summed, with Figure 4 presenting researchers with the equivalent of at least two sole papers when accounting share authorship.

*Figure 4: The list of authors with the highest share of authorship - n=551*

<FIGURE 4 HERE>

The institutions that make more contributions to air transport and tourism are shown in Figure 5. Hong Kong Polytechnic University is the leading institution with 35 publications, followed by the University of Surrey (UK) and the University of Waterloo (Canada), both ranked second with 13 publications. The only other university with more than ten publications is Griffith University, in Australia, with 12 publications. Other leading universities with ten publications are Bournemouth University (UK), University of New South Wales (Australia), University of Girona (Spain) and NHTV Breda University of Applied Sciences (The Netherlands).

*Figure 5: Institutions with at least five air transport and tourism publications (2000-2014)*

<FIGURE 5 HERE>

The geographical distribution of institutions is presented in Figure 6. Not surprisingly, considering we have only selected journal articles published in English, the top three leading countries are English-speaking countries, respectively USA (n=115), UK (n=109) and Australia (n=73). Also, Canada (n=30) and New Zealand (n=26) are on the list of top 10 countries. Non-English-speaking countries in the top

10 include Taiwan, South Korea and Hong Kong with respectively 54, 40 and 37 publications, and Spain (n=50) and The Netherlands (n=17). China only had four publications despite its importance regarding tourism research (Shen et al., 2014).

*Figure 6: Countries of institutions whose authors have published on air transport and tourism (2000-2014) - n=239.*

<FIGURE 6 HERE>

### ***Content and thematic analysis***

In this section, 157 selected papers, which showed the strong interface between air transport and tourism, were analysed with Leximancer software to identify the main research themes in the abstract of each paper. A total of seven main themes were identified (Figure 7):

1. **Aviation market:** costs, carriers and charter services, regional routes;
2. **Airports:** capacity, carrier services, network, passengers' satisfaction;
3. **Sustainable development:** climate changes, emissions, tourism policies, aviation policies;
4. **Airlines:** networks, low-cost services, passengers;
5. **Alliances:** safety regulations, service quality, marketing;
6. **Management:** information models, research, crews;
7. **Tourism destinations:** air transport and tourism case studies.

*Figure 7. Thematic map of air transport and tourism research in period 2000-2014*

<FIGURE 7 HERE>

Both deductive and inductive approaches were used to identify themes. Even though these approaches used different techniques, some of the identified issues are similar ones, including airports; alliances; management and environment/sustainable development. Also, two new inductive themes emerged; i.e. airlines; tourism destinations. A comparison of both deductive and inductive approaches is presented in Table 1.

Table 1. Comparison of deductive and inductive approaches identified themes (n=157)

<TABLE 1 HERE>

As per Table 1, the ‘environment’ theme is the most prominent, accounting for just over 23% of the published journal articles. The large number of ‘environment’ publications is attributed to a focus on climate change and sustainable development questions among tourism researchers. ‘Passengers’ is the second most frequent, with 12.1% of overall publications. There was little or no interest in themes such as ‘finances’, ‘models’, ‘costs’ and ‘safety’. This may be compared with the aviation literature review conducted by Ginieis et al. (2012) where ‘management’ was the most frequent theme (29.7%), followed by ‘airports’ (21.6%) and ‘passengers’ (11.9%) while ‘environment’ was less frequently examined (5.4%). The ‘finances’ (3.5%), ‘safety’ (2.6%) and ‘models’ (1.6%) themes were not frequently studied.

From the 13 identified themes in Table 1, five themes were excluded from further analysis since their total number of articles was less than five; finances (n=0), models (n=2), costs (n=2) and safety (n=3). Theme ‘others’ was also excluded, since this topic covered a variety of areas and did not show any thematic consistency. A total of 138 selected papers were analysed by using a standardised framework (aim; methodology and type of research; primary findings and directions for further research).

The *environment* is the most frequent theme (23.5% of the overall number of identified articles). Not surprisingly the most prominent authors, Gössling and Peeters, had the largest number of publications within this theme (four and eight, respectively). The majority of articles (20 out of 37) within the “environment” theme discuss contributions to greenhouse gas emission and possible solutions and policies for its reduction. Other areas are related to the analysis of airline companies’ environmental reports (Burns & Cowlshaw, 2014; Chan & Mak, 2005; Lynes & Dredge, 2006), analysis of tourist’ behaviour and awareness of climate changes (Becken, 2007; Gössling, 2009; Gössling & Peeters, 2007; Kroesen, 2012; Peeters & Schouten, 2006; Peeters, Szimba, & Duijnsveld, 2007). A limited number of articles discuss new forms of tourism, which could reduce long-haul travel, such as “locavism” (bioregional tourism) (Dickinson, Lumsdon, & Robbins, 2010;

Hollenhorst, Houge-Mackenzie, & Ostergren, 2014). Finally, the emerging topic of stakeholder engagement within the process of achieving sustainable tourism development is analysed by Gössling, Hall, Ekström, Engeset, and Aall (2012).

The *environment* theme papers primarily used a quantitative approach (28 of 37 articles) to analyse and discuss the environment related issues. Secondary data was the primary source of data for 24 out of 37 journal articles. Only a small number of researchers used qualitative approaches such as interviews, observations and focus groups. The findings indicate (a) the importance of better government understanding of air transport and tourism's contribution to carbon emission and prevention programs; (b) offsetting programs and carbon taxes can increase awareness but might also decrease the number of passengers; (c) long-haul flights are the main source of carbon emissions; (d) tourist awareness about the problem is growing, and Scandinavian countries are considered as the most sensitive markets for sustainable tourism.

Articles in the *passengers* theme bring together topics related to travellers' experience and preferences and can be divided into four different subgroups. The largest subgroup explores LCC passenger experience and preferences (Ahn & Le, 2011; Casey, 2010; Davison & Ryley, 2010; Han, 2013; Han & Hwang, 2014; Han, Hyun, & Kim, 2014; Martinez-Garcia & Royo-Vela, 2010; Raya-Vilchez & Martínez-Garcia, 2011; Ryan & Birks, 2005). Even though the number of low-cost airlines increased in last decade, LCC passenger research is still an emerging topic. Papers compare full-service airline and LCC passengers characteristics (Ahn & Le, 2011), or the in-flight preferences and characteristics of LCC passengers (Casey, 2010; Han, 2013; Han & Hwang, 2014; Han et al., 2014; Martinez-Garcia & Royo-Vela, 2010). Surveys are the method for data collection used in all nine articles, although mixed method (survey and interview) was used in one article (Casey, 2010).

The second subgroup of articles studied physically challenged travellers, obese passengers and those travelling with babies (Chang & Chen, 2012; Small & Harris, 2012, 2014). These papers suggest the tourism and airline industries are facing growing ethical. Within this subgroup, secondary data such as online news and airline websites (Small & Harris, 2012, 2014) and in-depth interview with staff members were applied (Chang & Chen, 2012).

A third noticed subgroup focused on frequent flyers programs and the creation of passenger loyalty schemes (Hwang & Hyun, 2014; Llach, Marimon, Alonso-Almeida, & Bernardo, 2013; Long, Clark, Schiffman, & McMellon, 2003). All articles used the survey method for data collection, and their findings provided evidence of the importance of frequent flyers programs for business passengers and loyalty programs for passengers' retention. A fourth subgroup addressed issues such as service failure and its effects on stability and controllability (Nikbin, Marimuthu, Hyun, & Ismail, 2014), quality relationship management and its importance for airline managers (Cheng, Chen, & Chang, 2008). Both survey and in-depth interview were used as data collection methods.

Research on *airlines* can be divided into four subgroups. The most extensive subgroup tackled emerging topics of air traffic analysis (Graham, 2006; Koo, Tan, & Duval, 2013) and airlines efficiency and productivity (Assaf, 2009; Assaf & Josiassen, 2012; Gil-Moltó & Piga, 2008). The research has examined airline business from the entry and exit of airline into markets (Gil-Moltó & Piga, 2008), analysis of technical efficiency, productivity (Assaf, 2009; Assaf & Josiassen, 2012) and airline routes (Koo et al., 2013), and airline scenario planning (Heicks, 2010). Within this subgroup, the majority of authors used secondary data (n=4) while interviews were used as a method only in one article (Heicks, 2010).

The primary focus of the second subgroup of articles is the analysis of operations and implications of LCCs (Kua & Baum, 2004; Papatheodorou & Arvanitis, 2009; Pender & Baum, 2000), with a focus on LCCs in the Chinese market (Zhang & Lu, 2013). The importance of the LCC phenomenon and advantages of its business model is discussed in regard to long-haul routes (Francis, Dennis, Ison, & Humphreys, 2007) and regional airports (Papatheodorou & Lei, 2006). Most are discussion papers with a limited analysis making use of secondary data.

The third subgroup of articles stresses the importance of airline strategies and its implementation on economic crisis (Sadi & Henderson, 2000), the direct impact on the tourism industry (O'Connell & Warnock-Smith, 2012) and ways to reduce risk for airlines (Minato & Morimoto, 2011). Secondary data obtained from airlines and the government were widely used within this subgroup.

The topic of FFP and loyalty identified in the ‘passengers’ theme, is also addressed from the perspective of the airlines; for example, China Airlines (Liu, Wall, & Westlake, 2000; Yang & Liu, 2003). FFPs are identified as significant and effective marketing techniques with positive effects on both airline companies and their partners (Liu et al., 2000). Mixed method of qualitative and quantitative research is a characteristic of this subgroup.

*Tourism destinations* is a central topic in air transport-related research with a focus on issues facing international commercial air transport and their implications for global tourist flows (Duval, 2013). Within this theme, the majority of articles examine the airline industry’s impact on tourism destination development (Duval & Schiff, 2011; Graham & Dennis, 2010; Hazledine & Collins, 2011; Koo et al., 2013; Koo, Wu, & Dwyer, 2010; Liasidou, 2012; Macchiavelli & Vaghi, 2003; Papatheodorou, 2002; Rey, Myro, & Galera, 2011; Smith, 2009). Topics addressed include airline transport impacts on the decision-making process for tourism destinations, its role in tourism promotion, and effects on new tourism product creation. Of particular interest within this theme is LCCs’ positive impact on tourism destinations (Graham & Dennis, 2010; Lian & Denstadli, 2010; Rey et al., 2011; Smith, 2009; Whyte & Prideaux, 2008). In numerous case studies from countries like Norway, Australia, New Zealand, and China, researchers have verified LCCs’ positive influence and noted implications for the tourism industry. Besides LCCs, some authors (Duval & Schiff, 2011; Hazledine & Collins, 2011) focus their research on the value and effects of direct, non-stop flights as a factor in tourism development and economic growth. The impacts of airline strategies and stakeholders’ engagement are prominent topics with implications for destinations (Wachsman, 2006; Liasidou, 2012). Airline liberalisation has led to new strategic partnerships between airline companies and DMOs, as well as other tourism stakeholders (e.g. hotels, rent-a-car companies, travel agencies). Research methods used in this theme vary from analysis of secondary data such as flight timetables and DMO’s reports to qualitative in-depth interviews and quantitative surveys.

*Management* as a topic is related to articles from other themes. Two main subgroups are identified within this theme with analysis of human resources and employee effectiveness a large part of the first subgroup. Researchers have studied the

effectiveness of cabin crew and the influence of their behaviour on airline service quality (Chen & Chen, 2014; Kang, Jeon, Lee, & Lee, 2005; Limpanitgul, Robson, Gould-Williams, & Lertthairakul, 2013), as well as gender representation in the airline industry (Baum, 2012). Another sub-theme is the examination of the quality and structure of cabin crew training (Kim & Park, 2013; Rhoden, Ralston, & Ineson, 2008) and of ground service performances and issues (Lin, Wong, & Ho, 2013; Wattanacharoensil & Yoopetch, 2012), usually based on quantitative research. A second subgroup of articles explores the relationship among various air transport partners (Riege, Perry, & Go, 2002), as well as the implementation of CSR in transport and tourism, especially LCCs (Coles, Fenclova, & Dinan, 2011; Fenclova & Coles, 2011), with qualitative research methods (interviews) mostly used.

The *regulation* topic can be analysed into three subgroups: the first comprises of research conducted by Peter Forsyth and co-authors. In separate studies, Forsyth discusses various topics related to aviation policy and trade in air services (Forsyth, 2001), changes in aviation policy and tourism benefits (Forsyth, 2006), development of framework for evaluation liberalization proposal (Forsyth, 2014), and effects of Australia's Passenger Movement Charge on tourism industry (Forsyth, Dwyer, Spurr, & Pham, 2014). The second subgroup is led by the work of David Warnock-Smith and his co-authors. The main aims of this research group are to analyse the relationship between air traffic growth and air policy reforms (Warnock-Smith & Morrell, 2008), as well to explain the results of government ownership and airline service results in different regions (Warnock-Smith & O'Connell, 2011). Research on governments, airlines and DMOs cooperation conducted by Bieger and Wittmer (2006) is identified as part of this subgroup. The third subgroup is related to the analysis of airline deregulation and its impact on air transport and tourism market. The leading group of authors within this theme (Wu & Hayashi, 2013, 2014) have provided a detailed analysis of deregulation's impact on airline networks and tourism market in Japan. Case studies by Dobruszkes and Mondou (2013) also examined the liberalisation impact of airline market between EU and Morocco and changes in air services and leisure tourism, while Zhang and Findlay (2014) have summarised air transport policy and its impact on passenger traffic and tourist flows in Asia-Pacific. As previously mentioned, this theme is mainly based on secondary data provided by air transport industry, UNWTO, and previous literature. The majority of articles are

written in the form of a discussion paper, while some provide research frameworks for future studies.

*Alliances* as a research topic were common in the early 2000s when researchers were examining their importance, performances and effects (Evans, 2001; Morley, 2003a; Wang, Evans, & Turner, 2004; Weber, 2005). The main research findings showed that airline alliances have positive effects on airlines' performances (Evans, 2001), while passengers found alliances of lesser importance (Weber, 2005). Analysis of airline alliances scenarios was undertaken (Morley, 2003b), while more recent studies investigate corporate social responsibilities (Cowper-Smith & de Grosbois, 2010), network resources and partnership within alliances members (Casanueva, Gallego, Castro, & Sancho, 2014; Casanueva, Gallego, & Sancho, 2013). Most papers use secondary data, and only two papers use qualitative research, in particular, semi-structured interviews with both industry managers and passengers (Morley, 2003b; Weber, 2005).

*Airport* related articles are few in comparison with numbers in other themes. The main aim of this group of papers is to analyse airport business concepts (Jarach, 2001) and to discuss airport pricing policies (Debbage, 2002) and environmental costs (Martín-Cejas, 2010). The importance of LCCs for air transport for airports is an important theme, especially opportunities for airport income growth (Francis, Humphreys & Ison, 2004), along with issues for airport management to consider when negotiating with LCCs. Measurement of the effects of low-cost carriers (Lei & Papatheodorou, 2010) and case studies from Europe concerning successful LCC – airports cooperation (Bel, 2009) provided the clearest evidence of the importance of commercial and financial policies for airports, airlines and government. Forecasting studies, as an essential aspect of any business, indicate passenger numbers will continue to grow (Tsui, Ozer Balli, Gilbey, & Gow, 2014). The majority of articles in this theme also base their research on secondary data, with only one article using qualitative methods (Bel, 2009).

*Network* development is crucial for airlines, including the development of hubs and stopover destinations. Within this theme, researchers seek to identify what is the best path for network development (Amoroso, Migliore, Catalano, & Castelluccio, 2012; Chen & Lee, 2012; Ryan, 2001). Singapore and Dubai are two good industry

examples of aviation-based to tourism destination transformation (Lohmann et al., 2009) and is a model for further studies. LCCs expansion has led to numerous airline network changes, and new, more flexible forms of mobility, tourism practice and new types of business (Dobruszkes, 2009, 2013). Network analysis and hub identification are usually studied using mathematical models. For example, Costa, Lohmann, and Oliveira (2010) proposed a new mathematical method based on the Herfindahl–Hirschman Index to identify the number of hubs in a given network. Most papers in this theme use secondary data for their analysis, except for one article based on surveys (Costa et al., 2010).

### **Discussion And Conclusions**

This study has provided a literature review of journal articles published between 2000 and 2014 on the interrelated topics of air transport and tourism in the ABDC tourism and transport journals. The growing interest of academics in this topic is demonstrated by the increase in the number of publications (from 12 in 2001 to 37 in 2014). This trend suggests the existence of an emerging interdisciplinary research area at the intersection of air transport and tourism. Interestingly, Jafari and Ritchie (1981) identified transportation as a fundamental part of the tourism industry and tourism research in general, but without any distinguishing air transport. More recently, Duval (2013) has provided evidence of the importance of this interdisciplinary research area. A comparison of these two points of view, separated by 30-year, implies an increase in interdisciplinary research across air transport and tourism and the creation of a niche research field for air transport/tourism researchers. Evidence for the growing interest in air transport and tourism research is a separate “Aviation and tourism” session at the Air Transport Research Society (ATRS) held in July 2015 in Singapore (ATRS World Conference, 2015). Book publishers such as Routledge and SAGE are also publishing on this topic.

Tourism Management (54 articles) is the most frequent publication journal indicating that a majority of researchers in this area are affiliated with tourism. The analysis of authors’ affiliations showed that a majority of the 551 identified authors have positions either in tourism or business departments. The Journal of Air Transport Management is the second ranked with 30 publications over a 15-year period. The small number of publications in transport journals (only 17% of overall number)

suggests limited interest for this topic among transportation journals publishers. Tourism as an interdisciplinary field of study is highly oriented to transport, while transport researchers are more focused on other research areas, such as management, regulation, etc. (Ginieis et al., 2012). Also, as airlines and airports transition to a deregulated environment where more commercial and privatised market-lead approaches are the norm, it is expected that studies will have more emphasis on acquiring knowledge about passengers and their preferences. Such interdisciplinary research is increasingly relevant for the industry (Rafols, Leydesdorff, O'Hare, Nightingale, & Stirling, 2012) in order to address current issues (Lowe and Phillipson, 2006) and successful problem-solving (Page, 2008). However, such interdisciplinary research is often seen as a disadvantage during the academic reviewing process (Rafols et al., 2012) and various qualitative studies have shown that peer review tends to be biased against interdisciplinary research (Laudel and Origgi, 2006).

The growing number of interdisciplinary research papers area pose the question for publishers – is it a time for establishing a new journal of air transport and tourism? Air transport and tourism research themes are growing in response to industry issues. Research topics have changed through the years in a manner that seems to track developing topics in air transport/tourism. For example, after 2001 terrorism and airline safety were popular topics (Boger, Varghese, & Rittapirom, 2005; Kester, 2003; Kim & Gu, 2004), while passenger related studies are popular after 2010. Since the broad body of air transport/tourism research has practical implications, the scope of a potential journal should cover the interests of both academic and industry experts.

Two researchers, Stefan Gössling and Paul Peeters have published the largest number of articles and these articles examining 'environment' issues. Global climate change emerged as a topic of air transport and tourism research at the beginning of the 2000s. The number of sustainability-related publications suggests that looking at the air transport from the tourism perspective raises new research questions. The majority of researchers publishing in this area are mainly tourism researchers interested in topics like greenhouse gas emission, carbon offsets, and reduction of the environmental footprint of air transport and tourism.

This article has identified a thematic typology of prominent research topics and suggests possible gaps in air transport and tourism studies. Topics such as passenger

experiences, airport management and airline networks overlap in tourism and air transport research. However, this is a difference in emphasis with tourism researchers examining environmental issues, and the impact of aviation on tourism destinations. In turn, research on the air transport industry examines management issues, networks, new route development, and passenger experiences. Areas that are showing a growing interest in the interrelationship between aviation and tourism include air route/service development; passenger experiences; LCCs and their impact on tourism; implications of new direct long-haul flights; and carbon offsets and new generation aircraft.

Like other studies, this research has limitations that must be recognised; firstly, relevant academic journals outside the ABDC list were not taken into consideration. The 2013 ABDC list included 39 A\*, A, and B ranked tourism journals, and 35 transport related journals (ABDC Journal Quality List, 2013). To address this issue, a check was conducted using Google Scholar and Thomson Reuters Social Science Citation Index which did not lead to any other journal being identified. A second limitation is that only journals published in English were examined. In future, research reviews should include journals published in languages other than English, opening new collaboration opportunities for joint research with, for example, Chinese, Russian, Brazilian or Indian academics. Future researchers may also wish to review themes by describing in more detail the methodology, and types of data collected. An analysis of topics across the years may show the research trends and identify developing areas. Finally, analysis of the co-authorship networks and citation counts may also be useful for justification of air transport and tourism research area and its academic relevance.

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