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- Skycontrol (2007) *easyJet welcomes European Commission's decision to limit PSO abuse in Italy*. 23rd April. Available from: http://www.skycontrol.net/airlines/easyjet-welcomes-european-commissions-decision-to-limit-pso-abuse-in-italy/ (accessed on 22/08/2008).

Industry Perspectives are usually shorter than full research papers and should provide a practitioner's point of view on contemporary developments in the air transport industry. Contributors should explicitly specify whether their views are espoused by their organization or not.

Conference Reports should be between 1,000 and 1,500 words. They should provide factual information (e.g. conference venue, details of the conference organizers), present the various programme sessions and summarize the key research findings.

Book Reviews should be between 1,000 and 1,500 words. They should provide factual information (e.g. book publisher, number of pages and ISBN, price on the publisher's website) and critically discuss the contents of a book mainly in terms of its strengths and weaknesses.

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EDITORIAL

This issue of the *Journal of Air Transport Studies* comprises five full research papers.

The first paper by **Ayodele Adekunle Faiyetole** and **Temitope Bashirat Yusuf** explores the relationship between customer choice and service quality in the airline sector using Lagos Airport in Nigeria as a case study. It concludes that pre-flight, in-flight and post-flight services play a major role in attracting and/or retaining passengers and hence should be more carefully considered in the context of a liberalised business environment.

In the second paper, **Konstantinos N. Malagas, Nikitas Nikitakos, Ayse Kucuk Yilmaz, Alexandros Argyrokastritis** and **Ebru Yazgan** examine the sustainability potential of small airlines in South East Europe in the newly evolving geopolitical reality. The authors argue that to prove profitable such small carriers should develop partnerships with larger airlines acting as feeders for the latter.

Arindam Mallik authored the third paper which investigates stock exchange listing of five major Indian airports to finance the necessary airport expansion to accommodate the forecasted traffic growth. The paper uses an airport finance perspective extensively relying on financial leverage and profitability ratios to undertake a feasibility study.

The fourth paper by **Ema Tsvetanova** and **Neelu Seetaram** focuses on consumer attitude vis-à-vis the imposition of an air passenger duty in the United Kingdom. Consumers seem to have limited awareness of the imposed tax level and hence react in ways not leading to a more environmentally friendlier behaviour as originally expected.

In the fifth paper, **Athanasios Ballis, Despoina Tsouka, Tatiana Moschovou** and **George Kasselouris** discuss the implications of airport infrastructural developments for tourism growth in the South Aegean Sea islands of Greece. Runway length seems to play a major role in facilitating international flights in this context.

We wish to take the opportunity of this editorial to sincerely thank our authors and reviewers who, through their scholarly work, made possible the publication of the present issue of the Journal. With its open-access character, the Journal aims at the widest possible exposure of its content to the academic and business audience. This is facilitated by our continuing partnership with the University of the Aegean, Greece. We hope you enjoy reading this issue!

Professor Dr Andreas Papatheodorou, Editor-in-Chief
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PRE-FLIGHT CONSIDERATIONS, IN-FLIGHT SERVICES, AND POST-FLIGHT RECEPTIONS: FACTORS INFLUENCING PASSENGERS' INTERNATIONAL AIRLINE CHOICES

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ABSTRACT

The proliferation of airlines plying the international routes, triggered by the needed deregulation policies, has equally caused prospective air travelers to be constantly faced with critical pre-flight decisions, especially as they regard airline choice making for scheduled and on-demand flights. Considering the international bound passengers for scheduled flights at MMIA, this paper examines seventeen variables, wilfully or unconsciously thought-out by the passengers before choosing the airline to travel with. Factor analysis unveils that there are five components with Eigenvalue higher than the critical (1.000) and with an appreciable cumulative percent of variance (62.336 percent), indicative that there are five latent factors determining international passengers' airline choices from a developing country. The Varimax rotated component matrix placed eleven variables with factor loading (>0.70) on these five factors. The paper concludes that the service quality of the full spectra of the airlines' pre-flight, in-flight and post-flight services could be more carefully considered, maintained and regularly upgraded in order to attract and, or retain passengers.

KEYWORDS

Pre-flight considerations; in-flight services; post-flight receptions; ticketing price; airline safety; onboard comfort; cabin crew courtesy; the carefulness of luggage handling.

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1. INTRODUCTION

The 1978 Airline Deregulation Act in the United States of America sets the tone for the global liberalization of the aviation industry, freeing it from a politically controlled regulatory framework to one of economic liberalization (Smith and Cox, 2018; Ishutkina and Hansman, 2009). In fact, "the US Civil Aeronautics Board (CAB), which had previously controlled entry, exit, and the pricing of airline services, as well as intercarrier agreements, mergers, and consumer issues, was phased out completely under the CAB Sunset Act on 31 December 1984" (Smith and Cox, 2018), and ushered in full economic liberalization of this sub-sector (Ishutkina and Hansman, 2009). Deregulation policy in the Nigerian aviation industry came into full force in 1991 (NCAA, 2005), breaking the monopoly of the Nigerian Airways and opened up the industry for mass participation (Hassan and Dina, 2015), consequently leading to the extinction of this state's owned carrier. Thus, liberalization, which involves licensing of new airlines mostly privates, relaxing of price controls, and market access for potential investors both locals and internationals (Good *et al.,* 1993), brought an appreciable increase in the number of airlines plying the Nigerian international routes. In fact, what used to be a market monopoly for the Nigerian carrier; is now a competitive market for registered independent airlines (NCAA, 2005; Hassan and Dina, 2015).

This increase in airlines participation in the Nigerian aviation industry is also noticeable in airlines' surge plying the Nigerian international routes, which have consequent impacts on international passengers. In reality, some of the factors that led to deregulation of the airline industry in Nigeria directly impinge on the passengers, and they include airlines difficulties in meeting passengers' demands, incessant flight delays and unannounced cancellations. Despite the deregulation policy, some of these factors have not been properly addressed or have indeed exacerbated, and some new complications introduced. Of essence, the amplified number of airlines in the Nigerian international routes also means that the passengers' airlines choices have increased. Thus, it implies that for an airline to stay competitive in the international routes market, there could be a need for the airlines to attract new and, or retain an appreciable number of old passengers at every point in time. The objective of this paper, therefore, is to determine the latent factors, from pre-flight, in-flight to post-flight services that influence passengers' airline choices for international flights in a competitive deregulated aviation market.

2. REVIEW OF LITERATURE

2.1. Factors Determining Passengers' Airline Choices

Several studies have identified numerous factors that determine passengers' airline choices and showed that the selection process is not simple and straightforward. For instance, a passenger will not necessarily always select the airline with the cheapest flight price. This is evident from research including Ishii *et al*. (2009), who found that passengers consider several of the airline attributes before zeroing on a particular airline for their travel. These factors are not limited to ticketing price (Adiele and Etuk, 2017; Xia *et al*. 2004), airline safety (Buaphiban, 2015; Naser *et al*., 2013; Sai *et al*., 2011), flight availability and scheduling (Sokolovskyy, 2012), and in-flight entertainment and refreshment (Heinitz and Hirschberger, 2017; Naser *et al*., 2013). The factors could include cabin crew courtesy (Morrow, 2016; Delta Airline, 2016) and certainly, passengers may complement their decisions with additional factors that were not necessarily part of the survey before choosing the airline, such as the airline aesthetics (Hess, 2010; Wang, 2005; Vowles, 2000; Proussaloglou and Koppelman, 1995).

Studies including Manivasugen and Nova (2013) and Sai *et al*. (2011) have revealed that safety was the most important factor when choosing full-service carriers (FSC), while price, strategic alliance, and loyalty were also found to be significant. Naser *et al.* (2013) study on Iranian air travelers for domestic flights, reveals that flight safety, flight schedule, and flight management are of highest priorities, while onboard services and airline's image have lower priorities. Furthermore, flight comfort, proper cancellation, and delay announcements are influential factors, while in-flight entertainment, personal interest, and social activities of the airline company are less influential. Comparing the Norwegian and non-Norwegian students for both low-cost carriers (LCC) and FSC, Sokolovskyy (2012) reveals that service quality is the most important factor influencing students' airline choices. Furthermore, service quality in addition to the airline's reputation and social acceptability was found to play a significant role in Thailand (Buaphiban, 2015).

In the vein of airports rather than airlines choices, Kriel and Walters (2016) unveil that airline efficiency and facilities, accessibility to the airport, safety, cost, and security were the most important attributes considered when deciding to fly from Lanseria International Airport, Johannesburg, South Africa. Airport security status, which translates to safety level at the airport, has also been studied (Alards-Tomalin *et al.,* 2014).

Studies on the Nigerian domestic air market include Adiele and Etuk (2017), Ayantoyinbo (2015), and Ubogu (2013). Specifically, Adiele and Etuk (2017) show that operational

effectiveness and passenger socio-economic wellbeing (PSEWB) do not significantly influence domestic airline patronage, rather the need and purpose of travel was found to be the most important factor. While Ayantoyinbo (2015) shows that passengers consider price more than any other factors. Meanwhile on a study that focuses more on airport rather than airline, Ubogu (2013) using Mallam Aminu Kano International Airport Nigeria (MAKIA) as their study area shows that the location of the airport in the region, access time to airport, frequency of flights at the airport were the three most significant factors that air passengers consider in their choices.

The reviewed literature has shown that different states or cultures have slightly different factors influencing their airline choice making for international flights, and it has become imperative for airlines to gain a competitive advantage in the international airline market. Thus, this study sought to elicit information on the factors that make international airlines competitive, using international airlines passengers flying to, and out of Murtala Mohammed International Airport (MMIA) in Lagos, Nigeria, as the respondents.

2.2. Underpinning Theories

Consumer behavior theory implies that consumers are rational decision-makers who are concerned with self-interest, impinging on their demeanor when they are searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs or identifiable gains (Schiffman and Kanuk, 2007; Schiffman and Wisenblit, 2015). The consumer behavior theory shows that the customer plays three distinct roles of the payer, buyer, and user (Murali, 2015; Peter and Olson, 2010; Engel *et al.*, 1978). Lantos (2010) and Lee (1990) show that these decisions can be complex depending on the consumer's opinion about the particular product, which could lead to evaluating and comparing, selecting and purchasing, among the different types of alternatives. Therefore, understanding the core issues of the process of consumer decision making and utilizing the theories in practice is becoming a common viewpoint by many companies and people in which the airline industry cannot be left out. In fact, according to Richarme (2007), economists like Nicholas Bernoulli, John von Neumann, and Oscar Morgenstern started the basics of consumer-decision making hundreds of years back. Buaphiban (2015) posits that the consumer buying behavior and decision model is relevant for research on passengers' airline choices because the decision to purchase an airline ticket is passengers' decision, which may be understood as a high-involvement decision since it involves a potentially risky activity, can be expensive and may require some research and pre-planning processes. Kardes *et al.* (2010) and Peter and Olson (2010) opine that these high-involvement processes are integral to the decision-making unless

for frequent travelers who already have established airline preferences. Therefore, the consumer behavior model identifies the issues and factors involved in consumer decisions, including the external factors as well as internal cognitive processes of decision-making (Lantos, 2010). This makes it a highly relevant model for understanding the passengers' airline choice-making decisions for international flights.

The service quality (SERVQUAL) model, on the other hand, is the perception of the quality of service rendered by the provider. Parasuraman *et al.* (1988) show that SERVQUAL is a multi-dimensional research instrument designed to capture consumer expectation, perception or disconfirmation of a service. Parasuraman *et al.* (1988) define service quality as the overall excellence of service assessment. In the SERVQUAL model, the difference between the expected level of service and delivered level of service is perceptually measured along the five dimensions of reliability, responsiveness, assurances, empathy, and tangibility (Parasuraman *et al.,* 1998). Thus, the SERVQUAL is an analytical tool, which assists managers to identify the gaps among variables affecting the quality of the services rendered (Ntin-Seth and Deshmukh, 2005). This model is mostly used by marketing researchers, it is also used or adapted to a variety of service settings. Airlines passengers intuitively use the SERQUAL concept in arriving at their ultimate choices.

3. MATERIALS AND METHODS

Purposive-clustered sampling technique was adopted to source primary data by administering a structured questionnaire to passengers who have traveled on international flights more than once. Access was gained to the departure lounge of MMIA where passengers were already seated waiting to enplane, between 28 March 2018 and 21 April 2018, through approval by Federal Airport Authority of Nigeria (FAAN), a service organization statutorily charged to manage all commercial airports in Nigeria (Ogunbodede and Odetunde, 2016). So ensuring that only airlines' international passengers were the respondents. The sample fraction was determined from a sample population that involved finding the average international passengers movements at MMIA from 2010 to 2016, as shown in Table 1.

Table 1 - International Passenger Movement at MMIA (2010-2016)

Year	International Passengers Movements
2010	2,409,087
2011	2,616,190
2012	3,232,462
2013	3,877,840
2014	2,582,288
2015	3,024,078
2016	2,945,945
Total	20,687,890
Periodicity	**Estimates**
Yearly estimate	3,447,982
Monthly estimate	287,331
Weekly estimate	71,833
Daily estimate	10,262

Source: Adapted from NBS (2018).

Using Taro Yamane's calculation on the sample population for a daily estimate (10,262) with error margin (0.05), the sample fraction is approximately (385) international passengers. Table 2 shows that (58 percent) of the questionnaire were duly completed and returned. According to Fincham (2008), response rates approximating (60 percent) for most research could be a goal for researchers. In fact, Nulty (2008) found an average of a collection of paper-based response rate to be (56 percent) while that of online response rate is (33 percent), which include works such as (Nair *et al.,* 2005; Ogier, 2005; Ballantyre, 2005; Dommeyer *et al*, 2004; Watt *et al.,* 2002 and Cook *et al.,* 2000). Implying that a (58 percent) response rate achieved for this study (see Table 2) is substantially adequate, especially for a highly mobile, time-conscious international airline passengers.

Table 2 - Response rate of questionnaire distribution

Questionnaire	Frequency	Percent	Cumulative Percent
Response	223	58	58
No response	162	42	100
Total	385	100	

The factor analytical technique was applied to the data gleaned from the questionnaire.

4. RESULTS

4.1. Descriptive statistics

The descriptive statistics (see Table 3) reveal that the most important factor determining airlines passengers' choices for an international flight in Nigeria was ticketing price (99.6 percent), followed by airline safety (91.9 percent), flight availability and scheduling (87.4 percent), and ease of online booking (86.5 percent). The statistics further show that passengers' recommendations (76.2 percent) rank very high as a less important factor.

Table 3 - Descriptive statistics

Some identified factors determining international flights' choices	Most important (frequency)	Most important (percent)	Less important (frequency)	Less important (percent)
Ticketing price	222	99.6	1	0.4
Airline safety	205	91.9	18	8.1
Flights availability and scheduling	195	87.4	28	12.6
Ease of online booking	193	86.5	30	13.5
Flights' on-time arrival and departure	184	82.5	39	17.5
Onboard comfort	176	78.9	47	21.1
The carefulness of baggage handling disembarking	162	72.6	60	29.9
Cabin crew courtesy	152	68.2	71	31.8
Ease of check in	149	66.8	73	32.7
Airlines' related-services	147	65.9	75	33.6
Timeliness of receiving checked in luggage	114	51.1	109	48.9
Compensation in case there was a lost luggage	108	48.4	115	51.6
Aircraft's interior aesthetics	108	48.4	115	51.6
History, reputation, the image of the airline	102	45.0	121	54.3
In-flight entertainment	79	35.4	144	64.6
Frequent flier programs	54	24.2	169	75.8
Passengers' recommendation	53	23.8	170	76.2

4.2. Kaiser-Meyer-Olkin's Measure of Sampling Adequacy Test and Bartlett's Test of Sphericity

Furthermore, factor analysis was conducted on the seventeen variables using the Principle Component Analysis (PCA) method that utilizes Varimax Rotation with Kaiser Normalization. Specifically, the tests of statistics include the Kaiser-Meyer-Olkin's measure of sampling adequacy (KMO-MSA) and Bartlett's test of sphericity (BTS) for inter-correlation. The results shown in *Table 4* indicate that the inter-correlation matrix would allow for factor analysis.

Table 4 - KMO-MSA and BTS results

Test of Statistics	Results
Kaiser-Meyer-Olkin's Measure of Sampling Adequacy	0.789
Bartlett's Test of Sphericity (Approx. Chi-Square)	1239.367
Df	136
P	0.000

For a data set to be appropriate for factor analysis, the KMO-MSA value should be ≥0.6 and Bartlett's test of sphericity value must be significant (i.e. the significant value should be ≤0.05). In this study, the value of Kaiser-Meyer-Olkin's for the factor determining passengers' airline choices for international flight is >0.6 at (0.789) thus verifying that the identified factors were

not inter-correlated and that they are grouped properly for factor analysis. The BTS was significant with (p = 0.000) hence we reject the null hypothesis of Bartlett's test of sphericity that the data came from a population of unequal variances and conclude that the data are from a population of equal variance, satisfying the homogeneity of variance assumption of factor analysis. Strongly indicating that the level of factorability of the data is very high.

4.3. Factors Communalities

Communality is the proportion of variance accounted for by the principal factors analyzed; it ranges from 0 to 1. A value of zero (0) indicates that principal factors analyzed do not explain any variance while an extraction value of one (1) indicates that the principal factors analyzed explain all the variance (Adeola, 2016). Thus, communality is considered "high" if it is ≥0.80 but this is unlikely to occur in real data (Velicer and Fava, 1998). More common magnitudes in the social sciences are low to moderate communalities of 0.40 to 0.70. *Table 5* shows the values of communalities of the PCA.

Table 5 - Items Communalities

Factor	Initial	Extraction
Ticketing price	1	0.891
Airline safety	1	0.762
Flight availability and scheduling	1	0.726
Baggage handling onboarding and disembarking	1	0.720
Cabin crew courtesy	1	0.684
Onboard comfort	1	0.684
Flight's on-time arrival and departure	1	0.678
In-flight entertainment	1	0.636
Passengers' recommendation	1	0.633
Ease of online booking	1	0.623
Timeliness of receiving checked in luggage	1	0.592
History, reputation, and the image of the airline	1	0.588
Frequent flier programs	1	0.577
Compensation in case there was a lost luggage	1	0.569
Ease of check-in	1	0.557
Airlines' related-services	1	0.554
Aircraft's interior aesthetics	1	0.504

Ticketing price has the highest extraction value (0.891) followed by airline safety (0.762) and flight availability and scheduling (0.726). According to Adebola (2016), the total variance explained is the number of factors extracted, their Eigenvalues, and the cumulative percentage of variance. It is revealed in *Table 6* that for rotation sums of squared, component 1 accounted

for (16.63 percent) of the total variance by all the factors. Component 2 (15.23 percent), component 3 (13.18percent), component 4 (11.10 percent), and component 5 (6.20 percent). Of which the cumulative sum in percent of variance for both the rotation sums of squared loadings and extraction sums of squared loadings for the five factors - cut-off at 0.7 - is the same at (62.336 percent).

Table 6 - Total Variance Explained

	Initial Eigenvalues			Extraction Sums Of Squared Loadings			Rotation Sums Of Squared Loadings		
Component	Eigenvalue	Percent of Variance	Cumulative Percent	Eigenvalue	Percent of Variance	Cumulative Percent	Eigenvalue	Percent of Variance	Cumulative Percent
1	4.760	27.999	27.999	4.760	27.999	27.999	2.827	16.629	16.629
2	2.042	12.013	40.013	2.042	12.013	40.013	2.589	15.229	31.858
3	1.581	9.299	49.312	1.581	9.299	49.312	2.241	13.182	45.040
4	1.199	7.055	56.366	1.199	7.055	56.366	1.887	11.099	56.139
5	1.015	5.970	62.336	1.015	5.970	62.336	1.054	6.198	62.336
6	0.936	5.509	67.845						
7	0.889	5.230	73.075						
8	0.796	4.682	77.757						
9	0.639	3.757	81.514						
10	0.569	3.349	84.863						
11	0.513	3.015	87.879						
12	0.465	2.736	90.615						
13	0.433	2.546	93.161						
14	0.341	2.008	95.169						
15	0.317	1.867	97.035						
16	0.272	1.602	98.637						
17	0.232	1.363	100.000						

4.4. Rotated Component Matrix Method and Decision Variables

The rotated component matrix method loads factor different from each other on each of the component. Table 7 shows the factor loading for each variable. The Varimax rotation is implied when the targeted solution is orthogonal, which is assumed when factors are not highly correlated with each other. Varimax attempts to achieve ones (1s) and zeros (0s) in the columns of the component matrix. However, as a rule of thumb, the variable should have a rotated factor loading of at least 0.40 (meaning≥+0.40 or ≤-0.40) onto one of the factors in order to be considered. Although, we have adopted a stringent criterion i.e. a cut-off value of 0.70, in some instances, this may not be realistic. For example, the highest factor loading a researcher found in the analysis is 0.5 (Rahn, 2016).

The Varimax rotation procedure was used to produce an orthogonal transformation matrix yielding independent and unique factors. For this study, only the factors with Eigenvalues ≥1 were considered significant as shown in Table 6. The Eigenvalue of a factor represents the amount of the total variance explained by that factor. An examination of the resulting factors leads to five significant factors and eleven variables. These significant factors are hereby given the following nomenclatures: primary pre-flight considerations, essential in-flight services,

post-flight receptions and airlines' related-services, timeliness of receiving checked-in luggage, and ease of online booking. Primary prefight considerations account for the highest of all the factors that were reduced using PCA. The five latent factors are shown in *Table 8*, revealing that international passengers' airline choices in Nigeria are mostly based on such factors.

Table 7 - Rotated Component Matrix

Factors	Components				
	1	2	3	4	5
Ticketing price	0.940				
Frequent flier programs	0.431	0.171		0.186	
Airline safety	0.804		0.288		
Airlines' related-services	0.311	0.284	0.727	0.412	0.305
History, image and reputation of airline	0.511	0.198	0.439	0.301	
Flights availability and scheduling	0.783	0.111			
On-time arrival and departure		0.376		0.269	
In-flight entertainment	0.114	0.728			
Onboard comfort		0.770	0.109	0.489	
Interior aesthetics	0.155	0.646	0.114	-0.318	0.338
Ease of check-In	0.182	0.158	0.436		
Baggage handling care during disembarkation	0.148		0.732		
Compensation in case there was a lost luggage	0.435	0.157	0.716	0.286	
Cabin crew courtesy	0.117	0.737		0.351	
Passengers' recommendation	0.287		0.165	0.465	
Timeliness of receiving checked-in luggage				0.720	
Ease of online booking					0.740
Eigen value	4.760	2.042	1.581	1.199	1.015
Total variance explained	16.629	15.229	13.182	11.099	6.198

Table 8 - Decisions Variables

Latent Factors	Variables (Factor loading >0.70; Eigenvalue >1.00)
Primary pre-flight considerations	i. Ticketing price (0.940) ii. Airline safety (0.804) iii. Flight availability and scheduling (0.783)
Essential in-flight services	i. Onboard comfort (0.770) ii. Cabin crew courtesy (0.737) iii. In-flight entertainment (0.728)
Post-flight receptions and airlines' related-services	i. The carefulness of luggage handling disembarking (0.732) ii. Airlines' related-services (0.727) iii. Compensation in case there was lost luggage (0.716)
Timeliness of receiving checked-in luggage	i. Timeliness of receiving checked-in luggage (0.720)
Ease of online booking	i. Ease of online booking (0.740)

The most significant factor, the primary pre-flight considerations (extraction >0.7), consists of ticketing price (0.940), airline safety (0.804), and flight availability and scheduling (0.783). These three variables are explained by (16.629 percent) of the total variance in the data with (Eigenvalue = 4.760). The second factor labeled as essential in-flight services consists of three variables as well, namely onboard comfort (0.770), cabin crew courtesy (0.737) and in-flight entertainment (0.728). This second factor is explained by (15.229 percent) of the total variance in the data with (Eigenvalue = 2.042). Post-flight receptions and airlines' related-services are shown as the third factor, and the consisting variables are also three specifically, compensation

in case there was lost luggage (0.732), airlines' related-services (0.727) and carefulness of baggage handling disembarking (0.716); explained by (13.182 percent) of the total variance with (Eigenvalue = 1.581). The fourth factor consists of one variable, the timeliness of receiving checked-in luggage, captures (11.099 percent) of the total variance with (Eigenvalue = 1.199). The fifth significant factor is the ease of online booking explained by (6.198 percent) of the total variance with (Eigenvalue = 1.015).

5. DISCUSSION

Our results reveal there are five salient factors determining passengers' airline choices for international flights, which run through the full spectra of pre-flight, in-flight and post-flight attributes. Specifically, they are primary pre-flight considerations, in-flight services, and post-flight receptions and airlines' related-services. Others include timeliness of receiving checked-in luggage, and ease of online booking completes this array of latent factors.

5.1. Primary pre-flight considerations

Primary pre-flight considerations are inherently the most important factors that determine passengers' choices for international flights in Nigeria considering the fact it has the highest Eigenvalue (4.760) and also the highest total variance (16.629 percent). The three specific variables under this factor respectively have the highest loading factors of all the eleven latent variables: ticketing price (0.940), airline safety (0.804), and flight availability and scheduling (0.783). In fact, the result shown in Table 9, of a 4-scale Likert type (Faiyetole, 2018) data conducted to unveil the extent to which these variables influence passengers' international airlines choices substantiates the above findings when it reveals that ticketing price (3.73) has the highest influence followed by airline safety (2.93), and subsequently flight availability and scheduling (2.83).

Table 9 - Effects of Ticketing Price, Airline Safety, Flight Availability, and Scheduling

Factors	Weighted Mean	Std. Deviation	Ranking
Ticketing price	3.73	0.555	1
Airline Safety	2.93	0.867	2
Flight availability and scheduling	2.83	0.327	3

5.1.1. Ticketing price

In the industry, air ticket is a piece of paper that contains the amount of money charged by the airline operator for a particular air journey (Kotler *et al.*, 2013; Xia *et al.*, 2004; Kotler and Armstrong, 1995). One of the major determinants for airlines' choices is the price paid to purchase an airline ticket. Airline passengers now seek better value for their money, which is

a combination of fares and quality (Adiele and Etuk, 2017). This study shows that ticketing price is the most important factor that the airline passengers consider before deciding on the airline to travel with from Nigeria. The importance attached to airfares could be attributable to the low per capita income of the country. For instance, it was $2,412.41 compared to an advanced countries such as the United States of America and Switzerland where their per capita income levels are respectively $54,225.54 and $57,410.17 (Trading-Economics, 2018; Knoema, 2017). Thus, most passengers in Nigeria will consider the ticketing price more deeply than American or Swiss passengers and would most likely prioritize low fare airlines. Furthermore, the foreign exchange rate in Nigeria has impacted on the aviation industry, which is Dollar dominated. Consequently, a multiplier effect is observed on the price of an airline ticket. The problem became more severe when the Central Bank of Nigeria (CBN) introduced the flexible exchange system which hiked the Dollar to Naira exchanges at the interbank rate, has a serious implication on air transportation. Not long after the currency flotation took effect with the Dollar pegged at the interbank market, the price of flight tickets especially on the popular routes increased (Daily Trust, 2018). At present, one $1 exchanges for ₦305.9 at the official exchange market while at parallel market, it could be as high as ₦370 to a USD. This has caused a return ticket to Dubai which used to be about ₦145,000 or less to now cost ₦274,000, also for most European airlines like British Airways and Lufthansa, traveling to London now costs around ₦700,000. Airline passengers, therefore, consider ticketing price, which is even more critical in developing economies such as Nigeria. This finding is consistent with previous works carried out by (Milioti *et al.,* 2015; Buaphiban, 2015; Ayantoyinbo, 2015; Sokolovskyy, 2012; Heyns and Carstens, 2011; Sai *et al.,* 2011; Loo, 2008).

5.1.2. Airline safety

Airline safety could mean the passengers' impression of the airline's capacity to identify and eliminate risks within normal aviation operations. An airline's safety record deals mostly with a score of recent accidents. Passengers usually base their decisions on the publicly available information rather than detailed knowledge of the airline's actual safety record or procedures (Buaphiban, 2015). With a factor loading (0.804), it is revealed that safety is an important factor in the airline's choice making process. It is a crucial factor considered by all travelers (London, 2000; Proussaloglou and Koppelman, 1995). Air accidents are tragic and tear-jerking experiences that are expected to create fear in the heart of passengers, thereby making safety of great importance to them. This result equally corroborates earlier studies (Kriel and Walters, 2016; Manivasugen and Nova, 2013; Naser *et al.,* 2013; Campbell and Vigar-Ellis, 2012; Heyns *et al.,* 2011; Sai *et al.,* 2011).

5.1.3. Flight availability and scheduling

Prospective airline passengers, unlike the high-end on-demand travelers, can only choose from a list of available flights and at a very appropriate schedule. Thus, flights availability and scheduling form a critical factor in determining passenger's choices. It encompasses good published timetable that contains appropriate flight times, number of flights per week, timely flights, prior notice in case of flight delay, direct, non-stop flights between departure place and destination (Naser *et al.,* 2013; Sokolovskyy, 2012). Flight availability and scheduling are very critical considering that to use an airline it must be plying the route or market, and if their schedules are not predictable, passengers may as well make an alternative choice for their crucial travels. Our finding, again, corroborates earlier studies (Adiele and Etuk, 2017; Ayantoyinbo, 2015; Naser *et al.,* 2013; Sokolovskyy, 2012; Campbell and Vigar-Ellis, 2012; Loo, 2008; Ali, 2007).

5.2. Essential in-flight services

Three in-flight services, as shown in Table 8, are found to be very critical for passengers flying from developing economies such as Nigeria.

5.2.1. Onboard comfort

Frequent fliers could consider the space surrounding the passenger on an aircraft such as the distance between the seats (legroom), the angle of backrest, the presence of USB-port and socket for charging mobile devices, adequate lighting, highly effective air conditioning and much more, just because most of the international flights are long hauls and much comfort is needed. Almost all the airlines' passengers would prefer more legroom, better services, and a more pleasant boarding experience and free high Wi-Fi on every flight. This result supports studies such as Sokolovskyy (2012) and Adiele and Etuk (2017).

5.2.2. Cabin crew courtesy

Courtesy and politeness in attitude and behavior including respect, good manners, gentility, kindness, diplomacy, and thoughtfulness toward the airline passengers have become an important badge of the cabin crew that can attract passengers to choosing their airline. Treating the passengers as kings and queens has become very crucial. The ability of the flight crew to handle unexpected situations, address issues around seat comfortability, crews' delivery speed, crews' appearance, courteous serving of good food and drinks are what passengers look forward to getting when they are onboard airlines (Heinitz and Hirschberger, 2017; Milioti *et al*., 2015; Ayantoyinbo, 2015). This is even very important considering that most of the cabin crews for international flights are foreigners with some distinct cultural

variance from the majority of the airline's passengers. Recently, British Airways cabin crew was caught up in a racist debacle involving Nigerian passengers (Punch, 2017). Furthermore, it is on record that onboard Delta Airline in the US, cabin crew got into a mid-air fight with a passenger (Morrow, 2016; Delta Airline, 2016). It is, therefore, not surprising that the respondents consider cabin crew courtesy as one of the latent factors that determine passengers' airline choices.

5.2.3. In-flight entertainment

Entertainment and refreshment available to passengers onboard an airline are considered an important factor in airline choice making. It could include catering services (Heinitz and Hirschberger, 2017), usually delivered in the form of food and drink. Video and audio entertainment which are usually provided via a large video screen at the front of the cabin section, personal televisions (PTVs) for every passenger with channels broadcasting news and films. Sports programming, documentaries, children shows, and personal audio player. Wi-Fi and data communication are becoming important services obtainable onboard flights.

5.3. Post-flight receptions and airlines' related-services

Post-flight receptions and other services provided by airlines could also largely change a predetermined preference for an airline. These are events that take place after the aircraft has landed. Three latent variables also feature here.

5.3.1. The carefulness of luggage handling onboarding to disembarking

The carefulness of handling passengers' baggage onboarding to disembarking - from ticket counters to areas where the bags can be loaded onto airplanes, and especially during disembarking from aircraft (from airplanes to receptions when the passengers take back the ownership of their luggage). Airlines that are known to be clumsy with luggage handling may force potential passengers to consider alternatives.

5.3.2. Airlines' related-services

Airlines' related-services could be those services that are offered at the airport but tangential to improving the services delivered to the airline passengers. The services may be entirely the airport's, but the airline may have decided to show availability for providing such as auxiliary or extra help to the passengers in order for them to enjoy a full experience for the flights on their carriers. Implying the need for seamless collaboration between the airlines and the airport's authority.

5.3.3. Compensation in case there was a lost luggage

Programs or plans that an airline has to resolve and ensure appropriate compensations are paid to passengers (who had their checked-in luggage missing or damaged) could influence choice making. Usually, appropriate compensation for lost luggage could depend on several factors such as the route of the flight and content of the luggage. However, the liability limit for lost luggage is governed by airline regulations, as well as international treaties; therefore, it varies from case to case. After an airline has confirmed that a certain luggage piece is lost, it could go into negotiation with the passenger owner. The passenger is required to produce a list of items that are kept in the luggage as well as the price of each item. After the documents are submitted to the airline, they would calculate the depreciated values of the items, and compensate the owner accordingly. Though airlines also have an extensive list of items that they do not reimburse for, and these include valuable items such as jewelry, antiques, cash, and others. Nonetheless, baggage handlers make mistakes and some bags do not reach their owners at the end of the flight. Prospective passengers, therefore, look out for airlines that will compensate them in case there are such unexpected occurrences, which makes compensation in case there is lost luggage to be one of the important factors that determine international passengers' airline choices.

5.4. Timeliness of receiving checked-in luggage

It is very clear from post-flight receptions and airlines' related-services that luggage is a critical aspect of international flights, from luggage handling to receiving compensation for lost luggage, luggage is key. The fourth salient factor also deals with luggage, this time timeliness in receiving checked-in luggage. This reflects on the time-critical nature of international flights. Receiving back your luggage on time is even more crucial when hopping on different airlines before reaching your final destination, especially when no agreement between the passenger and the preceding airline is reached to bring their luggage to their final destinations.

5.5. Ease of online booking

Most pre-flight and post-flight services of airlines are coming online, so making online accessibility user-friendly is critical. This can be said to be the accessibility without or less technical faults when finding and securing to pay for flights over the internet or tracking your luggage and this type of method has replaced the traditional phone booking or tracking and it is considered by passengers in their decision-making process (Campbell and Vigar-Ellis, 2012). Thus, it is one of the factors that also determine passengers' airline choices for an international flight as revealed by our results.

5.6. Respondents' Demographic Distributions

It must be revealed as shown in Table 10 that the results of the factor analysis presented are populated by respondents who are predominantly Nigerian international travelers (90.1 percent), and only (9.9 percent) other nationals. Thus, the monthly income reflects the low Nigerian GDP per capita status, shown in USD equivalence at $1 to ₦360. And that the international travelers for this study show people who work in private companies, owners of their own businesses and public civil servants dominating. The data further reveals that most of the respondents are working class with (40.8 percent) between the ages of 21 and 30 years, and (39.5 percent) representing the age group of 31-40. It also shows that female respondents are (56.1 percent), which is slightly higher than the male respondents.

The results as shown in Table 10 further reveal that business (43 percent), educational (31.8 percent) and leisure (22 percent) top the respondents' trip purposes. Such that (93 percent) of the respondents whose occupation was business, traveled for business purposes, and (74.5 percent) of the ones who traveled for educational purposes that could include conferences and official assignments, work as public civil servants as shown in Table 11. It also unveils that retirees make trips more for leisure. With respect to monthly income and trip purpose, the results in Table 11 reveal that the respondents with the lowest rank of income do travel more for leisure, suggesting a paradox of poverty (Sameti *et al.,* 2012; Wachtel, 1972) that could possibly be explained by poverty caused by structural factors.

Table 10 - Respondents' Demographics Distribution

Demographic Distribution	Percent Frequency
Trip Purpose	
Business	43
Educational	31.8
Leisure	22
Political	0.5
Sports	0.9
Medical	1.3
Religion	0.5
Nationality	
Nigerian	90.1
Others	9.1
Monthly Income (₦360 ~ $1)	
>$1,666	1
$833.3-$1,666	12.5
$277.7-$833	70
<$277.7	16.5
The frequency of Flying in the Past Three Years	
1-10 times	61.9
11-20 times	30.5
21-30 times	6.7
30> times	0.9
Occupation	
Business Person	24.7
Public Servant	17.5
Private Company	36.3
Retiree	1.8
Self Employed	8.5
Unemployed	11.2
Highest Educational Qualification	
PhD	17
Master's	24
Bachelor's or Equivalence	43.5
National Diploma	11
Secondary School Certificate	4.5
Marital Status	
Single	25.1
Married	61
Divorced	9.9
Widowed	4
Age	
>50	40
41-50	13.5
31-40	39.5
21-30	40.8
<20	2.2
Gender	
Male	43.9
Female	56.1

In fact, Davis and Moore's functionalist theory, labor and market theories and the social exclusion perspective purposes (Sameti et *al.,* 2012; Davis and Moores, 1945) could provide insights into why poorly paid would embark on international flights just for leisure. Plausibly, those could be educated, well exposed and earlier high-income earners who were forced to the low-income rank due to structural factors. The higher ranked income earners expectedly travel more for business, educational and leisure in that order. The result also reveals that the highest ranked income earners, captured as respondents in this study, travel more for leisure.

Table 11 - Distribution of Trip Purpose by Occupation and Monthly Income

Trip Purpose	Occupation						Monthly Income			
	Unemployed	Self Employed	Retiree	Private	Public	Business	<$277	$277.7-$833	$833.3-$1,666	>$1,666
Business	24	21	25	39.5	5	93	21.5	47	53.5	0
Educational	20	21	0	37	74.5	5	21.5	35	28.5	0
Leisure	52	58	50	20	15.5	2	57	15	11	100
Political	0	0	25	0	0	0	0	0.5	0	0
Sports	0	0	0	2.5	0	0	0	1.5	0	0
Medical	0	0	0	1	0	0	0	0.5	7	0
Religion	4	0	0	0	5	0	0	0.5	0	0
Total	100	100	100	100	100	100	100	100	100	100

Furthermore, the results of the distribution of frequency of flying, in the past three years, across income level reveal that majority (54 percent) of the passengers that travel less frequently between 1-10 times are of the lowest income rank (<$277) monthly. Also, the majority (70.5 percent) of the same flying frequency (1-10 times) are of the second and higher income grade ($277.7-$833). Revealing further that majority (60.7 percent) of the higher income earners ($833.3-$1,666) travel more often, between 11-20 times. The majority (50 percent) of the highest monthly earners (>$1,666) travel more frequently (21-30 times). Implying, that the higher traveler's income level, the higher their rate of flying.

Table 12 - Distribution of Trip Purpose by Marital Status and Highest Educational Level

Trip Purpose	Marital Status	(%)			Educational Levels	(%)			
	Single	Married	Divorced	Widowed	School cert	Diploma	Bachelor's	Master's	PhD
Business	43	44	42.1	37.5	0	79	50.5	37	10
Education	30	34	15.8	12.5	60	0	18.5	42.5	76.5
Leisure	25	17.24	42.1	37.5	40	16.5	27	16.5	13.5
Political	0	0	0	12.5	0	0	1	0	0
Sports	2	0.76	0	0	0	0	1	2	0
Medical	0	2.14	0	0	0	4.5	1	2	0
Religion	0	1.86	0	0	0	0	1	0	0
Total	100	100	100	100	100	100	100	100	100

Considering Table 10, the marital demographics show that the married (61 percent) and single (25.1 percent) are the highest respondents for the study. Their trip purposes as captured in Table 12, reflect a preference for business, education, and leisure, in that order. However, this order is significantly different for the divorced and widowed international travelers, whose educational trip purpose lags behind preferences for leisure and business trips. Furthermore, the highest educational levels achieved by these respondents (see Table 10) reveal that respondents with the bachelor's degree or equivalence such as higher national diploma (HND) is (43.5 percent) and followed by master's degree holders (24 percent). Table 12 shows (50.5 percent), the bulk of the bachelor's degree holder travel for business purposes, followed by leisure, while only (18.5 percent) travel for educational reasons. The trip purposes are in different orders for master's degree holders who would rather travel more for educational purposes (42.5 percent), from the pursuit of higher degrees to attending international conferences. Largely, the holders of doctorate degrees follow suit with educational trips (76.5 percent), which is explained by the fact that they mostly work as academics or research professionals. Who may not necessarily pursue other degrees but must always update themselves through conferences, which also serves as avenues to present their research outcomes.

6. CONCLUSIONS

The current study makes a unique contribution to the literature in that it considered a wholesome seventeen variables, essentially that some of the variables considered could be likened to proximate variables, which may *inter alia* be underestimated by airlines' management, and it is a perspective from a developing country. The results indicate that five latent factors mostly influence passengers' choice making before their next international flights. These factors run through the bouquet of pre-flight, in-flight and post-flight variables, and they include a total of eleven variables. The latent factors include the primary pre-flight considerations, which seem the most inherent factor that international passengers consider, and expectedly the airfare cost variable leads, followed by airline safety, and flights availability and scheduling. The essential in-flight services factor's variables are onboard comfort, cabin crew courtesy, and in-flight entertainment, while the post-flight receptions and airlines' related-services factor variables are the carefulness in baggage handling disembarking, airlines' related-services and compensation in case of luggage loss. Others are timeliness of receiving checked-in luggage and ease of online booking. Thus, the study concludes that understanding the latent factors that determine international passengers' airline choices is crucial for competitive positioning by airline companies within the aviation market. This is so considering that the deregulation policies have propelled the proliferation of airlines and continuous new entrants into any burgeoning international routes' market. Such that for

airlines operating in any international route to have a successful business and to maintain their competitiveness in relation to other airlines, airline managers, therefore, could have to understand and develop on their competitive advantage over other airlines especially as they regard what factors drive passengers' airline choices for international flights from and into any country. This study empirically concludes that the full spectra of pre-flight, in-flight and post-flight service quality by airlines are to be carefully considered, maintained and possibly regularly upgraded, in order to stay competitive in any very competitive international route market. Thus, the choice dynamics for any particular passengers could be effectively changed working on the latent factors that influence their international airline choices. Specifically, airline operators in service on international routes to developing countries like the Nigerian aviation market where the bulk of the study respondents originates from could target the working-class passengers in the private/business and public sectors. The educated and the retiree demographics also show huge promise.

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POTENTIALS OF SMALL AIRLINES IN SOUTH-EASTERN EUROPEAN COUNTRIES UNDER THE NEW ECONOMIC CIRCUMSTANCES

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ABSTRACT

South-Eastern Europe holds a key geopolitical position and has a promising economy and aviation market. Small airlines operating in the region can succeed by taking advantage of the region's characteristics and selecting appropriate strategies. This study's objective is to examine the potentials of the region's small airlines, focusing on their key strategic choices regarding destinations to serve, aircraft types to use, airports to operate from, and whether to operate independently or partner with larger carriers. In-depth interviews were conducted with key aviation experts from across the region, and secondary data were used to provide further insight. The study's main findings show that small airlines may benefit from initially partnering with larger carriers, feeding their networks from secondary airports via regional jets and turboprops. This study adds to the relevant literature and may help managers from the region's smaller and bigger airlines and airports identify new opportunities and develop sustainable strategies.

KEYWORDS

Airline strategy, aviation management, small airlines, South-Eastern European (SEE) aviation, Western Balkan aviation, secondary airports.

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1. INTRODUCTION

Aviation is important for the world economy, generating $704.4 billion in Gross Domestic Product (GDP) each year, expected to increase to $1.5 trillion by 2036 (ATAG, n.d.). It is and will continue to be one of the fastest growing and developing industries, and it is closely linked to a country's or region's economic and political situation (Küçük Yılmaz, 2016).

Today, as Western Balkan countries continue their reforms—their economies expanded by 2.6% in 2017 (Word Bank, n.d.)—with the strategic objective of joining the European Union (EU), South-Eastern Europe (SEE) offers great potential for investment in various sectors and particularly in aviation. Significant foreign investments in the region's airports by known groups such as Fraport, TAV Airports Holding and strategic partnerships between smaller and bigger international airlines (e.g. Air Serbia with Etihad) contribute to the region's aviation growth. The large number of diaspora from these countries, the region's high population and ongoing tourism growth are important factors that must be taken into account by aviation professionals. According to Kochovski (2016), SEE has one of the highest growth rates of air traffic of any region in Europe, although the connections between individual capitals and major cities in the region are underdeveloped and represent a barrier for fast and convenient travel. Improving relations between SEE countries and the admission of more of them to the EU will contribute to the further development of the region's aviation industry.

SEE is a growing emerging market, promising for both the economy and the aviation industry. Despite tensions between some countries, the region is well suited to serve as a sample for studying the interplay between economic growth and aviation. The countries included in this study are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Kosovo, Montenegro, North Macedonia, Romania, Serbia, Slovenia, and Turkey. Of these, Turkey and Greece have the largest aviation markets (high domestic and international passenger traffic, strong airlines and airports), followed by Romania, Bulgaria and Cyprus. Turkey's new Istanbul Airport, the third airport built in Istanbul after Atatürk Airport and Sabiha Gökçen Airport, was opened on 29 October (Turkey's Republic Day) 2018. Planned with a 150 million annual passenger capacity, it is expected to have an impact on aviation growth in both SEE and the world.

Local and foreign airlines compete in the region, expanding their services and focus mainly to primary airports; however, the region has many underserved markets and underutilised secondary airports. Both smaller and bigger airlines can make use of such secondary airports to expand their operations. While a number of bigger airlines have smaller aircraft in their

fleets, small-sized airlines may be better positioned to serve remote and medium-demand destinations. This is because small-sized airlines are more flexible than their bigger counterparts: They can opt for fleets with both smaller and more cost-efficient aircraft, and they can serve secondary airports better by either striking agreements with their larger counterparts or operating intependently. Furthermore, the majority of passengers (about 55%) worldwide are flying sectors below 500 nautical miles and 30% of them below 300 nautical miles (ERAA, n.d.), which means there are significant opportunities for small airlines in the short-haul market. Considering their potentials and the particular circumstances in which they operate, the role of small airlines is understood to be increasingly important, and as such should be given more attention in the relevant literature—which is, however, currently focused more on larger airlines and low-cost carriers (LCCs) (Forbes and Lederman, 2007). This study aims to serve as a first step in addressing this issue.

Aviation in SEE remains underdeveloped, representing just 1.3% of passenger transportation in scheduled traffic and 1% of the number of international airports in the world (Kochovski, 2016). As such, the region has great potential for growth and is both promising and challenging in terms of aviation, which makes it particularly interesting for further study. Small carriers have much to gain from SEE's aviation growth, but they must make the right strategic decisions—including choosing efficient aircraft for their targeted markets, selecting airports with sufficient demand, and deciding whether to operate independently or in partnerships with the larger carriers—in order to operate successfully in the region.

Small airlines generally have fleets of up to 10-15 aircraft and serve limited geographical areas using mainly regional jets or turboprops. Even though there are bigger airlines operating in SEE, this study focuses on small carriers that are interested in extending their operations across SEE and can efficiently serve the region.

In-depth interviews were used to collect the information required for this study. Interviewees were selected from the majority of countries examined herein, each of them deeply knowledgeable and with considerable experience in the aviation industry. Furthermore, secondary data was used in order to provide further insight into the issues examined, and a focus group was used to assist in the study.

Following the Introduction, this study presents the relevant literature on small airlines and on management issues pertaining to small enterprises (part 2); the main characteristics of the aviation industry of SEE countries (part 3); and the politico-economic environment of the

region as it relates to aviation (part 4). Next, the methodology used is described (part 5), and the study's findings are presented (part 6), followed by the conclusions and discussion on the findings (part 7), and ending with suggestions for further research and an overview of the study's limitations (part 8). A brief description of the aviation industry in SEE, based on information provided by the study's participants and Kochovski (2016), is presented in Appendix A.

This study is particularly useful for aviation professionals from both smaller and bigger airlines who wish to focus on this specific region, as it provides a good first insight into appropriate strategies. In addition, this study is also useful for academics and researchers studying the effective use of limited resources in a management context. This study is a first approach to the potentials of small airlines in SEE and more detailed research is required.

2. LITERATURE REVIEW

The economic situation of a region is an important factor for aviation, and there is a positive correlation between economic growth and air transport demand (Küçük Yılmaz, 2016). In particular, airports positively influence their regional economies, having direct and indirect effects. It is estimated that every 1 million passengers travelling through an airport per annum creates approximately 950 jobs at that airport. Furthermore, according to a European Commission study, every 1,000 jobs at an airport generate approximately 2,100 jobs at the national level, approximately 1,100 jobs in the region, and approximately 500 jobs at the sub-regional scale (Kochovski, 2016). Studying U.S. Metropolitan Statistical Areas, Bilotkach (2015) pointed out that a 10% increase in non-stop flights led to a 0.13% increase in employment, a 0.1% increase in the number of business establishments, and an approximately 0.2% increase in average weekly wages. In turn, economic growth and increasing disposable income have a positive influence on passenger traffic (Graham, 2006).

A more liberal aviation regime can also drive growth in the aviation industry, as liberalisation contributes to an increase in passenger traffic and tourism figures, and this is positively associated with economic growth (Zhang and Findlay, 2014). Aviation is also positively correlated to tourism growth, which leads to economic growth, offering significant economic and financial benefits to citizens (Efthymiou, Arvanitis and Papatheodorou, 2016).

In this context, the role of small airlines is increasingly important. These carriers offer short- and medium-haul scheduled services, often connecting smaller communities with larger cities.

Forbes and Lederman (2007) pointed out the importance of regional airlines in the U.S. aviation industry, as these play a key role in connecting all North American airports. The majority of these carriers operate under codeshare agreements[1] with one or more major airlines. The hub-and-spoke (HS) system is one of the reasons behind the proliferation of code-sharing between large and commuter airlines. The latter have the following alternatives: They can (a) operate independently, (b) partner with major airlines on specific routes, or (c) be wholly owned by the major with which they partner. Being wholly owned means that schedules are coordinated, with the smaller airline's schedule often completely defined by the major airline.

An airline's management must select the strategy that will ensure their survival and growth, taking into account all the relevant factors. The selection of the appropriate aircraft is vital for airlines, as this influences operating costs and passenger service. Ryerson and Hansen (2010) stressed that airlines that serve short-haul (under 1,000 miles) routes have the following choices: (a) turboprops, noted for their low fuel consumption; (b) regional jets (RJs) with 30-90 seats capacity, noted for their high-quality passenger service; and (c) narrow-body jets with 105-150 seats capacity, noted for their balance of operating costs and passenger service quality. Although RJs are dominant over turboprops in recent years, airlines should take into account the balance between fuel costs and passenger service. RJs are an important technological innovation in the aviation industry (Forbes and Lederman, 2007), affecting service patterns and service quality and allowing passengers to enjoy higher flight frequencies (Brueckner and Pai, 2009). Forbes and Lederman (2007) stressed that RJs are more appropriate for thinly travelled routes as the revenue generated from a small number of passengers flying the route could actually cover the operating costs of such aircraft, making it profitable for an airline to serve these routes. However, as RJs increase in capacity, the distinction between the types of aircraft used by majors and regional airlines will become further blurred; for example, while Air Canada and LOT Polish Airlines both have Embraer in their fleets, the majority of this type of aircraft is owned by the regional carriers SkyWest Airlines and Republic Airline (Wikipedia, n.d.). Nonetheless, RJs and turboprops appear to be more efficient for smaller airlines, and it is up to management to decide based mainly on the route's characteristics.

Stage length is another important issue affecting airlines' operating costs. Doganis (2010) pointed out that bigger aircraft and longer stage lengths result in lower average unit costs of

[1] Codeshare agreement between a major and a regional airline: The two airlines sharing a specific flight each sell tickets under their own codes and the flight carries the identity of the operating airline.

the aircraft in question. Merkert and Hensher (2011), using econometric methods, found that airline size and some key fleet mix characteristics, such as aircraft size and number of different aircraft families, are important to successful cost management of airlines as they influence all of three types of an airline's efficiency, namely: technical, allocative (production represents consumer preferences), and cost efficiency. Specifically, the age of an airline's fleet has no significant impact on its technical efficiency but does have some positive influence on its allocative and cost efficiency, although further research is required on this issue. The fleet's average sector length negatively influences technical efficiency but has no statistically impact on an airline's allocative and cost efficiency; further research is needed on this issue too.

Another important choice for airlines is the selection of airports to serve. Small airlines mainly focus their services on secondary airports. In Europe and the U.S., there has been a significant rise in the use of secondary airports. These airports are often located some distance from the main origin/destination city and are associated with the success of LCCs (Forsyth, Gillen, Muller and Niemeier, 2010). The congestion of major airports, the distribution of population at the regional level, and the existence and proximity of a secondary population basin to the site are all factors that determine the emergence of secondary airports. Ground access, airport infrastructure, and the numbers of connecting passengers at the primary airports are also important factors and should be take into account by airline managers (Bonnefay and Hansman, 2005). Carriers using such secondary airports achieve lower costs because these airports offer lower landing fees and quicker turnaround times (Klophaus, Conrady and Fichert, 2012), respond to capacity constraints of the major airports and may exploit the emergent market opportunities (Forsyth, Gillen, Muller and Niemeier, 2010). The use of regional hub airports can also improve an airline's network performance in terms of reduced total network costs (Wu, Zhang and Wei, 2018). Therefore, while secondary airports are widely considered to positively contribute to an airline's efficiency, their selection requires an in-depth study of all the relevant parameters.

Airlines designing their network configurations may adopt two main strategies: hub-and-spoke (HS) and point-to-point (PP) systems. Alderighi, Cento, Nijkamp and Rietveld (2005) added another strategy that is available to airlines, the multi-hub (MH), and they pointed out that the choice of network configuration depends on the size of the internal market; when this is small, a PP network strategy should be adopted, and when it is large, both HS and PP are suitable options. Full-service airlines follow a HS network strategy, and LCCs prefer PP flights, mainly from secondary airports. Every network configuration strategy offers advantages and disadvantages, and management should take these into account. According to Marti, Puertas

and Calafat (2015), management should focus on minimizing waiting times for connecting passengers at hub airports and on improving infrastructure to absorb growth from the main hubs in order to avoid congestion and delays. Hubs provide more benefits to airlines than to passengers, as they increase flight departure frequency and real travel time due to the hours in transit between flights. As a result, tourists are increasingly looking for direct flights to and from secondary airports to avoid the congestion at crowded airports. Small carriers must take all such relevant parameters into consideration when deciding on a network configuration strategy.

According to Forbes and Lederman (2007), independent regional airlines have greater control over their aircraft, staff, and airports to serve, whereas for wholly-owned regionals, these decisions ultimately rest with the major. Regional airlines have a cost advantage over majors, and for this reason, majors subcontract their services on routes served by regionals. The lower costs of smaller regional airlines result primarily from the lower salaries paid to employees, more flexible work rules, non-unionized employees and non-regulated operators of small aircraft. Small airlines present several advantages compared to their bigger counterparts, but the selection of the right strategies is crucial for survival and growth, as competition in the industry is fierce.

Small firms are a very interesting subject in the relevant literature. Management issues are significant for small firms, influencing their operation. Smaller firms differ from larger ones in terms of organizational structures, responses to the environment, managerial styles, and, most importantly, the ways in which they compete with other firms (Man, Lau and Chan, 2002). The main objective of the leaders of such firms is to simultaneously minimize operating expenses and maximize operating revenues in a balanced fashion (Mallikarjun, 2015). Management can focus on both survival and growth when adopting competency-based strategies, whereas flexibility-based strategies carries considerable risk for small enterprises. Therefore, owners of small firms must be aware of their choice of strategies in order to pursue growth and to avoid unintended consequences (Armstrong, 2013).

Pearson and Markert (2014), studying the low-cost subsidiaries of major airlines, found that the most successful of them have high autonomy from their parent companies, market dominance, decisive leadership, and less deviation from the principles of LCCs unless a sufficient revenue premium is achieved. In addition, temporary fare reductions used to create a competitive advantage, reduced capacity and improved yields, investment in price and product differentiation, and willingness to adjust to the changing reality are also important

(Gillen and Gados, 2008, Hazledine, 2011, Morrell, 2005). Man, Lau and Chan (2002) pointed out that four key issues impact small and medium enterprises (SMEs): competitiveness, a firm's internal factors, the external environment, and the influence of the entrepreneur. The latter is very important in determining a firm's performance. Competitiveness is ultimately related with the long-term performance of the firm compared to its competitors. For SMEs, competitiveness has four characteristics: long-term orientation, controllability, relativity, and dynamism. Therefore, the success of small airlines is directly linked to their ability to effectively study and handle management issues as these can have significant impact on their performance.

3. THE POLITICAL AND ECONOMIC ENVIRONMENT OF SEE

Small airlines operate in a wider geopolitical context, and the study of this is necessary in order to develop efficient strategies. Therefore, it is crucial for this study to examine the geopolitical environment of SEE and its importance to the aviation industry. The region has a growing, promising economy and enjoys the support of the international community. Yet political developments in Turkey, the prolonged financial crisis in Greece, the continuing refugee crisis, the relations between these countries, the necessity for reforms in Western Balkan countries and their aspirations to join the EU are all factors affecting economic and political stability in SEE (World Bank, n.d.).

According to Papatheodorou and Karachristos (2006), in recent years Western Balkan countries have overcome political isolation and have started to become more liberal. The entry to the EU of more Balkan and Eastern European countries will benefit them by giving them access to an economic environment that guarantees prosperity and security. Furthermore, the improvement of transport infrastructures and accessibility and the end of their isolation will drive the streamlining of travel bureaucracy and create more connecting points for both business and leisure traffic. This, together with the comparative cost advantage that the Western Balkans have compared to Western countries, will result in an increase of traffic across the board. The participation of all SEE countries except Turkey in the European Common Aviation Area (ECAA), which is the equivalent of the Single Market in aviation, is also beneficial to the industry.

The following table (Table 1) presents economic and population data for each SEE country, alongside the corresponding figures for the EU, Europe and the world.

Table 1 - Population and Financial Data for the SEE Countries

Countries	Population (2016)*	GDP (nominal) total (2016) in billion$*	Real GDP growth at market prices in percent**					
			2015	2016	2017e	2018f	2019f	2020f
Albania	2,886,026	12.269	2.2	3.4	3.8	3.6	3.5	3.5
Bosnia & Erzegovina	3,515,982	16.324	3.0	3.1	3.0	3.2	3.4	3.5
Bulgaria	7,153,784	49.364	3.6	3.9	3.8	3.9	4.0	3.9
Croatia	4,190,669	49.928	2.3	3.2	3.0	2.6	2.8	3.0
Greece	10,783,748	194.594	-.22	.01	1.6	2.5	2.5	2.0
Kosovo	1,771,604	6.471	4.1	3.4	4.4	4.8	4.8	4.7
Montenegro	622,218	4.182	3.4	2.9	4.2	2.8	2.5	2.1
North Macedonia	2,071,278	10.424	3.8	2.4	1.5	3.2	3.9	4.0
Romania	19,760,314	181.944	3.9	4.8	6.4	4.5	4.1	3.5
Serbia	7,076,372	42.139	0.8	2.8	2.0	3.0	3.5	4.0
Slovenia	2,064,188	43.791	2.3	3.1	4.9	4.2	3.5	2.5
Turkey	78,741,053	751	6.1	3.2	6.7	3.5	4.0	4.0
Eastern Europe			-7,6	0.8	2.0	3.1	3.5	3.5
Western Balkans			2.1	2.9	2.7	3.3	3.6	3.8
Euro area			2.1	1.8	2.2	2.1	1.9	1.7
EU			2.3	1.9	2.3	2.1	1.9	1.8
US			2.9	1.5	2.2	2.3	2.1	2.0
Global			2.8	2.4	3.0	3.1	3.0	2.9

*Sources: Wikipedia (ndb) * & World Bank (nd)***

Turkey presents the highest economic growth rate, and this trend is expected to continue over the coming years. The other SEE countries also show significant economic growth. It is worth noting that SEE countries all show higher growth compared to the average of other regions such as Eastern Europe, Western Balkans, the Euro Area, the European Union, the United States, and the world. According to the World Bank (n.d.), this growth is based on greater domestic demand and investment with support from consumption and increased exports. However, the region still faces significant problems such as high unemployment, a weak business and government environment, inferior delivery of public services, and reduced global integration.

SEE countries have a combined population of approximately 140.6 million people, with more than half located in Turkey. The total population figure indicates that the region has a high number of potentials passengers. The large number of immigrants and tourists who visit the region, the region's economic growth and the increasing liberalization of the economy as more SEE countries join the EU are also factors that will likely contribute to driving aviation growth.

4. THE AVIATION ENVIRONMENT IN THE SEE REGION

Air transportation has a significant role in SEE. Passenger traffic has grown by 45% over the last decade and has more than doubled since the mid-1980s, while freight traffic has increased by over 80% over the last decade and almost three-fold since the mid-1980s. The main factors behind this growth are the rising GDP, disposable income and improved living standards, all of which increase the demand for travel (Kochovski, 2016).

The aviation industry in SEE countries presents considerable opportunities for further growth. Appendix A presents a brief but comprehensive description of each SEE country's aviation industry. This shows that the main characteristics of the aviation industry in SEE are the following:

- Turkey has the strongest overall aviation market (large domestic and international markets, strong airlines and many big airports), followed by Greece.
- Turkey has the biggest domestic market, followed by Greece and Romania; the rest of the countries examined have insignificant domestic markets.
- All SEE countries, except for Turkey, are signatories of the ECAA.
- There are significant foreign investments in the aviation industry: China Everbright Limited participates (100%) in Tirana airport, TAV participates in Skopje and Zagreb airports, and Fraport participates in several Greek and Slovenian airports.
- The LCC Wizz Air has a strong presence in the region.
- The region features numerous attractive year-round tourist destinations.
- There is significant tourism growth, mainly for Turkey, Greece, Cyprus, Croatia, and Montenegro.
- There are large numbers of diaspora, particularly from Turkey, Greece, Cyprus, Serbia, Albania, Bosnia and Herzegovina, Croatia, FYROM, and Kosovo.
- The main airports in the area offering connecting flights are: Istanbul, Athens, Belgrade, Zagreb, Vienna, and Ljubljana.
- Transport infrastructure and air transport connectivity in the region, and particularly in the Western Balkans, is poor and in need of improvement.
- There are numerous underutilized secondary airports throughout the region.

According to Kochovski (2016), the multilateral ECAA agreement between the EU, its Members States, Norway, Iceland and the Western Balkan countries has led to a liberalisation of aviation and an increase of route networks. ECAA members in SEE are Albania, Bosnia and

Herzegovina, Croatia, Kosovo, Montenegro, North Macedonia and Serbia, as well as EU member states Bulgaria, Cyprus, Greece and Romania.

The establishment of the ECAA set the conditions for the gradual integration of the parties into the EU's internal aviation market. As signatories to this agreement, SEE partners have agreed to the full application of the EU's aviation acquis. Airlines from ECAA countries have open access to the enlarged European single aviation market. The agreement seeks to extend the Single European Sky initiative to SEE, having as its main objectives to "enhance current air traffic safety standards, to contribute to the sustainable development of the air transport system and to improve the overall performance of the European Air Traffic Management (ATM) and air navigation services" (Kochovski, 2016, p. 17).

This environment entails multiple challenges and risks for the region's small airlines, which must manage these by developing efficient strategies in order to achieve survival and growth and contribute to the region's economic development and prosperity, and this is the subject of this study.

5. METHODOLOGY

Qualitative analysis was used in this study, and data were collected in accordance with the following steps suggested by Robinson (2014): selection of the right population (relationship and experience with aviation industry); definition of the right size (n=12); selection of the right sample strategy (finding participants with a willingness to take part and with relevant experience in aviation); and contacting participants to explain the objective of this study. Participation was voluntary and participant anonymity was guaranteed.

The empirical analysis of the study is based on in-depth interviews. Secondary data, collected from the World Bank, the European Regions Airline Association (ERAA) and the Civil Aviation Authorities of the SEE countries examined, complements these interviews to provide a comprehensive view of the examined issue. A focus group comprising senior managers from the commercial and operations departments of a small Greek airline was used to pilot the questionnaire and to check and discuss the study's findings. This is indicative of this study's emphasis on quality, as using a focus group can "enhance the empirical value and rigor" (Ryan, Gandha, Culbertson, Carlson, 2014, p. 328). The combination of the interview answers, focus group discussion and secondary data contributed to the study's quality, achieving triangulation to produce "more objective and valid results" (Jonsen and Jehn, 2009, p. 125).

Participants in this study had a deep knowledge of the subject, were highly experienced and represented almost all the SEE countries. The identification of interviewees and subsequent communication with them was accomplished via the internet (mainly through LinkedIn and email) and by telephone, as participants were located in throughout the SEE region.

Table 2 shows the demographic attributes of participants. Representing almost all SEE countries, they are senior managers in Civil Aviation Authorities, airlines, airports, and one relevant Ministry, as well as aviation consultants and aviation professors. It is worth noting that participants all have considerable experience in the field (average: 19.5 years) and a high educational level (four of them hold PhDs and another five hold MSc and MBA degrees), which both are important for the potential contribution of this research.

Table 2 - Demographics of the Study's Participants

Participant	Country	Job Position	Years of experience	Level of Education
1	Greece	Civil Aviation Authority	27	Ph.D.
2	Turkey	Airport Manager	18	Ph.D.
3	Turkey	Aviation Professor	14	Ph.D.
4	Turkey	Aviation Professor	16	Ph.D.
5	Turkey	Transport Researcher	17	M.Sc.
6	Albania	Civil Aviation Authority	21	B.Sc.
7	Bulgaria	Airline Manager	18	M.Sc.
8	North Macedonia	Aviation Consultant	24	MBA
9	Croatia	Airline Manager	19	B.Sc.
10	Serbia	Civil Aviation Authority	21	M.Sc.
11	Romania	Airport Manager	22	M.Sc.
12	Slovenia	Ministry of Infrastructure	17	B.Sc.
			Average 19.5	

All the necessary criteria, such as transparency and systematicity, that ensure the high quality of a study have been considered and adhered to during this research. The research logistics have been designed in accordance with these principles from beginning to end, and the results have been validated to ensure they are transparent or systematic enough (Meyrick, 2006). Validity, as concerning the "appropriateness" of the tools, processes and data used, was also ensured. Specifically, this study satisfies the following criteria as set out by Leung (2015): (a) The research question was valid for the desired outcome; (b) the choice of methodology was appropriate for answering the research question; (c) the study's design was valid for the methodology; (d) the appropriate sampling and data analysis was used; and (e) the results

and conclusions satisfy both its sample and context. The contribution of the focus group was important to achieving these criteria. In addition, reliability, as this relates to consistency (Leung, 2015) within the used analytical procedures (Long and Johnson, 2000) and to the extent that a research instrument generates the same results on repeated trials (Alshenqeeti, 2014), was guaranteed. All the above were applied and contributed to the quality of the study.

Some of the participants provided additional details about the aviation industry in their respective countries (see Appendix A beside questionnaire).

The survey's questionnaire was designed with the following questions:

Question 1
In your opinion, what is the role of small airlines in South-Eastern Europe and what will this be in the future? Please explain your answer.

Question 2
What route strategy must small airlines follow in SEE (serve capital cities, other large cities, smaller cities)? Please explain your answer.

Question 3
What types of aircraft are ideal for these flights/airlines? Please explain your answer.

Question 4
What operating strategy should these airlines follow? Should they operate independently or partner with other carriers? Please explain your answer.

Question 5
Please suggest three routes that small airlines can operate to destinations in SEE.

Open coding has been applied in this study as headings describing the main points (Elo and Kyngas, 2008) that emerged from the participants' replies to the questionnaire.

6. THE STUDY'S FINDINGS

The following table presents the study's findings, codifying the participants' answers.

Table 3 - The Study's Findings

Questions	Answers from 12 participants
1. The role of small airlines	P1, P3, P4, P5, P6, P8, P9, P10, P12 - Very important – must grasp the advantages of the region, contribution to tourism and economic growth, contribution to connectivity P7, P11 – Important – should compete to bigger airlines for short-haul routes, act quickly to face competition. P2 - Moderate - regionals are more important.
2. The route strategy of small airlines	P1, P4, P5, P9, P10, P11, P12 - Connect secondary airports to primary hubs P2, P3 - Primary airports in attractive destinations P6, P7, P8 – Secondary airports.
3. Types of used aircrafts (RJs-turboprops)	P1, P3, P4, P9, P12 - RJs (70-100 seats) P2, P7, P8, P10 - Turboprops P6, P11 – Mixed RJs (70-120 seats) & Turboprops (70-100 seats) P5 - A320 or B737 or RJs.
4. Small airlines should operate autonomously or in cooperation with bigger airlines	P1, P5, P7 - Autonomously and in cooperation with bigger airlines P2, P3, P4, P6, P9, P10, P11, P12 - Cooperation with bigger airlines P8. Autonomously (ask for the states assistance (PSO, RDF).
5. Suggest 3 routes	P1. a) Heraklion-Antalya, b) Thessaloniki-Zagreb, c) Athens-Split P2. a) Eskisehir-Antalya-Athens, b) Eskisehir-Izmir-Cologne, c) Eskisehir-Larnaca-Thessaloniki P3. a) Eskisehir-Heraklion, b) Eskisehir-Athens, c) Eskisehir-Stuttgart P4. a) Heraklion-Antalya-Eskisehir, b) Eskisehir-Brussels/Cologne, c) Thessaloniki-Antalya-Eskisehir P5. a) Bucharest-Greek islands, b) Bucharest-Antalya-Izmir, c) Cluj (2nd airport in Romania)-Greek islands or Turkey P6. a) Tirana-Larnaca, b) Larnaca-Zagreb, c) Tirana-Istanbul P7. a) Sofia-Dubrovnik, b) Sofia-Corfu, c) Bucharest-Varna P8. a) Athens-Skopje, b) Skopje-Sarajevo, c) Podgorica-Skopje P9. a) Zagreb-Heraklion, b) Split-Athens, c) Split-Istanbul P10. a) Belgrade-Split, b) Belgrade-Varna, c) Thessaloniki-Dubrovnik P11. a) Istanbul-Ohrid, b) Istanbul-Split, c) Istanbul-Crete Island (Heraklion/Chania) P12. a) Maribor-Athens, b) Maribor-Istanbul, c) Ljubljana-Athens

7. DISCUSSION

The above findings, which emerged from the participants' answers to the questionnaire, in conjuction with the focus group discussion and the secondary data provide some useful insights into the examined issue. Small airlines play a significant role in the economic development of SEE. These carriers contribute to aviation, tourism and economic growth,

encouraging productivity by providing access to new and previously isolated markets, improving air connectivity and enhancing quality of life.

All SEE countries, except Turkey, are members of the ECAA, meaning that SEE airlines operate in an integrated aviation market which allows access to 36 countries and more than 500 million people, and must follow common rules in the application of high safety and security standards (European Commission, n.d.). The entry of Turkey into the EU will further contribute to aviation growth in the region, as the country is a huge market (Kucuk Yilmaz, Malagas, Nikitakos and Bal, 2018). Additionally, the amendment and implementation of more bilateral agreements between Turkey and SEE countries that are members of the ECAA will be useful for aviation.

Questionnaire respondents and focus group alike pointed out that small airlines can exploit the opportunities that the region offers. The region can be divided into two sub-regions: one more developed and comprising Greece, Turkey and Cyprus and one less developed and comprising the rest of the countries of the region. Both sub-regions have niche markets that smaller airlines can extend their operations to and serve efficiently. The region's economic growth, the existence within it of a number of year-round tourism destinations, the large diaspora, the high population, the poor road infrastructure and the many isolated, underserved markets in Western Balkan countries (Kochovski, 2016) are opportunities for small carriers. The large number of immigrants from SEE countries who have settled throughout Europe, North America (the United States and Canada) and Australia is an important potential market segment for airlines, and small carriers partnering with larger carriers can efficiently serve this market.

While bigger airlines have a strong presence in SEE, smaller airlines can ensure their survival and growth by identifying and operating in the region's niche markets and finding ways to operate efficiently by adopting the appropriate strategies. This study has shown that by focusing on secondary airports and connecting these with other secondary airports and/or main hubs, small airlines can satisfy passenger demand, achieve high load factors, lower costs and avoid competition from bigger airlines. However, this hinges on the main strategy that each small airline must decide on: to operate independently or to partner with bigger airlines. The majority of the study's respondents were in favour of the latter option, supporting that small airlines operating in SEE should focus on secondary airports and on feeding the larger carriers' networks at primary airports as this ensures higher passenger traffic—and probable year-round traffic—as well as significant synergies and support from bigger airlines. In

addition, as the region has many underserved markets, they can seek out routes with sufficient passenger traffic and less competition and operate these independently.

Focus group discussion suggested that newly established small carriers—as well as established small carriers experiencing low demand—should initially partner with larger carriers and can later operate independently when they have grown sufficiently and built a strong brand for themselves in the market. This suggestion helps ensure passenger traffic and the survival of small airlines. Furthermore, small airlines can choose between RJs (70-120 seats), which offer passengers a higher quality service, and the more cost-efficient turboprops. This choice depends on market needs and distance flown. A mixed fleet that includes both turboprop, for short-haul and low to medium-demand markets, and RJs, for longer distances and higher demand markets, is likely the best strategy. The respondents and the focus group discussion alike suggested that it is preferable that there is year-round demand at the selected destinations (albeit with reduced frequency during the winter months). Proposed routes include connecting the Greek islands (Heraklion, Mykonos, Santorini) with destinations in Turkey (Antalya, Izmir, Eskisehir), and connecting major airports in the region's mainland (Sofia, Bucharest, Istanbul, Athens) with destinations along the Adriatic coast (Zagreb, Split, Dubrovnik) and Black Sea (Varna). Most of these destinations are currently served by scheduled, LCC and charter airlines, but there are numerous routes (including combinations of the aforementioned as well as others) with insufficient connections and good potentials (e.g. Varna-Thessaloniki, Heraklion-Istanbul, Heraklion-Antalya). However, the application of more complex flight network models is necessary to select sustainable flight routes, as this selection must be based on multiple criteria (Kucuk Yilmaz, Malagas, Nikitakos, Bal, 2018). Furthermore, efficient commercial strategies—such as promotional pricing, efficient websites for sales, and running joint promotional activities with larger carriers they partner with—should be adopted by small airlines to better respond to the market needs and to competition from their competitors.

Focus group participants suggested that small carriers can establish close partnerships between themselves, forming associations similar to the European Regions Airline Association (ERAA), in order to better represent their interests. Meanwhile, policy makers should implement policies that will strengthen the presence of small airlines in the region. States can assist these airlines by subsidising some key routes with low traffic demand (Public Service Obligation) and low connectivity (Kochovski, 2016).

8. CONCLUSION AND SUGGESTIONS FOR FUTURE WORKS

The study's results show that small airlines play a crucial role in the region's economy. Indeed, we have concluded that small airlines that adopt suitable and efficient strategies can take advantage of the opportunities the region offers to survive and achieve success. In doing so they positively impact tourism and air connectivity, directly and indirectly contributing to the region's economic growth. This in turn reinforces a cycle of development and prosperity throughout South-Eastern Europe that benefits citizens, individual states, and the region as a whole. For this reason, states should provide some support to them, such as subsidising certain thin routes.

Small airlines should focus on secondary airports, connecting them with primary hubs and other similar (secondary) airports and partnering with bigger carriers to feed their networks, using 70-100 seat aircraft (RJs and turboprops); this has emerged as a viable strategy according to both the interviewees and the focus group participating in this study. These airlines can also seek out opportunities to operate independently in the region's numerous underserved markets. The above suggested corporate strategy should be followed through with the appropriate commercial strategies. All countries in the region have one or more destinations with sufficient year-round demand, and small airlines can serve these, even when this entails competing with larger airlines. This study also suggests destination combinations that can be served efficiently by small carriers. Small airlines can also play a key role in extending the tourism period, working with government agencies where necessary to achieve this, and can promote and exploit niche and thematic tourism such as religious tourism and sports tourism.

Further in-depth research may be required to examine the available strategies of small airlines, as this study set out to serve as an introduction and overview of the potentials of small airlines in South-Eastern Europe. This study's main limitation is the small number of participants (n=12) and the limited size of the questionnaire used. The construction of a more detailed questionnaire covering a broader range of topics (including questions relating to commercial strategies, such as pricing and distribution) and quantitative analysis with the participation of a larger number of participants will undoubtedly offer more benefits, yielding further useful information. The region's population demographics should also be considered as this is useful for airlines (Barros and Peypach, 2009). Furthermore, this study focused on passenger demand, and further research is required to determine whether cargo could be a viable significant alternative for small airlines, particularly during periods of low passenger demand. All these points should be addressed in future studies.

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APPENDIX A – COUNTRY PROFILES

Albania

Tirana International Airport (TIA) is the only international airport in the country, demonstrating significant growth the last years, serving 2.7 million passengers, in 2017. Since 6th October 2016, the Airport shares have been acquired (100%) by China Everbright Limited, an international investment and asset management company based in Hong Kong. Some potential domestic routes to the southern destinations such as Saranda-Delvina, Korca or Flora-Fier can be examined in the future. The collapse of Belle Air was a major problem for the Albanian aviation. Albanwings is the only airline of the country, founded in February 2016, and with 2 aircrafts (1 B737-400 and 1 B737-500) focus on Italian destinations. In addition, two other airlines started operation at TIA: Volotea Airlines and Mistral Air. Also, the LCC Pegasus Airlines and Blue Panorama serve the Albanian market. The large base of Albanian immigrants (mainly in Italy, Greece, Turkey and USA) and tourism (2.4 million tourists in 2017) are important for aviation. Full service airlines have 86% of the capacity. There is potential growth for the LCCs (currently have 7.9% of the market).
Sources: Kochovski (2016), and a participant.

Bosnia and Herzegovina

The country has four airports, Banja Luka/Mahovljani, Mostar/Ortijes, Sarajevo/Butmir and Tuzla/Dubrave, which are operated by public enterprises. Sarajevo has about 60% share of passengers who visit the country. Sarajevo airport presents problems in winters and operates limited hours (0600-2300). The airport should become a LCC base. From legacy airlines Star Alliance dominates (Lufthansa, Swiss, Turkish Airlines) the airport and the only non-Star Alliance is Air Serbia flying to Belgrade. The country is almost the only country in Europe without a national airline. Bosnian diaspora is significant and according to estimations there are 2 million Bosnians living in abroad. There is an interest from the Middle East investors for real estate in Sarajevo. Also, there is some business traffic from Turkey. Sarajevo has some airports (Tusla and Mostar) in its vicinity. Sarajevo can become a base for Croatia Airlines and Adria Airways and can feed traffic to Lufthansa Group. Also, Air Serbia may have one aircraft in Sarajevo airport.
Source: Kochovski, 2016

Bulgaria

There are five civil international airports (Sofia, Burgas, Varna, Plovdiv and Gorna Oryahovitsa) in Bulgaria. Common characteristic of all five airports is the less connectivity to other international and domestic destinations. Sofia International Airport (Sofia Airport, nd) is the main country's airport serving year-round scheduled international flights (6,490,096 passengers in 2017). Burgas (2,982,339 passengers in 2017) and Varna (1,970,700 passengers in 2017) airports are typical summer season airports with almost 95% charter flights, with a few scheduled operations. They are both operated by a consortium led by Fraport AG, under an agreement with the Bulgarian Government (Fraport Bulgaria, nd). Plovdiv airport (91,600 passengers in 2017) is another airport with seasonal traffic but with very modest traffic and almost only through the 3-4 winter months. The last one Gorna Oryahovitsa is used rather occasionally and has no significant passengers and / or cargo traffic (361 passengers in 2017). According to the official statistics in the year 2017 all five Bulgarian airports have served in total around 11.5 million passengers (10,926,005 international and 541,024 domestic passengers, increased by 45.57% compared to the previous year) and shared approximately equally between Sofia and all the others airports. There are 22 air carriers registered in Bulgaria with a valid Operating License of "Community air carrier". The national flag carrier Bulgaria Air (FB) is the only airline operating scheduled international and domestic flights, with relatively low market share (passengers and cargo) compare to the

foreign air carriers operating to/from Bulgaria. Bulgaria Air (Bulgaria Air, nd) serves 26 destinations with a fleet of 10 aircraft (2 A319, 3 A320, 1 Avro RJ70 and 4 Embraer 190).
The freight traffic to/from Bulgarian airports is rather modest, with a total of less than 35,000 tons of arriving and departing cargo in year 2017. After experiencing a significant slowdown in 1990-2000, the upward trend in freight traffic is slowly resuming, supported primarily by the solid demand for import.
Sources*: 2 participants*

Croatia
Zagreb (and Ljubljana) in the same circle has 7 large airports (Venice, Vienna, Budapest, Bratislava, Belgrade, Split, Ljubljana) and 12 smallest. Zagreb has about 35% share of passengers who visit Croatia. Zagreb was given to MZLZ, Aeroports De Paris Management (20.77%) and TAV Airports (15%), in concession, to develop a new and modern terminal building. The target of this project is the airport to exceed 8 million passengers within the next 20 years and the cost of this investment was 243 million Euros. Tourists (12.5 million) and diaspora (3 million) are important for the country's aviation industry. The revival of LCC in Zagreb and the opening of more connections to the SEE region are necessary. Emphasis to legacy airlines as they serve all the passengers segments is also required. Croatia Airlines is a member of Star Alliance and with 14 aircrafts serve 38 destinations. However, the carrier may increase the number of flights in the region.
Source: Kochovski, 2016

Cyprus
Cyprus is in a key strategic geographical position. The country has significant number of passengers traffic (10,252,459 passengers in 2017, increased by 14.2% compared to 2016).
Airlines that are based and registered in Cyprus are: CYPRUS Airways (S7 Group) and TUS Airways. The fleet of these airlines consist of two (02) A319 and seven (07) FOKKER 70-100 (Nov. 2018). Recently (October 17th, 2018), Cypriot budget airline Cobalt has suspended its operations. The Greek airline Aegean Airlines bases aircrafts to Cyprus and serves from there direct and transfer flights. Destinations served from Cyprus: Athens, Thessaloniki, Heraklion and several other Greek cities, Beyrout, St. Petesbourg, Verona, Prague, Munich, Stuttgart, Zurich, Tel-Aviv, Paris, Copenhagen, Frankfurt, Dublin, Madrid, London (three airports), Dusseldorf, Moscow, Geneva, Abu-Dhabi. Most popular destinations (more travellers) is Athens followed by London. The country has two international airports, Larnaca and Pafos. All flights from these two airports are international, as no flights operate between Larnaca and Pafos.
Source: a participant

Greece
The Greek aviation market expands rapidly. Passengers traffic in Greek airports reached to 58 million passengers, hit the highest all time record in 2017, which represents an increase of 9.5 percent compared to 2016, according to Hellenic Civil Aviation Authority (HCAA, nd).
The main carrier in the Greek aviation market is Aegean Airlines (A3) which serves 34 domestic and 122 international destinations (in 44 countries) with a fleet of 60 aircrafts (mainly A320), carrying 13.2 million passengers, offering 16.6 million offered seats (Aegean Airlines, nd). Other smaller airlines are: Olympic Air (the ex-national airline bought by Aegean Airlines), Sky Express, Ellinair, Astra Airlines and Bluebird. The country has 15 international and 26 national and 4 municipal airports (hcaa.gr). In 2015, Fraport signed an agreement a take the management of 14 regional airports for 40 years, operating, managing and developing them. Athens International Airport is the biggest airport of the country, serving 21.7 million passengers, in 2017 (+8.6% increase from the previous year) (Athens International Airport,

nd). Heraklion (7,480,408 passengers in 2017 mainly tourists) and Thessaloniki/Macedonia (6,395,523 passengers in 2017) airports are important for the country's aviation industry (HCAA, nd). The tourism growth (32 million tourists expected in 2018) and diaspora (7 million Greeks live outside the country) are important issues for the Greek aviation. *Source: a participant*

Kosovo

Pristina International Airport is being managed and operated, for 20 years by a consortium Limak and Airports De Lyon, since 2011. Skopje is in 88 kms from Pristina and cover the same target market mainly expatriates. Kosovo has a huge diaspora, as about 1.5 million Kosovars live outside the country. Visa is required for passengers to travel to EU. Kosovo is one of the poorest communities of Europe. Also, there is no incoming tourism. Some legacy airlines serve Pristina (Adria Airways, Air Berlin, Austrian Airlines). One LCC can be based there. Lufthansa is focus on Pristina. Also, Limak should focus on new routes within the region and attract BA to come back.
Source: Kochovski, 2016

Montenegro

The county has two international airports, Podgorica and Tivat Airports, both owned by a public enterprise Airports of Montenegro. Podgorica serves 1,055,142 passengers traffic in 2017. The longest flight is to Dubai (seasonal), and there are more flights to European destinations. Fifteen airlines operate to this airport. Tivat serves 1,129,720 passengers traffic in 2017. This airport serves mostly seasonal tourist traffic (80% of passengers traffic). Thirty-seven airlines operate to this airport. The longest flight is to Dubai. Tivat serves more destinations than Podgorica for holiday reasons (Tel-Aviv, Moscow, etc.) Montenegro was visited by over 2 million tourists in 2017 (23% are from Russia, 21% from Serbia and 7% from Bosnia). The majority of them visit Adriatic Coast and they primarily use Tivat airport. There are flight connections to major airports. From the LCC, Wizz Air, Ryannair, Eurowings, Fly Dubai and Smartwings serve the country. Legacy airlines such as Adria Airways, Air Serbia, Austrian and Turkish Airlines, and Air Serbia dominate. Montenegro Airlines (5 aircrafts serve 15 destinations) is in restructuring phase and has signed a codeshare agreement with Etihad for passengers to travel to UAE and beyond via Belgrade.
Source: Kochovski, 2016, and a participant.

North Macedonia

The country has two airports, Skopje (1.9 million passengers, in 2017) and Ohrid (160 thousand passengers in 2017), managed by TAV Airports Holding, since 2008. The last 3 years the airport has increased the number of passengers by 20% in annual basis. In 2011, TAV opened a new modern terminal for up to 6 million passengers. There is no flag airline in the country, and this is visible in the economy. Turkish Airlines has strategic and economic interests in the country's economy. Regional airlines have the capacity, experience and modalities to open base in Skopje. Sofia and Thessaloniki airports and three smaller airports (Pristina, Nis and Ohrid) attract passengers who want to travel from/to the country. Wizz Air operates a wide range of new routes from Skopje and has a 55% market share of passengers who travel to/from Skopje. Also the Government tries to attract European LCCs. Passengers from Greece, Albania, Kosovo and Serbia are increasingly use the country's two international airports. Large diaspora (over 1.3 million who lives mainly in North America and Australia) is important for aviation. Very few legacy airlines are operating into the country (Adria Airways, Air Berlin, Edelweiss Air, Air Serbia).
Source: Kochovski, 2016, and a participant.

Romania

Romanian's aviation market expands rapidly and in 2017, the country has 20,345,385 passengers, increased by 23.41% compared to 2016. The largest traditional and the flag airline is Tarom, which serves more than 20% of the country's passenger traffic. The carrier with the fleet of 23 aircrafts (4 Boeing 737-700, 4 Boeing 737-300, 4 Airbus A318-111, 7 ATR 42-500, 2 ATR 72-500 and 2 Boeing 737-800 NG) serves more than 50 own destinations. Since June 25th 2010, the carrier is a member of SkyTeam. Nowadays aviation market in Romania is on increasing trend thanks to LCCs, where the list is leaded by Wizz Air, which planned for 2018 to serve 147 destinations, from 10 airports, with a fleet of 25 aircraft based in Romania. The total fleet is homogeneous and consists in 87 aircraft A320/321 and in 2017 handled 6.8 million passengers to/from Romania. Blue Air is a Romanian LCC (with 1,500 employees, 29 Boeing 737 aircrafts serves more than 100 destinations). The country's aviation market is served also by Ryanair, Pegasus (a Turkish private airline) and Fly Dubai (a Dubai based airline). On the other hand, traditional carriers like Air France, KLM, Lufthansa, Turkish Airlines, Austrian Airlines, Air Canada, British Airways etc. have significant presence in Romania. The country has 17 international airports (Autoritatea Aeronautica Civila Romana, nd), 4 owned 80 % by the state (Bucharest/OTP, Bucharest/BBU, Constanta, Timisoara) and 13 of them owned 100% by local/regional authorities. The biggest airport is Henri Coanda International Airport-Otopeni (OTP), with around 60% of the country's total air traffic. In 2017, 12.8 million passengers used OTP, and close to 130,000 aircraft movements were handled.

Source: a participant

Serbia

Serbia has one major airport in Belgrade, one very small secondary airport in Niš (South Serbian region) and two wannabe airports - Morava Airport near Kraljevo and Ponikve Airport near Užice. Vršac Airport, east of Belgrade is active but it is small and used only for flying school needs. Nikola Tesla Belgrade Airport is the major country's airport, serving the majority of the passenger's traffic (94% of the country's passenger traffic, in 2017). The total number of passengers in 2017 was 5,343,420 and shows the lower growth rate (8.5%) compared to all other neighboring airports like Sofia, Skopje, Priština, Timisoara, Budapest, Zagreb, Podgorica. Although, Belgrade airport is in a good geographical position without competition from other airports in 450 km distance. A multi-million-euro project has been launched in 2014 to increase the capacity of the airport to 8 million passengers and the airport to be sufficient for the next 10 years. The Belgrade airport needs some hotels near in order to accommodate connecting and transfer passengers. Introduction of Wizz Air in 2010 and the establishment of Air Serbia are important milestones for the country's aviation. In 2014, Air Serbia was established on the base of JAT Airways as a partnership between Serbian government and Etihad Airways and gained the huge number of new passengers to Belgrade airport. Around half of the market from Belgrade airport has been taken by Serbian national airline, Air Serbia which has got very strong network mainly to all European countries (41 destinations) plus one long-haul route to New York JFK. Beside that many other major European airlines operate to/from Belgrade like Lufthansa, SWISS, Austrian Airlines, LOT, Turkish Airlines, Aeroflot. Also, there are LCC like Wizz Air, easyJet, Pegasus, Norwegian, Vueling, smaller or regional European airlines like TAROM, Aegean, AtlasGlobal, Belavia, Croatia Airlines, Montenegro Airlines. However, Belgrade still misses some of the top European airlines (British Airways, Air France, KLM, Iberia). Aside from European traffic, Belgrade has amazing coverage of Middle East (Dubai with codeshare flights of Air Serbia and Emirates, Abu Dhabi by Etihad Airways, and Doha by Qatar Airways). Those airlines, together with Turkish Airlines and Aeroflot provides excellent connections to Australasian region. Hainan Airways, which is Chinese airline, founded the direct route from Belgrade to Beijing last year with great potentials and a new route to be negotiated soon. There is no scheduled domestic traffic between Belgrade and Niš, but some potential has been seen by Niš regional government, although Air Serbia

refuses to establish any scheduled route. Niš Airport served 331,582 passengers, in 2017 an increase of 265.4% compared to the previous year and this trend has been continued into this year with many new routes announced. Niš Airport has been renovated recently and now serves Wizz Air, Ryanair and SWISS with dozens of routes mainly to countries where Serbian ethnics live (Germany, Sweden, Austria, Switzerland). Turkish Airlines maintain a regular cargo route to/from Niš. Diaspora is relatively large and is one of the strongest potentials for the further development of the Belgrade airport. Tourism is not high and is coming from the neighboring countries (Croatia, Slovenia), mainly by car and buses.
Sources: Kochowski, 2016, and a participant.

Slovenia
The country's main airports are Ljubljana (1,683,045 passengers in 2017) and Maribor (6,000 passengers in 2017) and Portoroz (25,450 passengers in 2017). Fraport took over Ljubljana airport in 2014. Easyjet, Transavia and Adria Airways has a significant presence in the country. The tourism is important for the country, as 3 million tourists visit the country, but the majority of them travel by buses, cars and trains and a significant proportion of these travel via other airports. A significant passenger traffic to the country is from Israel. Adria Airways is the dominant airline at Ljubljana airport and Eurowings has a significant expansion in the country. The Lufthansa Group and Fraport, through Adria Airways should consider to extent their services. Ljubljana is a transfer airport with a large number of feeding routes.
Source: Kochovski, 2016, and a participant.

Turkey
The Turkish aviation industry has been undergoing a comprehensive transformation. Its recent success not only reflects the geographical location of the country which leaves it as a natural hub for air transportation but also a well-planned and coordinated policy that ranges from regulatory efforts to environmentally conscious designs and from better quality services to intensive transparency policies. The traffic decreased in 2016, was a result of declining numbers in the international market. This year was the first time that domestic passenger traffic exceeded the 100 million passenger barrier. In 2017, Turkish airports served more than 193 million passengers. This year, the number of international travellers increased by 17% year on year to reach nearly to 83.5 million. For the same year, around 109.6 million passengers travelled in domestic operations, marking an increase of almost 7%. There are 55 airports in Turkey. Next one is going to open in 29 October in 2018, which is Istanbul Grand Airport. 48 of them are operated by General Directorate of State Airports Authority. 13 of them are operated by private airport operations. These are TAV Airport Holding, YDA Group, İçtaş Holding, Zonguldak Airport, ISG, Tav Fraport, Hezarfen Airports, Turkish Airlines, Anadolu University Rectorate. Turkish airports served 1.5 million planes, increased by 3.2% compared to 2016. Also, the cargo traffic increased by 10%, in 2017. Turkish busiest airports are Istanbul's Ataturk International Airport (63.7 million passengers in 2017), Sabiha Gokcen (31.4 million passengers in 2017), Antalya airport (25.9 million passengers in 2017), Ankara Esenboga Airport (15.8 million passengers in 2017) and Izmir Adnan Menderes (12.8 million passengers in 2017) (source: Anna Aero, nd). Turkish Airlines (Türk Hava Yolları) is the dominant carrier of the country, offering a wide range of flights to 300 destinations, in 120 countries. The airline has a fleet of 326 planes and served 68.6 million passengers, in 2017.
Tailwind Airlines is a LCC and with a fleet of 5 B734-400 operates to 40+destinations. Sun Express is based in Antalya, operates scheduled and charter airlines to Europe, Asia and North Africa (107 destinations) with a fleet of 70 planes. Pegasus Airlines is a LCC and with a fleet of 74 planes operates to 103 destinations. Onurair is a LCC and operates mostly domestic scheduled flights and a wide range of charter flights and with a fleet of 24 planes operates to 38 destinations. Izair is based in Adnan Mendes Airport in Izmir, and with a fleet of 7 planes operates to 21 destinations. Freebird Airlines is a charter airline and operates to Europe, Lebanon and Iran (38 destinations) with a fleet 8 planes (A320). Corendon Airlines is based

at Antalya airport, operates to major cities such as Berlin, Dusseldorf, Leipzig, Munich, Linz, Tel Aviv, Bucharest and Crete (14 destinations) with a fleet of 11 planes. Atlas Global operates scheduled international passenger services and charter mostly out of its base at Istanbul Ataturk Airport and with a fleet of 24 planes serves 58 destinations. AnadoluJet is a fully owned subsidiary of Turkish Airlines and serves domestic destinations and Northern Cyprus (42 destinations) with a fleet of 38 planes. Borajet is suspended services on 24 April 2017 and plans to resume them sometime in 2018 (Wikipedia, ndc). Foreign airlines with an important presence in the Turkish aviation market are: Saudi Arabian Airlines, Thomas Cook Airlines, Wind Rose, Condor and Qatar Airways (Anna Aero, nd).
Sources: Kucuk Yilmaz, 2016, and a participant.

FEASIBILITY OF LISTING INDIAN AIRPORTS ON THE STOCK EXCHANGE: A COMPARATIVE ANALYSIS OF LISTED AND UNLISTED AIRPORTS

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ABSTRACT

The global air traffic touched a whopping 3.8 billion in 2016 (IATA 2017), forecasted to grow at a CAGR (Compounded Annual Growth Rate) of 3.7% annually by 2035, with India displaying the highest growth rate of 23%, beating China and US who retained the second and third position respectively. IATA (International Air Transport Association) forecasted the flown passengers to be nearly double at 7.2 billion by 2035 and the top driver of this demand would be the developing economies of the Asia-Pacific region. The expected growth in air traffic is bound to put commendable pressure on airports' infrastructure, which is already approaching bottlenecks. ACI benchmarked the top twenty airports listed on stock exchange in Asia-Pacific, Europe and United States, according to their passenger volumes in 2016, among which eight were situated in Asia. Considering ACI's benchmark as a reference point, this paper enables us to grasp the financial health of the private Indian airports. Besides answering the critical questions about a tradeoff between investment towards expansion and economic feasibility, this paper analyzes the unaudited financial reports over a span of five years to study the feasibility of listing these Indian airports on the Indian stock exchange. Thereby, the paper explores stock listing of airports as an alternative mode to finance airport expansion to cater to the exponential growth forecasted in the coming future.

KEYWORDS

IATA, ACI, CAGR, Infrastructure, Bottlenecks, Stock exchange.

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1. INTRODUCTION

The current airport capacity in Asia Pacific is 0.2 airports per 1 million of population, 1 airport per 1 million of population in Europe and about 2.5 airports per 1 million of population in North America (Leahy, 2016). This exponential growth trend would eventually put commendable pressure on the infrastructure of airports, many of which are operating beyond their planned capacity. Airports are capital-intensive businesses, which are financed in a range of ways like the airport's retained earnings, bank loans (government/private), institutional investments, equity financing and third-party investments. The risks faced by airport investors are political uncertainty involving regulation of charges, demand uncertainty, dependence on air carriers, environment regulations, currency instability, economic uncertainty and high lock-in periods for the invested capital. The food for thought about this study of airport financing came from the initiative taken by the Indian government in 2014 for listing AAI (Airport Authority of India) on the National Stock Exchange, which operates 145 airports all over India. The reason behind that attempt was firstly, to use the funds to bridge the fiscal deficit of the then financial year and secondly, to improve transparency in operations. However, this endeavor is still in the pipeline. AAI comprise of a diverse portfolio of airports including 11 international, 45 domestic and the remaining civil enclaves. Out of the airports operated by AAI that were being evaluated to be privatized earlier, fifteen airports are profitable (Mishra, 2018). It also has joint ventures with four partially privatized international airports in Delhi, Mumbai, Hyderabad and Bangalore that covered almost 58% (APAO India) of the total air traffic in 2015-16. In order to accommodate the compounding traffic additional funding is required to capacitate these major airports. Considering the fact that the major volume of traffic is generated through these five private airports and secondary airports have been proposed to be built in Delhi (where DIAL is located) and Mumbai (where MIAL is located) which has reached saturation, our focus would be narrowed down on them. This paper would explore airport listing in the stock exchange as an alternative funding option and study the feasibility of listing the five private airports DIAL, MIAL, BIAL, HIAL and CIAL on Indian stock exchange.

2. LITERATURE REVIEW

The two major private airport operators in India are the GMR group operating Delhi International Airport Limited (DIAL) and Hyderabad International Airport Limited (HIAL) and GVK Power and Infrastructure Limited operating Mumbai International Airport Limited (MIAL) and Bangalore International Airport Limited (BIAL). The fifth private airport drawn into comparison is Cochin International Airport Limited (CIAL) that is majorly financed by the

Foreign Institutional Investors. Both these companies are publicly listed as conglomerates, but not as specific airports. That is the reason it was tedious to gather the financial data for the purpose of this analysis. However, the analysis is based on unaudited financial reports submitted by the respective private airports with the Ministry of Corporate Affairs in India till 2015-16. Since, the airports that are being analyzed are not listed companies their audited financial reports could not be attained. Hence, all the data that have been used to analyze is gathered from the unaudited financial results of these airports between 2011-12 and 2015-16, submitted with the Ministry of Corporate affairs in India.

The cost structure of the airports that we are analyzing in this paper is slightly different from other infrastructure companies due to the regulatory environment they are operating in. DIAL and MIAL is regulated through hybrid till approach with 30% non-aeronautical revenue to be used to cross-subsidize the aeronautical. Due to the expansion projects on cards, AERA agreed to adopt the hybrid-till approach for all other major airports in India, revising BIAL's non-aeronautical contribution to 40% to offset the aeronautical charges (AERA 2017). The established literature reflects an interesting debate on the treatment of non-aeronautical revenue through single till, dual till or hybrid till. While airlines and regulators generally support the single till to keep the airport charges lower by cross-subsidizing the aeronautical cost entirely through non-aeronautical revenue, airports inclines towards dual till under which aeronautical and non-aeronautical cost and revenues are treated separately incentivizing the airport operators. Hans-Martin Niemeier argues that non-aeronautical revenue is created by the passenger's propensity to spend and not the airlines. (Niemeier, 2009). David Starkie seconds him arguing that under dual till the charges would remain low as airports would garner higher revenue through increase in unregulated non-aeronautical revenue (Starkie, 2001). However, determining the best regulatory approach is a different ball game altogether. For the purpose of this paper, we would focus on conceptualizing the airport cost base.

3. RESEARCH METHODOLOGY

The first set of comparison has been drawn among the debt structure of the five private airports. The second stage would comprise of a comparative analysis of the performance and profitability of these airports. Finally, a risk analysis would be done in terms of the asset beta in respect of these private airports in comparison to the listed airports shortlisted by ACI. This analysis enables us to grasp the financial health of the Indian airports. The paper would be concluded by a feasibility study, considering the already listed airports in Asia-Pacific, Europe and United States that has been benchmarked by ACI according to the passenger

throughput, the feasibility to list the Indian airports in the stock exchange would be evaluated, taking into account the listing parameters and industry benchmarks.

The quantitative analysis has been done through a ratio analysis of the five years' financial statements categorized as follows:

3.1 Financial Leverage Analysis

- Debt / Equity = Total Debt / Total Equity – *Explains the proportion of debt utilized to finance the company in respect to its equity capital.*
- Asset / Equity = Total Asset / Shareholder's fund – *Explains the assets owned by company compared to the assets owned by shareholders.*
- Interest Coverage = EBIT (Earning Before Interese and Tax) / Interest expenses – *Explains how easily the interest on outstanding debt can be repaid.*

3.2. Performance and Profitability Analysis

- Net Margin = (Net profit / sales) * 100 – *Explains the percentage sales that can actually be translated into profit.*
- Return on Fixed Assets = (Net income / Fixed assets) * 100 – *Explains the net income that can be produced utilizing the fixed assets.*
- Return on Equity (ROE) = (Net income / Shareholder's equity) * 100 – *Explains the net income that can be produced utilizing the shareholder's equity.*
- Return on Capital Employed (ROCE) = (EBIT / Capital Employed) * 100 – *Explains how much profit the company can generate utilizing its capital employed by comparing its net operating profit to capital employed.*
- PBT (Profit Before Tax) / Net Sales – *Explains the amount of profit generated from net sales after deducting the operating expenses but before paying income tax.*
- PBT (Profit Before Tax) / Passengers – *Explains the amount of profit generated from handling each passenger after deducting the operating expenses but before paying income tax.*

3.3. Liquidity Analysis

- Current Ratio = Current Asset / Current Liability – *Measures the ability of the company to repay its short-term and long-term debts by liquidating it's current assets.*

- Quick Ratio = (Current Asset – Inventories) / Current Liability – *Further refines the above ratio to measure the ability of the company to repay its short-term and long-term debts by liquidating its most current assets excluding its stocks.*

4. CONTRIBUTION AND FOCUS

This paper draws our attention towards a very niche mode of airport financing which have been so far explored only by a counted number of airports across the world. Considering a sample size of 678 airports, ACI (Airport Council International) observed in 2014 that only 14% of global airports had private stakeholders, whereas 44% of CAPEX (Capital Expenditure) was undertaken through private participation (ACI 2017). Simultaneously, the industry average of 2014, suggests that fully privatized airports earned a maximum net profit of 16.5% on total revenue, followed by the fully public airports at 15.1%. But, the ROCE (Return On Capital Employed) was the highest for the airports operating under PPP (Public Private Partnership) at 7.4%, closely followed by the fully privatized airports at 6.5%. Interestingly, with 12% higher investment per passenger than the government owned airports, the private airports accounted for 1.4% higher net profit and 1% higher ROCE.

This paper answers some critical questions like, "Is 12% higher investment in airports worthy of 1.4% higher profit?" "Considering the capacity expansion forecasted, would this margin be sufficient for future financing or additional capital infusion would be necessary?" It would start with a qualitative analysis of the different modes of airport financing practiced in the industry and then delve deep to explain the nuances of economic regulatory framework of airports. This aspect would enable us to understand how the airport business is affected by the regulatory framework it operates in. Empirically, it would explore stock listing as an alternate mode of capital infusion to expand airport capacity. The criticality of this analysis rests solely on the aggressive capacity deployment by airlines, which has resulted in capacity bottlenecks across the globe. The sample for this paper is drawn from the private unlisted Indian airports, which have been benchmarked against the already listed international airports. A similar feasibility study can be extended to other unlisted airports that are craving for additional financing for capacity expansion.

The focus of the paper has been listed as below:

- Explore stock listing as an alternate mode of airport financing.
- Gaining insight on the privatization and regulatory structure of Indian airports.

- Ratio analysis to study the financial health and feasibility to list the private Indian airports on stock exchange.

Before proceeding with the analysis, it is important to briefly understand the regulatory environment in which these airports operate. In India the airport charges of sixteen major airports with an annual passenger throughput of more than 1.5 million are regulated by AERA (Airport Economic Regulatory Authority). In such analysis it is commendable to understand the fundamentals of calculating the RAB (Regulatory Asset Base), which is a vital element of an airport business model. Evaluating the RAB would provide the platform on which the financial leverage of an airport would function. Since, the airports dealt with in the paper are regulated airports, first it would be necessary to conceptualize their cost base.

5. AIRPORT FUNDING & REGULATORY FRAMEWORK

5.1. Types of Airport Financing (Tretheway, 2001)

- *Financing under operation by government department or agency* – This type puts airport under the Department/Ministry of Transport and financed via regular budget process. It creates sufficient burden on the government and taxpayers as the priority of such investments are compared with other developmental prospects. This is particularly challenging as the passengers grow at a rate double or triple, airports require substantial amount of investment.
- *Financing under not-for-profit airport authority* – This can be further explained in two categories:

    1. If the authority is established without any initial equity infusion by the government, then further investment becomes a problem due to lack of funding. It is difficult to gain the trust of lenders without creating an equity base. Precluding the raising of equity capital by the issue of shares, the only source for financing is through retained earnings. But to assemble retained earnings is paradoxical. Due to the absence of initial capital, the airport can only be built through profitable operations, which by definition fall contrary to not-for-profit organization. Ironically, new investment is required to generate new revenue and financing of investments is limited by the lack of equity capital. One way to deal with the problem is to increase the user charges, but globally established principles does not allow aeronautical charges to be a source of equity capital.
    2. On the other hand, if the government provides some equity infusion, the airport is in a favorable position to accumulate further investment at least in comparatively

lesser time.

- *Financing under Government Corporation* – Even this option has the constraint of initial equity infusion based on the willingness of the government. But a government corporation generally has the liberty to provide government guarantee of its debt, which comforts the lenders to provide higher amount of debt.
- *Financing under private-government corporations* – The key advantage of a mixed enterprise is that the private sector can provide the initial equity required to start up the process in return of a reasonable incentive on investment in the airport. The only disadvantage is the degree of risk to the private enterprise due to the government pursuit of non-commercial objectives.
- *Financing under Private Corporation* – Such an enterprise can raise equity at any time. As they can support financing endeavors with their balance sheet, it has been observed that on transferring to private corporations, financing of new projects could be enhanced efficiently. But the principle risk lies in price regulation. In the absence of an appropriate regulation the private corporation would fail to earn sufficient return on investment to create retained earnings and attract fresh equity capital.

The above can be categorized as domestic avenues to any particular country by which the cost can be met through home currency while the below mentioned are the possible sources of foreign funding.

- *Financing through Foreign Sources* - Project costs to be met in foreign funds constitute a demand of the state's reserves for foreign exchanges. While the fluctuations in the value of these funds can add to the cost of an airport development project, hedging of funds can be established in order to avoid the volatility and risk associated to the funding through foreign funds.
- *Bilateral Institutions* - foreign financing can also be arranged from particular agencies of the government that has been established to promote the nations' export trade. In case of developing countries, such assistance may be provided through special aid programs, established by the government to promote economic and social development in other parts of the world.
- *Development Banks and funds* - Possibly the most important among foreign sources of financing are the specially established for the purpose to promote national economic development. Such projects have wide range of economic activities, of which airport is but one. Most popular among these is the International Banks of Reconstruction and Development and its affiliates.

- *UNDP (United Nations Development Program)* - The various kinds of expertise required for the consideration, planning and execution of airport development projects, which will be needed for the necessary feasibility of the cost-benefit study, for preparing master-plans in the construction phase itself, may be requested for the state's program of UNDP – funded technical assistance (ICAO 2006).

Irrespective of the type of regulation and the mode of financing, a critical element of airport financing would be the treatment of non-aeronautical revenue. Whether or not those revenues, or at least the profit from those revenues, should be considered to offset the aeronautical costs often remain a debatable decision.

Under Single Till, the total airport cost is reduced from the net-earnings from revenues of non-aeronautical services, before computing the regulated aeronautical charges. Any gain made from the non-aeronautical services is transferred in full towards the aeronautical costs benefitting the aeronautical users, while the airport operator is not allowed to earn anything greater than, what is deemed as "reasonable" by the regulator. *Under Dual Till*, the aeronautical and non-aeronautical cost and revenue are mutually exclusive and no proportion of non-aeronautical revenue is used to cross-subsidize the aeronautical costs. *Under Hybrid Till*, which is a customized form of dual till, only a certain proportion of non-aeronautical revenue is used to cross-subsidize the aeronautical costs.

The different methods for asset valuation for regulated firms that have been practiced are based on the following components:

- *The historic cost* – Total accumulated cost of the assets. The approach of CAA (Civil Aviation Authority) of the United Kingdom is such an example. In other cases, the historical cost might be indexed by a general or industry-specific inflation index (CAA, 2016).
- *Replacement cost* – the cost incurred currently to replace the airport assets with similar assets that are currently available offering similar capacity and levels of service.
- *Depreciated Replacement Costs* – this recognizes aging of assets.
- *Optimized Depreciated Replacement Cost* – this differs from the above as it realizes the inefficiencies that may be part of the current assets, though it do not consider the sunk cost valuation. In case the terminal in question might be built with old and more costly technology, whereas while replacing it, more efficient and less costly technology would be used. This form of valuation has not been used for airports, but,

has been used in the regulation of electricity utilities in Australia (Johnstone, 2003).

- *Fair market value*
- *Net Present Value*

Traditionally, regulators recognized only historical costs of land acquisitions and improvements, which might undervalue the land asset. With privatization of some airports, the privatization transaction might establish a current value for airport assets, for example, if the land and its improvements are sold or leased outright; however, in other cases, there is ambiguity. A privatization transaction may be for an enterprise that already owns or leases the land, and separating out land from other values in the enterprise (e.g., goodwill) can be problematic. Regulators in many sectors have recognized that there can be circularity in land valuations, especially when using certain discounted cash flow approaches to valuation – a higher land valuation creates a higher return required which in turn could potentially be recognized in higher cash flows and hence, land valuations. Many regulators dealt with this ambiguity either by resorting to bring forward use of historical values of land after an airport sale, or by establishing "deemed values" for the land for regulatory purposes prior to soliciting bids for the shares of the airport operating enterprise. Allowing increases in the RAB due to rising land values has been criticized, as this provides a "windfall gain" for the airport without providing any additional value to its users (Poole, 1994).

5.2. Regulatory Asset Base (RAB)

The Regulatory Asset Base (RAB) can be defined as the current capitalization supporting regulated activities, which will vary according to different forms of regulatory approaches. In some cases, it may include new forecasted future capital stock (infrastructure investment). It represents the investment base upon which the airport is permitted to earn a reasonable return. Clearly, the larger the RAB, the larger the absolute return the airport can achieve. However, the relative return (or an investor's margin) will be dictated by the allowed cost of capital, which is the key driver of investment considerations. In measuring the intrinsic value of any asset, the preferred economic technique is to measure the opportunity cost of that asset. In its simplest form,

$$RAB = CAPEX^{1} + OPEX^{2} + Cost\ of\ Capital - Depreciation$$

Apart from the challenge of valuing the existing asset base, the inclusion of new investments into the RAB often requires detailed analysis by the regulator. In order to avoid the Averch-

[1] Capital Expenditure
[2] Operating Expenditure

Johnson effect[3], regulators have to determine whether the airport's proposed capital expenditures are necessary or in proportion with requirements.

- *Cost of Capital*

The regulator also needs to determine the allowable rate of return (or cost of capital) on the RAB of the airport. This rate of return needs to be sufficient to maintain adequate investment in the airport over the life expectancy of the assets, and results in airport charges, which enhance users' interests reasonably.[4]

One common approach is to estimate the *Weighted Average Cost of Capital (WACC)***,** which involves weighting together the cost of debt and cost of equity:

$$(Pre\text{-}tax)\ WACC = g \times r_d + (1 - g) \times r_e$$

Where,

g = gearing ratio (net debt/total value)

r_d = return required on debt

r_e = return required on equity.

The required return on debt is generally assessed based on the airport's credit rating (i.e., the typical interest rate charged to companies with similar credit ratings and debt levels).

The return on equity is calculated by using the *Capital Asset Pricing Model (CAPM)*:

$$r_e = r_f + \beta \times (r_m - r_f)$$

Where,

rf = risk free rate

rm = market rate as a whole

β = risk parameter (the beta)[5]

The beta in this equation is a measure of the riskiness of the firm in question relative to some asset benchmark (e.g., the stock market). Firms that exhibit a beta of more than 1 can be considered riskier than the asset benchmark, while a beta of less than 1 are less risky than

[3] The Averch-Johnson effect is a theoretical argument that firms regulated to a specific rate of return on capital have an incentive to overinvest in order to earn the highest possible dollar value of return to the shareholders.

[4] The rate of return also has to reflect the actual debt servicing costs the airports is paying on historical debt.

[5] An alternative approach to CAPM is the Dividend Growth Model, although this is rarely used in economic regulation.

the asset benchmark. The riskier the asset, higher the return investors will require on their investment. In the case of airports, the beta involves considerations not only of how risky the airport industry is relative to other industries, but also how risky a particular airport is relative to its peers, based on the volatility of traffic at the individual airport. The decision of the regulator on the appropriate beta for a particular airport can significantly affect the return charged on capital investments, and the ability of the airport to raise capital.

Given their importance, the calculation of the WACC and its constituent parts can require considerable analysis and research. A permitted WACC set too low can result in delayed or inadequate investment, as investors seek higher returns elsewhere, while a WACC set too high can result in customers paying prices higher than would occur in a competitive market. The values are normally set at the start of the regulatory period based on market conditions at the time and remain fixed throughout. This can result in the airport achieving returns above or below the WACC (for example if market interest rates decline or increase after the regulatory decision). Airports can also potentially attempt to achieve higher return by selecting a gearing ratio different to the regulator's, which provides a lower cost of capital. To avoid perceived "windfall" gains from such activities, some regulators have sought to address this by selecting a projected or optimal gearing ratio rather than relying on historical values.

6. COMPARATIVE ANALYSIS

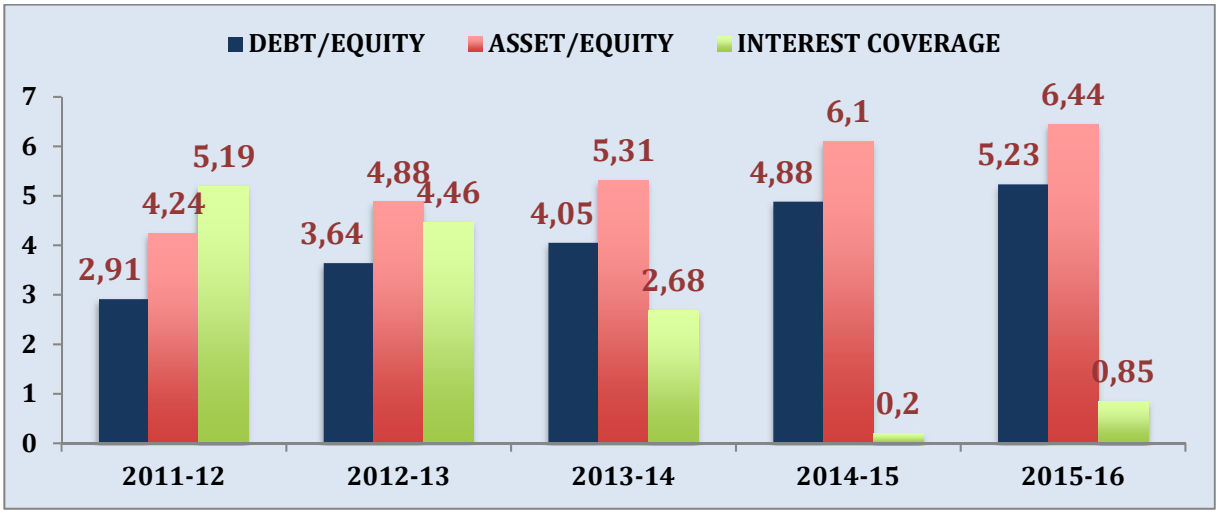
In order to perceive the feasibility of listing these airports it is vital to understand their financial health and performance parameters. This has been conducted in three segments, namely leverage, performance and profitability analysis. These analyses are based on the data gathered from the unaudited financial results submitted by the respective airports with the Ministry of Corporate Affairs for the financial year 2011-12 to 2015-16.

6.1. Financial Leverage

The first stage analyses the debt structure of the airports through the following ratios:

- Debt/Equity = Total Debt / Total Equity
- Asset/Equity = Total Asset / Shareholder's fund
- Interest Coverage = EBIT (Earnings Before Interest and Tax) / Interest expenses

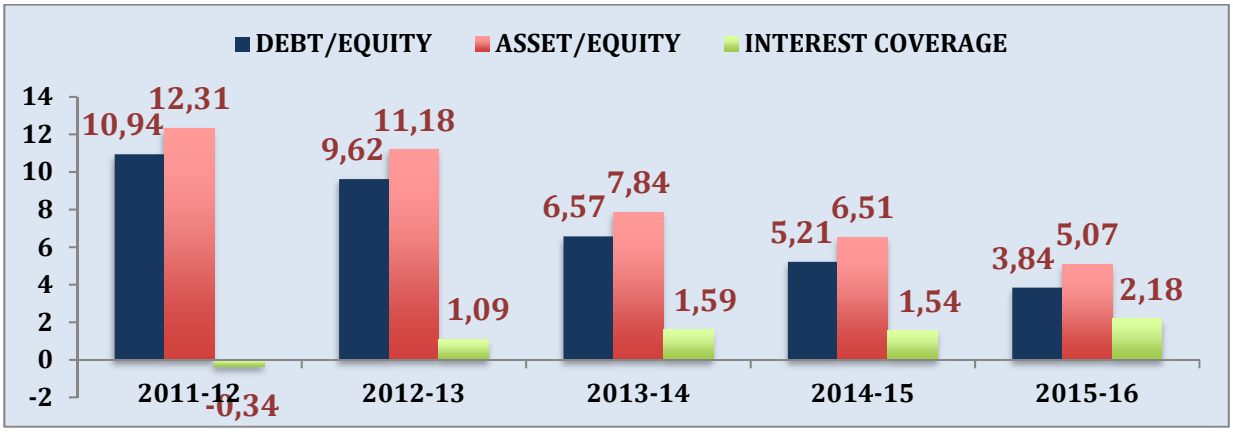
Figure 1 – Financial leverage ratios of Mumbai International Airport Ltd (MIAL)



Source: Ministry of Corporate Affairs

Inference: It can be observed in Figure 1 above that the debt-equity ratio has consistently increased over the years due to the continued expansion attempts resulting from capacity bottlenecks. MIAL operates with crosswind runways, majorly operating a single runway at any given point of time. The increase in debt margins has been a result of the new international terminal, T2, which started operating in this duration. Considering an ideal debt-equity ratio of 2:1 for capital-intensive industries like infrastructure and construction companies (Desai, 2015), it almost doubled in case of MIAL in five years. This has been due to an increase in proportion of their long-term debt, which more than doubled in this phase against a decline in the short-term debts. This in turn caused a spike in their financing costs. The sharp decline in the interest coverage needs to be worked on immediately. The reserve and surplus also deteriorated slightly reflecting a lower potential to pay-off the shareholders. The decline in interest coverage might reduce the probability of acquiring further capital for future expansion through long-term borrowings. Hence, the other alternative to be sought after could be disinvestments or stake sale. The gradual increase in asset-equity ratio reflects a remarkable increase in the total asset against a decline in the shareholder's fund.

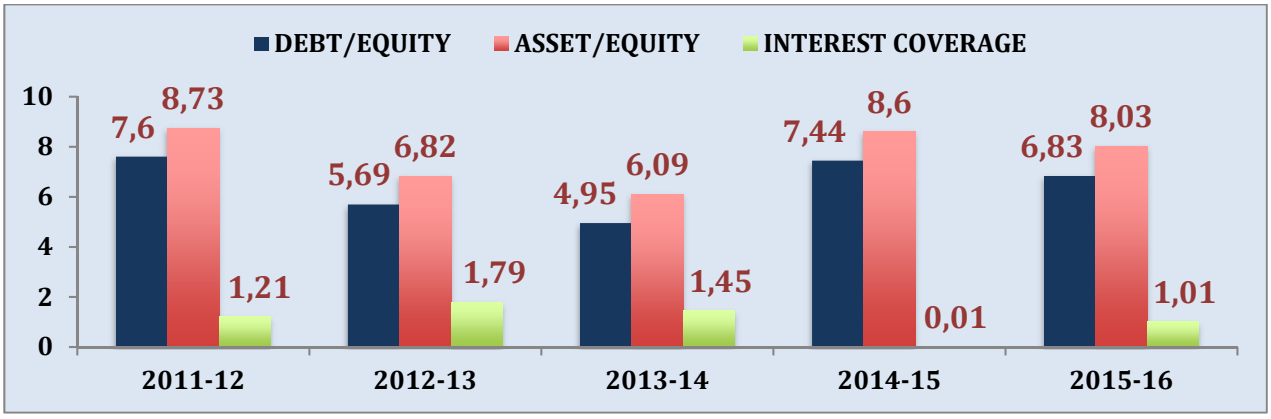
Figure 2 - Financial leverage ratios of Delhi International Airport Ltd (DIAL)



Source: Ministry of Corporate Affairs

Inference: Over the years DIAL's financial health shows a steady improvement in Figure 2. They almost stagnated their long-term debts and considerably decreased their short-term borrowings resulting in a five-times plunge in the debt-equity ratio bringing it close to the industry average. In contrast to MIAL their current investments depict a sharp increase of 1782% over a period of 5 years. This aspect enabled them to keep the interest expenses in control, thereby, doubling their interest coverage. It's interesting to notice that their total assets have undergone a marginal decrease over time which suggests their increased deployment towards offsetting the liabilities, whereas MIAL's almost doubled. However, the declining asset-equity ratio is a result of decrease in shareholder's funds. Although, the balance sheet reflects an accumulated loss of more than INR 23000crore, the losses have declined 84% over the period.

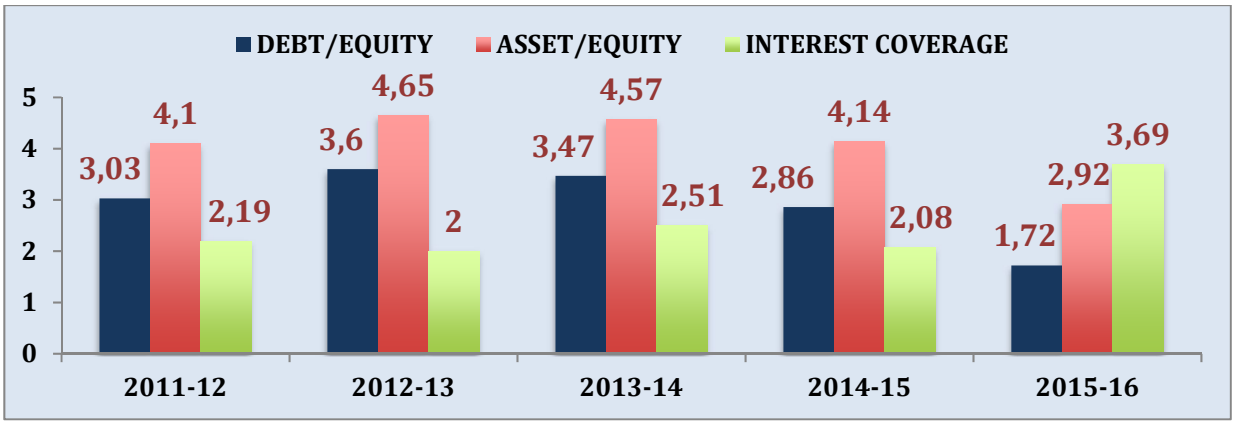
Figure 3 - Financial leverage ratios of Hyderabad International Airport Ltd (HIAL)



Source: Ministry of Corporate Affairs

Inference: All the three ratios in Figure 3 shows a marginal decrease depicting an overall stability in five years. The decline in debt-equity ratio is due to a marginal drop in their long-term borrowings and negating their short-term debt. Like DIAL, they have succeeded in reducing their accumulated losses more than 45% keeping their share capital stagnant. Though the current investments spiked by almost 1074%, the effect could not be felt due to the fivefold increase in their non-current liabilities. Their asset-equity ratio shows a marginal decrease keeping their assets almost the same as before. Their interest coverage potential needs to be worked upon in order to meet the industry standards, as it marginally decreased due to a fall in EBIT margins.

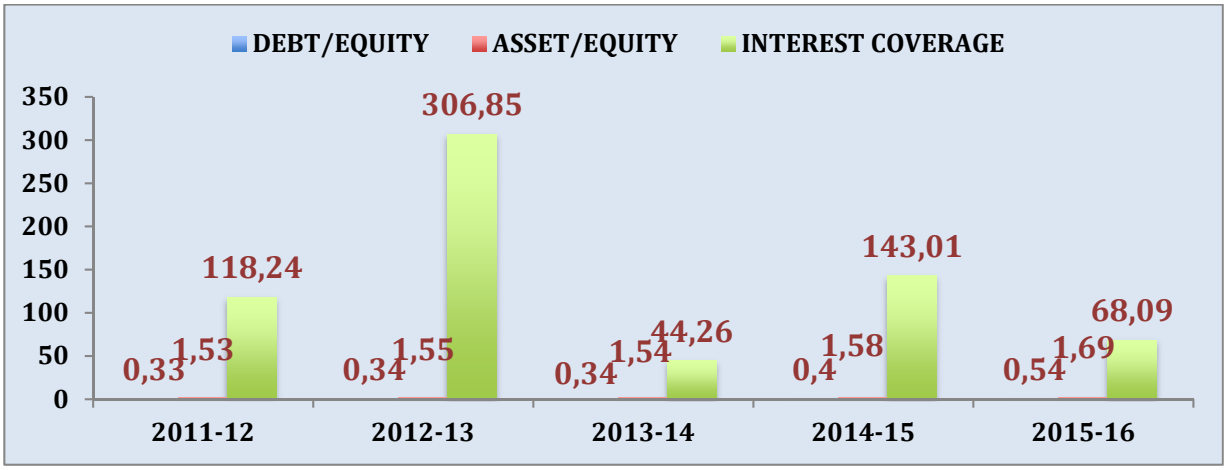
Figure 4 - Financial leverage ratios of Bangalore International Airport Ltd (BIAL)



Source: Ministry of Corporate Affairs

Inference: Unlike MIAL, also operated by the GVK consortium along with AAI, BIAL seem to be in a healthier financial condition as depicted in Figure 4. In spite of a marginal increase in their long-term debts and other liabilities, they have managed to increase their reserve and surplus, which quadrupled. This is reflected positively in the debt-equity ratio and positioned them strategically to cover their interest expenses in a better way. Their increase in total assets was negated by the increase in shareholder's funds that is reflected above. The increase in the tangible asset also reflects their better position to raise liquidity in the future.

Figure 5 - Financial leverage ratios of Cochin International Airport Ltd (CIAL)



Source: Ministry of Corporate Affairs

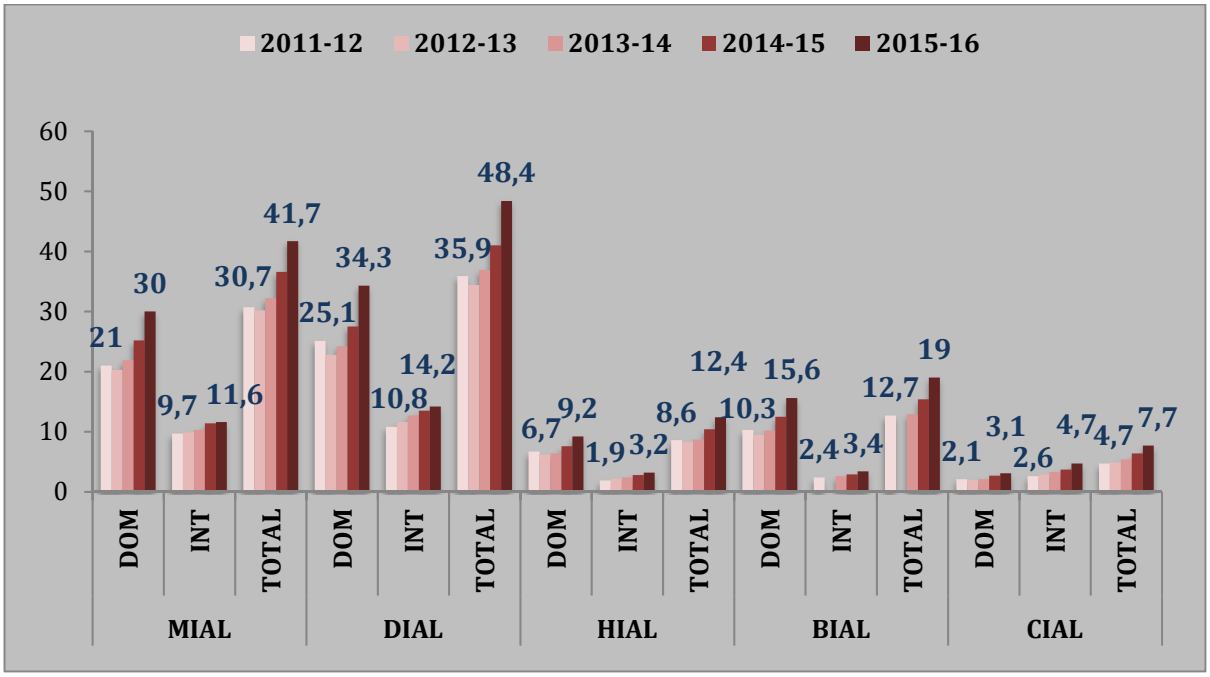
Inference: Among the private airports, CIAL has a slightly different operating economics as seen in Figure 5 due to its ownership structure comprising of multiple foreign institutional investors instead of a private consortium. CIAL is the only private airport whose share capital and reserve and surplus has grown in tandem ensuring increasing returns to the investors. Their reserve and surplus remarkably increased by 107% in 2015-16. Unusually, their debt-equity has remained way below the industry average of 2-2.5. The major reason behind it is their lack of long-term and short-term borrowings till 2014. Due to the similar reason the interest expenses were minimized that is reflected in the interest coverage ratio. The dip in interest coverage in 2015-16 is due to the hike in long-term debts by 494%.

Before we proceed to analyze the performance and profitability of the respective private airports, it is critical to introspect the trend in air traffic at these airports, which majorly impact their performance and profitability.

Figure 6 summarizes the annual passenger growth (in millions) at the private airports that we are analyzing in this paper. The displayed figures highlight the numbers in 2011-12 and 2015-16 to signify the range categorically. These five PPP airports catered to 58% of the annual traffic across India in 2015-16. With a slight dip in 2008, the total annual traffic in India has witnessed a 105% growth till 2014-15. Among the five airports in question, DIAL and MIAL upgraded to the category of greater than 40 million passengers per annum by the end of 2015. In the last two years accounted above HIAL, BIAL and CIAL witnessed an average of 20% growth. These trends pretty much justify a positive outgrowth towards the future. However, when we consider the proportion of international passengers it can be

observed that it ranges from 10-30%, leaving substantial scope for improvement. Only CIAL's contribution of international traffic increased the highest by almost 80% in this duration owing to the higher concentration of NRIs (Non-Resident Indians) generated from this region.

Figure 6 - Growth Trend in Domestic & International Traffic depicted by the five PPP airports



Source: (APAO India)

Here, it must be noted that among the top two airports in India, i.e. DIAL and MIAL, the former operates with three parallel runways accounting for 48 million passengers in 2015 against the latter which operates with a pair of cross-wind runways (generally a single runway operational) accounting for 42 million passengers. This surely highlights the optimal use of resources by MIAL. Now let us see how this growth in air traffic has been reflected in profitability and performance.

6.2 Performance & Profitability Analysis

The performance of an airport is commonly analyzed as per the KPIs (Key Performance Indicators) listed by ACI. This is benchmarked in different categories like safety/security, service quality, productivity/ efficiency, financial /commercial and environmental. For the purpose of this paper, the financial / commercial aspect has been focused upon which can

be easily quantified. The below ratios have been used to analyze the performance and profitability respectively.

Performance & Profitability in terms of:

- Net Margin = (Net profit/sales)*100
- Return on Fixed Assets (ROFA) = (Net income/Fixed assets)*100
- Return on Equity (ROE) = (Net income/Shareholder's equity)*100
- Return on Capital Employed (ROCE) = (EBIT/Capital Employed)*100
- PBT/Net Sales
- PBT/Passengers

Figure 7a – Performance ratios of Mumbai International Airport Ltd (MIAL)

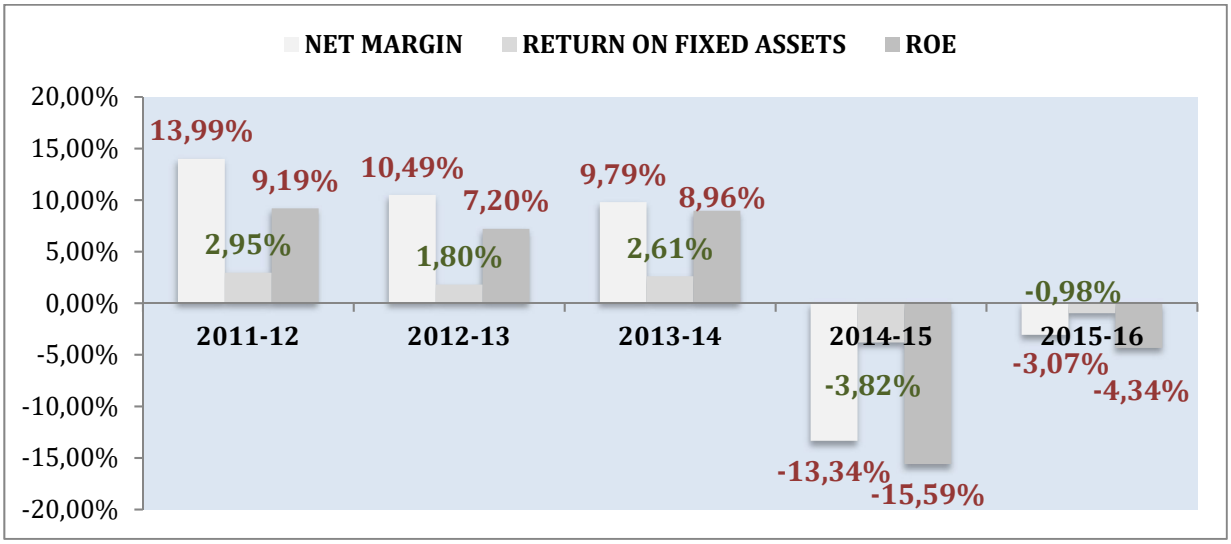
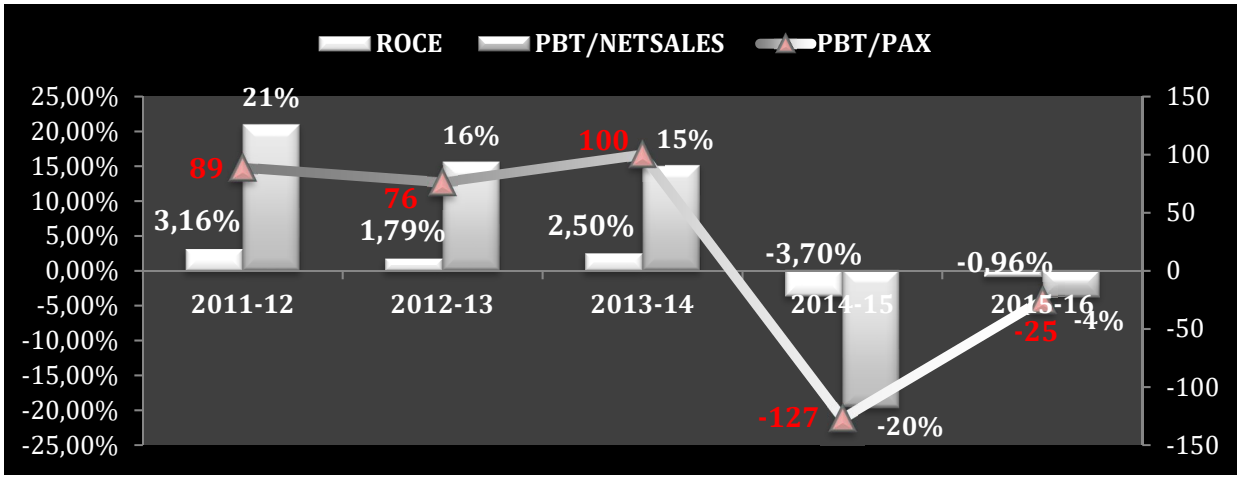


Figure 7b – Profitability ratios of Mumbai International Airport Ltd (MIAL)



Source: Ministry of Corporate Affairs

Inference: With rising debt margins and lowering potential to cover the interest expenses, MIAL's profit dropped drastically in 2014-15, which prevented them from transforming the 14% annual passenger growth into profit. Their net margin kept decreasing until they landed into operating losses in 2014-15 despite the continuous growth in annual passenger numbers and overall net sales depicting diseconomies of scale. Though their net income increased, their fixed assets kept on decreasing due to the incremental investment towards the new terminal. However, they succeeded in bridging the gap to a great extent by 2015-16. The similar trend can be observed in Figures 7a and 7b with respect to ROE and ROCE. The major component resulting in the lower earnings is the finance cost, which increased by a staggering 940% over five years. However, the asset allocation can be regarded somewhat efficient as the turnover ratios reflect an upward trend. Nevertheless, the negative ROCE raises concerns over garnering further investment, as it is way below the industry average. Expecting a similar growth in passenger throughput and net sales, MIAL need to reduce their operating losses over 75% to breakeven.

Figure 8a - Performance ratios of Delhi International Airport Ltd (DIAL)

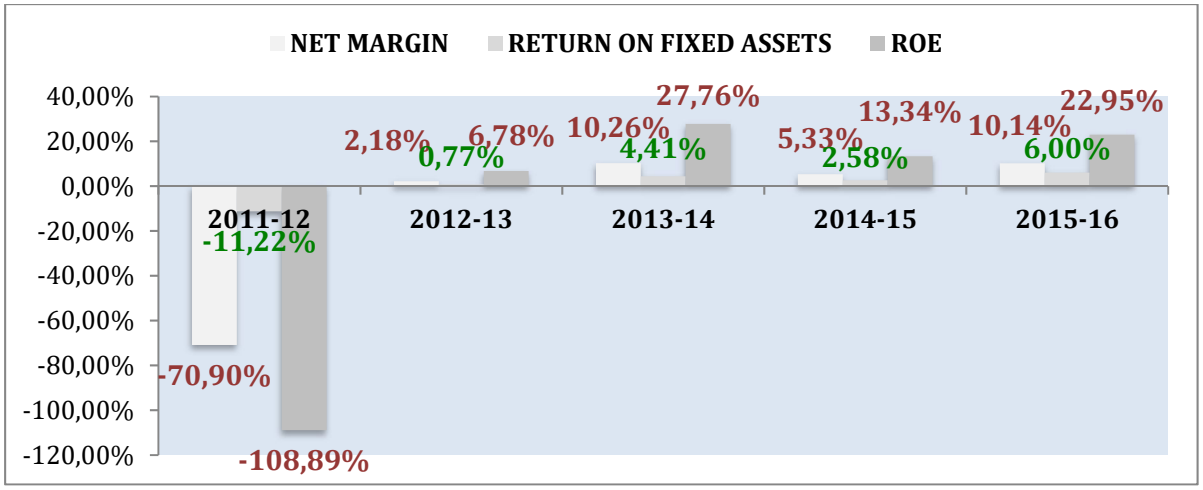
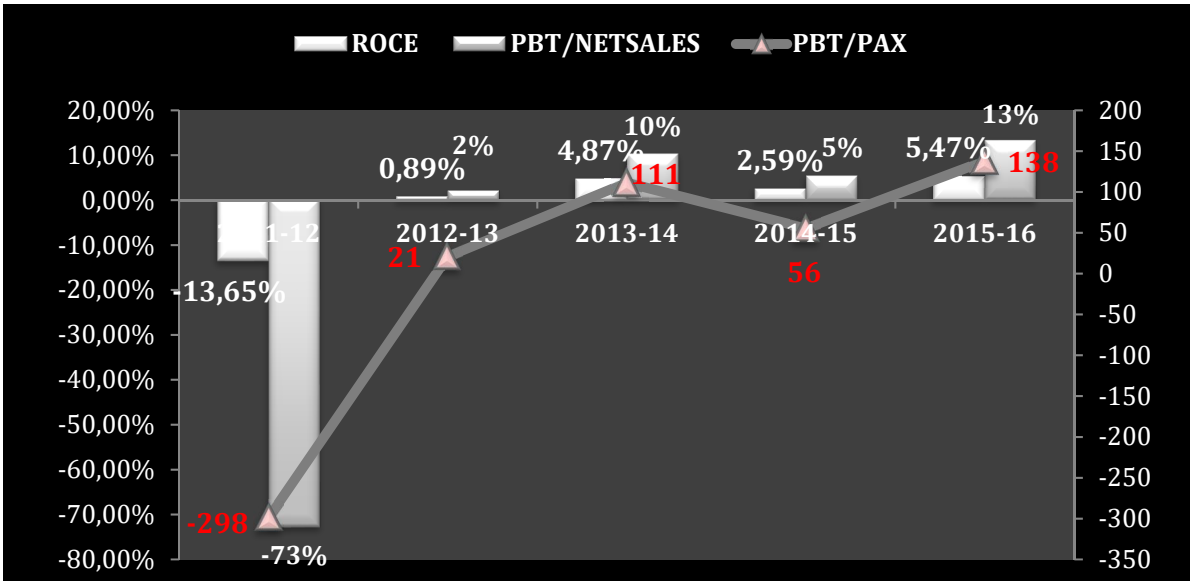


Figure 8b - Profitability ratios of Delhi International Airport Ltd (DIAL)



Source: Ministry of Corporate Affairs

Inference: DIAL on the other hand pulled a profitable picture altogether as displayed in *Figures* 8a and 8b Their PBT margins increased the most in 2013-14 and 2015-16 by 467% and 193% respectively. Their performance seems to be quite in sync with their financial leverage. In their books only depreciation expenses showed the highest growth of over 50% in five years. Apart from this, DIAL managed to keep all cost and expenses under control. Their efficiency in asset allocation and capital deployment can be observed from the improving ROE and ROCE shown above. They managed to stagnate their capital deployment on fixed and current assets while increasing their current investments by a staggering 1782%. This reflects a matured business model, where they managed not to block their investment for a long-term in a capital-intensive business. The higher PBT margins have been complemented by a two-fold increase in net sales from the growing passenger numbers in five years. These figures positions DIAL in the 3rd rank among the five private airports in India.

Figure 9a - Performance ratios of Hyderabad International Airport Ltd (HIAL)

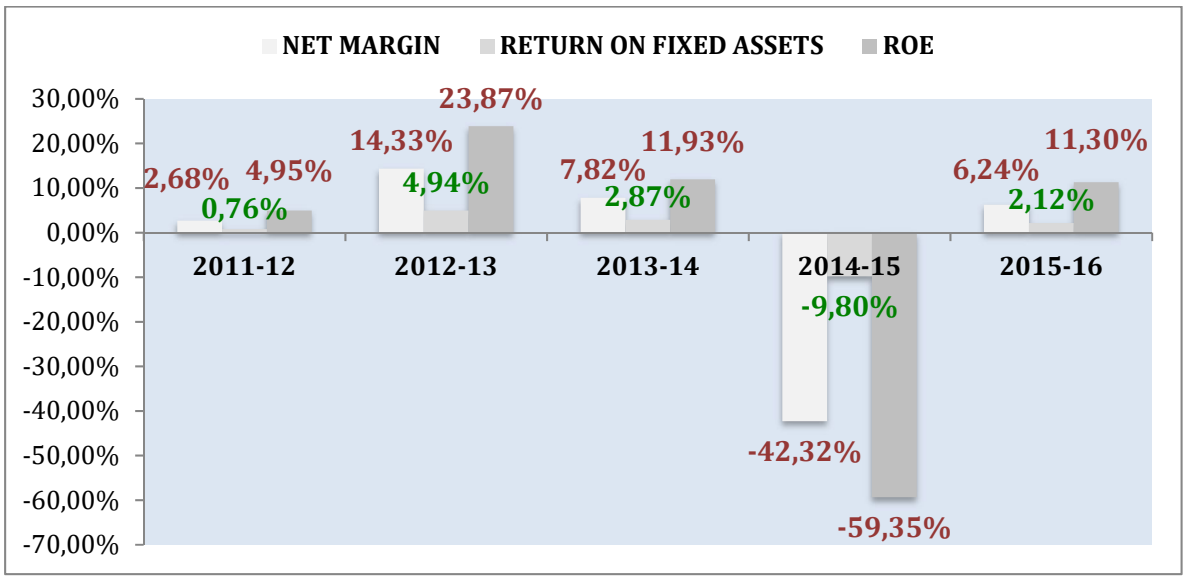
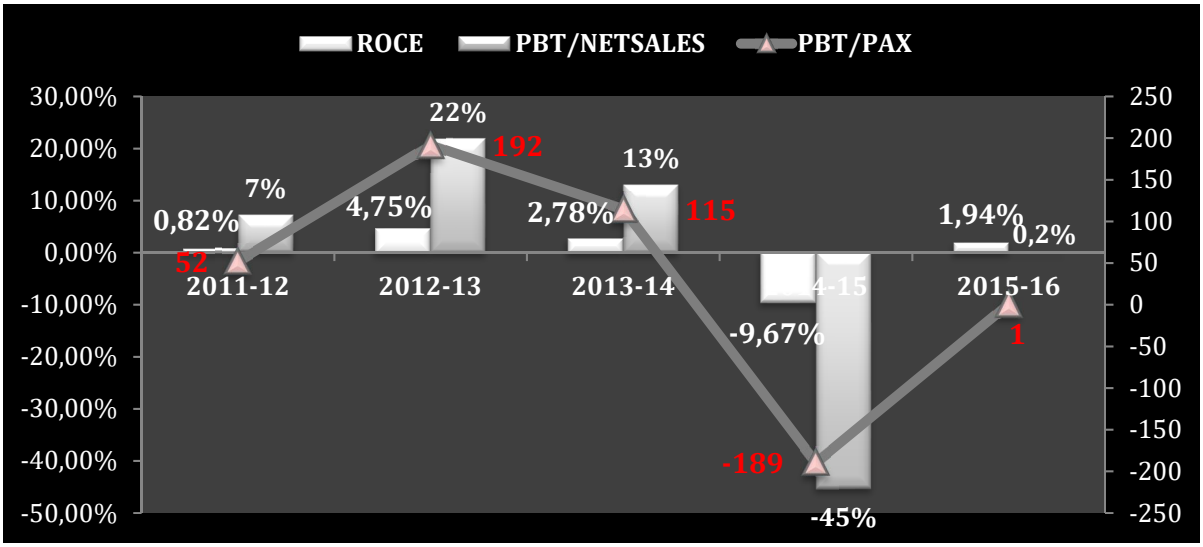


Figure 9b - Profitability ratios of Hyderabad International Airport Ltd (HIAL)



Source: Ministry of Corporate Affairs

Inference: HIAL is the second private airport operated by GMR in the 5-15 million passengers' category. Overall it reflects a positive outlook in Figures 9a and 9b, besides 2014-15. The negative PBT margin is due to decreasing revenue growth caused by a 43% fall in net sales. However, this deficit was bridged in the following year. Like DIAL, except their depreciation expenses which increased over 70%, rest of the costs have been well managed. Through a similar approach like they maintained a lower finance cost by not blocking their capital on long-term assets, while their current investments spiked up by 1074%. Their asset turnover ratios also increased confirming their optimal asset allocation.

Although, the overall performance remained positive, the PBT margins have dropped by 97% in five years. This raises some alarms on focusing on a better turnaround. After the downfall in 2014-15, they managed to turnaround by an extremely thin margin the following year. Though the ROE remains standard, there is further scope to improve the ROCE, in order to keep the shareholders interested.

Figure 10a - Performance ratios of Bangalore International Airport Ltd (BIAL)

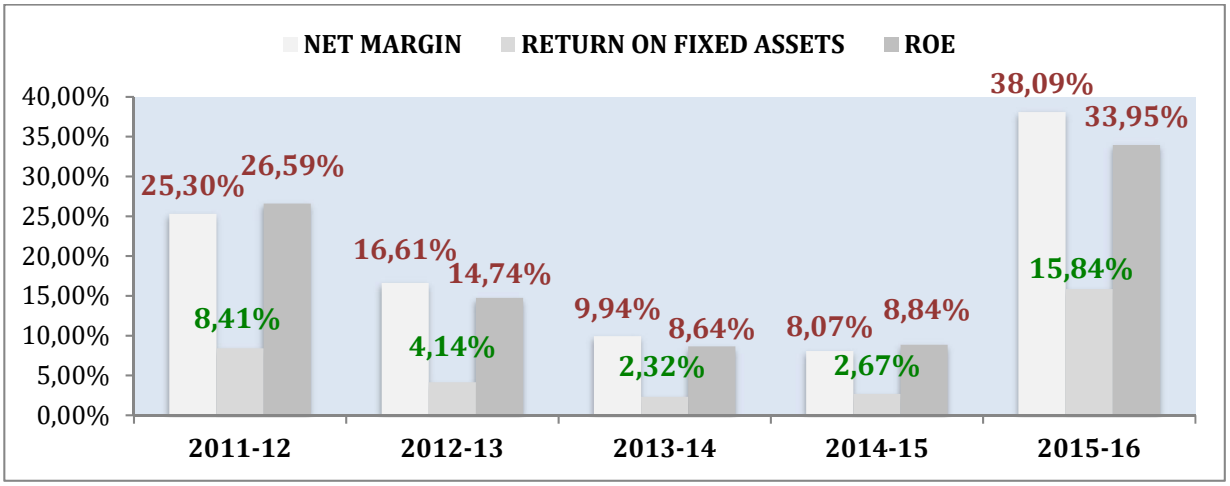
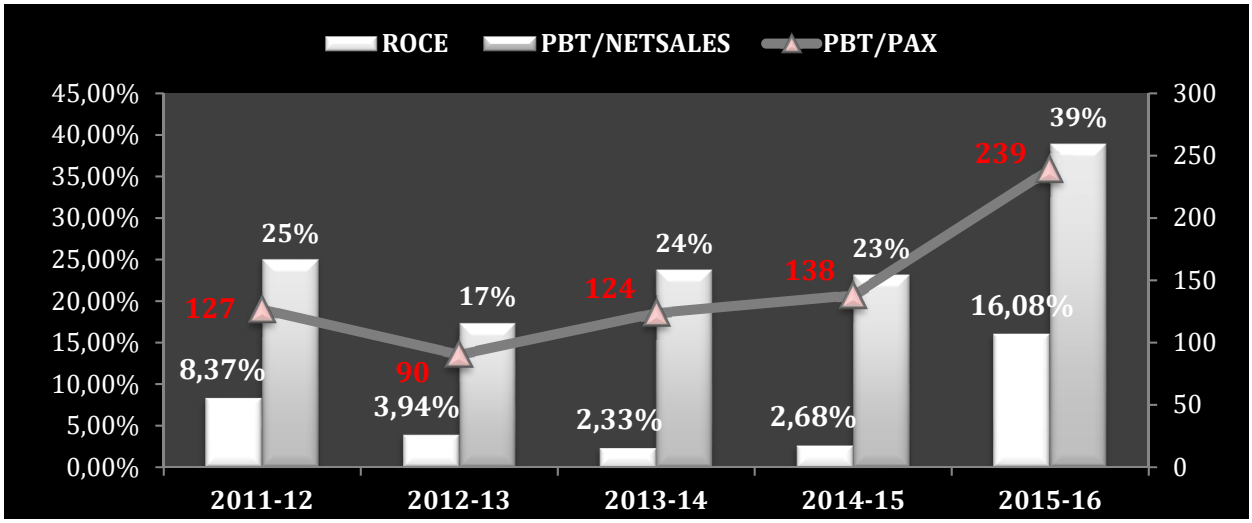


Figure 10b - Profitability ratios of Bangalore International Airport Ltd (BIAL)



Source: Ministry of Corporate Affairs

Inference: BIAL is the 2nd airport operated by GVK in India. In spite of some intermediary downturns, they managed to retain overall positive margins as seen in Figures 10a and 10b. Their PBT margins more than doubled in the last accountable year owing to their aggressive expansion plans, which in turn increased their working capital by 85%. Unlike the GMR run

airports, BIAL focuses on maximizing their working capital instead of the current investments, whereas their non-current investments increased by an enormous 734%. Among the PPP airports, BIAL ranked 2nd in 2015-16 in terms of PBT/passenger, close behind CIAL. The remarkable increase in ROE in 2015-16 is due to their reduced dependency on borrowed capital with a 71% decrease in their short-term borrowings. They experienced the highest growth in PBT in 2013-14 and 2015-16, which grew by 47% and 114% respectively. In the last two years with the net sales growing by 36% and 27%, the high profit margins even indicates growth in non-aeronautical revenue due to catering passengers having higher propensity to spend.

Figure 11a - Performance ratios of Cochin International Airport Ltd (CIAL)

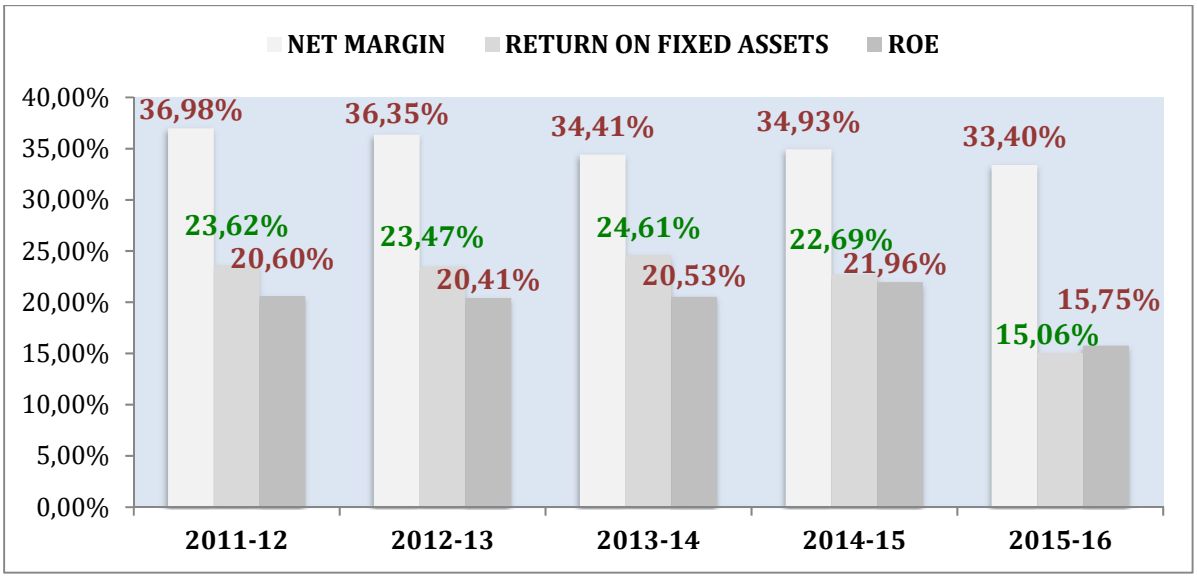
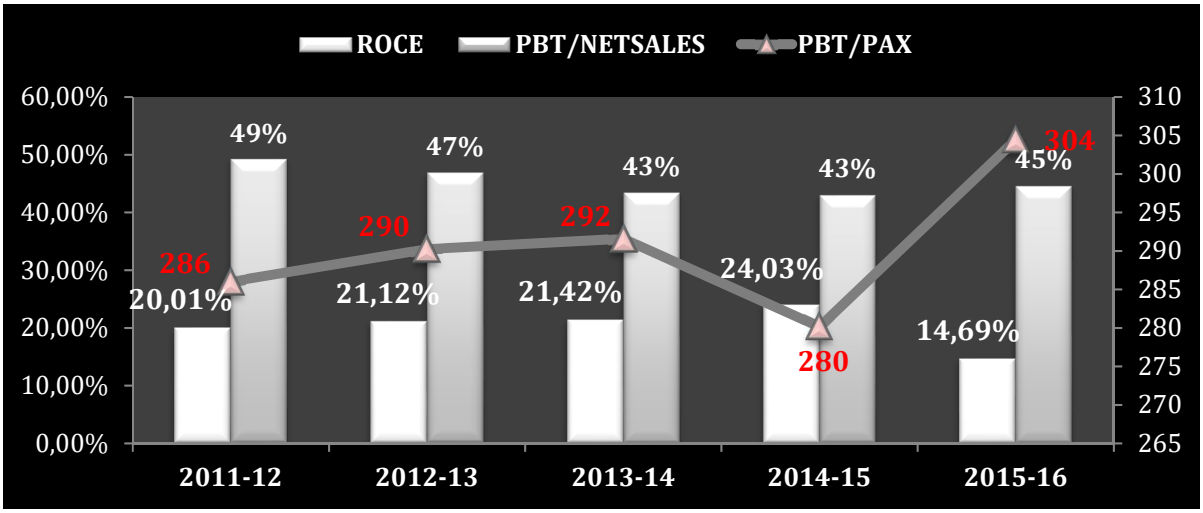


Figure 11b - Profitability ratios of Cochin International Airport Ltd (CIAL)



Source: Ministry of Corporate Affairs

Inference: CIAL can be regarded as the most profitable PPP airport in India in the 5-15 million passenger category as reflected in *6.3.5*. As described earlier foreign investors instead of a consortium fund them. They succeeded in maintaining a consistent growth of over 30% in their net margins. Though their operating revenue increased by 26% in 2015-16, the 80% increase in fixed assets slowed down their ROFA. This explains the growth in long-term debt by 494% in the same year. However, this investment turned in their favor owing to the 20% increase in total traffic. They managed to retain a PBT margin and net sales higher by 31% and 26% respectively as displayed above, which was the highest in five years. The dip in ROCE is due to the same reason of spiked up long-term debts. Nevertheless, the highest PBT per passenger of 304 in the industry reflects an optimum utilization of resources.

7. FEASIBILITY STUDY

7.1. Advantages & disadvantages of Airports Listed in stock exchange

	Advantages	Disadvantages
1.	Significant improvement in governing potential.	Loss of overall control and ownership of business (personal touch may be lost).
2.	Rules that require regular reporting and continuous disclosure can expose poorly performing managers and pressures from shareholders and external analysts can spur the timely rectification of such problems.	More people to share profits with (less income).
3.	Subject to strong, ongoing pressure of scrutiny for improvement in efficiency.	Business may become over exposed to market fluctuations that are beyond one's control.
4.	Independence from government.	Floatation costs may be substantial and there are high costs of professional fees.
5.	Easier to get international funding.	Shareholders interest while running the company may differ from the company.
6.	Having own trade shares gives better potential to acquire new businesses, as shares and cash can be offered.	Giving up a part of management control and opening of a chance to be taken over.

7.2. Risk Assessment and Feasibility

From a sample size of 678 airports ACI analyzed the contribution of private sector to be 14% (ACI 2017) in 2014, while they undertook 44% of the capital expenditure. It has been observed that investment in an airport is directly proportional to the market size they cater to. ACI had shortlisted 20 in terms of passenger traffic that are listed on the respective stock exchanges either as individual airports or as part of an airport group. In terms of listed companies, the risk of investment in a company's shares can be assessed from their estimated beta values, which is a component of the CAPM model described earlier. In 2010, Air New Zealand conducted a comprehensive survey to estimate the airport betas of 31 airports (Strategic Financial Group, 2010). The 20 airports shortlisted by ACI are included in this sample. The standard error of these airports being up to 0.3 except two Infratil Ltd., New Zealand and Multiplus S.A., Brazil with 0.5 justifies the relevancy of the study.

With reference to this study AERA had reckoned NIPFP[6] in 2011, to determine the cost of equity of the five private airports that have been analyzed above based on the CAPM model. The study estimated the risk-free rate to be 7.35% considering an annual yield from government bonds over last ten years, i.e. from 2001-2010. Due to restricted access to data of a short time series of 10 years that was then available for Indian market, benchmarking the matured market in United States at 4.31% and adding a default risk premium of India at 2.4% derived the equity risk premium of 6.71%. As mentioned earlier, the Indian airports not being listed in stock exchange not only prevented their beta value to be derived from Indian market, but also, other Indian infrastructure companies as they are quite diversified. Hence, the study conducted by ACI and Strategic Finance Group substantiated the mean asset beta of the private Indian airports to be 0.51 and an equity beta of 1.57-1.7. Furthermore, the Indian airport policy of not allowing a second airport to be constructed within a radius of 150 km. of existing airport and the liberty to charge UDF[7] to bridge the deficit in projected revenues curtailed the estimated beta to 0.4 (NIPFP, 2011). However, as per inputs and discussion with established consultancies and industry bodies like KPMG, Leigh Fisher, CRISIL and SBI Capital markets AERA ascertained the rates for the second control period as mentioned in table below.

[6] National Institute of Public Finance and Policy
[7] User Development Fee

Table 1 – Cost of Debt and Equity

RATES	MIAL	DIAL	HIAL	BIAL	CIAL
Cost Of Debt	11.17%	9.99%	9.38%	10.25%	9.63%
Cost Of Equity	16%	16%	16%	16%	14%
5 year Forecasted CAGR for Passenger traffic	7.44%	7.01%	11.67%	13.63%	

Source: (MYTP/MIAL AERA 2016-17), (MYTP/DIAL AERA 2015-16), (MYTP/BIAL AERA 2018-19), (MYTP/HIAL AERA 2017-18), (MYTP/CIAL AERA 2017-18)

From the analysis of the debt structure, performance and profitability of the private airports it can be perceived that DIAL and BIAL has a robust debt management practice compared to the rest. The profitability catapults CIAL to the top closely followed by BIAL and DIAL. From the perspective of an individual investor in these respective stocks, there would be more value for money buying shares of DIAL in the large airport category due to their optimized financial management and BIAL in the small airport category owing to their profit margin and exponentially growing market size. The ROCE and Net profit margins further complements our decision. MIAL would not be preferable because they have reached saturation point, which would soon trigger diseconomies of scale. CIAL and HIAL cannot be disregarded. However, CIAL's ownership structure of foreign investors is in my opinion sufficient to provide additional funding and unlikely to make it public. Though, HIAL is also reflecting a robust financial structure, the growth rate seems to be comparatively slow. Hence, it could be considered a third choice. Nevertheless, all these airports meet the eligibility criteria of SEBI[8] both in terms of market capitalization and duration of operation. Another rationale for my choice of DIAL and BIAL is in terms of share capitalization. MIAL's authorized share capital is equal to the paid-up capital suggesting little or no room for improvement in their cash flows without fresh equity. Similar is the case of HIAL, and CIAL, whereas such scope of improvements exists in DIAL and BIAL. However, taking into consideration the risk mitigating factors mentioned above, listing these airports on the stock exchange would be feasible.

8. CONCLUSIONS AND FURTHER RESEARCH

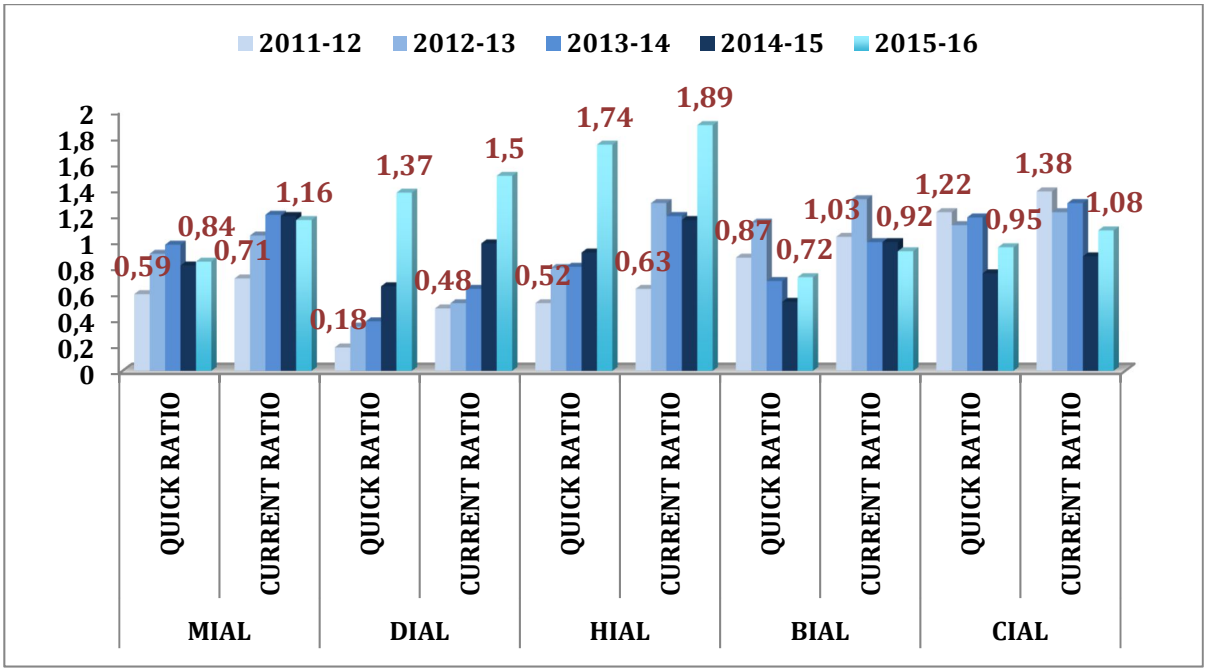
The forecasted traffic by the authority and the liquidity depicted below further substantiate our claim for the choice of airports to be DIAL, BIAL and HIAL. The current / quick ratios of MIAL and BIAL show some stagnation due to MIAL's new terminal and BIAL's technological up-gradations. However, GVK has sold a major stake in BIAL to Fairfax in the recent year, which has strengthened their liquidity.

[8] Stock Exchange Board of India

Though one of the busiest airports in India, MIAL is over saturated to accommodate further growth. Whereas DIAL, HIAL and BIAL not only reflects a positive forecasted growth, but also, a robust liquidity position for future expansion. The annual passenger traffic in India have been growing above 20% out of which around 56% have been contributed from the PPP airports. Simultaneously, the airports that have been shortlisted in this paper have positioned themselves quite strategically in terms of liquidity, which complements the capacity enhancements soon. However, the investment trajectory must remain consistent as reflected before in order to meet the capacity enhancements necessary.

Thus, it can be concluded that DIAL and BIAL would be the primary choice among the 5 private airports, to be listed from an investor's perspective. This claim can be supported by their robust debt structure, profitability, market capitalization and duration of operation, which is better than the rest. Moreover, the spree of airport operating permits being acquired GMR, which operates DIAL, like Goa, Maldives, Nagpur, Bulgaria and more, further complements their expertise in the airport business.

Figure 12 – Evolution of Quick and Current Ratios in Key Indian Airports



Source: Ministry of Corporate Affairs

On the other hand, BIAL is pioneering in the front of the most technological advancements in India like end-to-end biometrics and facial recognition technology ensures its increased efficiency in the coming future. When we map the investments of these airports with their

profit margins it brings some more positivity into perspective. Over the five-year period DIAL's current investments grew to the tune of 1782% while the PBT margin touched its peak in 2013-14 and 2015-16 at 467% and 193% respectively, in-spite of not blocking their investments for the long-term. This is clarified by the exponential passenger growth and the ROCE that sprung from -13.65% to 5.47% in this duration. Although BIAL do not reflect any such investments as such, but their reserve and surplus increased by almost 400% in this timespan, directing their profitability northwards. Unlike DIAL, it channeled its investments towards work-in-progress owing to its aggressive expansion plans. Nevertheless, their ROE reflected a remarkable growth in 2015-16 due to a 74% decrease in their borrowed capital resulting in a 114% increase in PBT margins. In terms of liquidity as shown in *Figure 8*, DIAL and BIAL have managed to increase their cash equivalents by 56% and 39% respectively in five years, which is quite commendable. Finally, the existence of a room for improvement in both their share capitals further supports our claim for listing them.

In this analysis AAI could not be considered comparable as the airports under its portfolio reflected a diverse cost structure which needs to be further streamlined and restructured before it could be factored in. In this paper the risk factor for investments in airports have been benchmarked with the already listed international counterparts, highlighted in Risk assessment and feasibility section. However, there's room still for drawing a comparison of their financials with the Indian airports, which could not be included due to data and time constraints. The below mentioned adjoining areas holds potential for future research.

- Optimizing the RAB structure.
- Activity based pricing.
- Quantifying the points of value addition in an airport supply chain.

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CONSUMERS' ATTITUDE TO THE AIR PASSENGER DUTY IN THE UK – AN EXPLORATORY STUDY

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ABSTRACT

This paper explores British consumers' knowledge, awareness, attitude and reaction to changes in the air passenger duty imposed on outbound air travel from the UK. Survey data were collected using an online survey. The key findings of this paper are that firstly, consumers are not aware of the amount of taxes they pay on air tickets and therefore, this may be limiting the ability for the taxes to influence behaviour. Secondly, increases in this tax will not discourage consumers to travel abroad but rather affect consumers' intention to finance such an increase by either reducing their consumption on tourism related products at the destination or by reducing their consumption of other products in the UK. Thirdly, there is an asymmetry in the response of consumers' reaction to increases in taxes as compared to reduction in taxes. These findings can form the basis for an in-depth study on consumer behaviour in the UK travel industry.

KEYWORDS

Tourism Taxes; APD; UK Outbound Tourism, Consumer Behaviour

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1. INTRODUCTION

Air Passenger Duty (APD) is an aviation tax that was introduced in the United Kingdom in 1994. The purpose of APD is outlined by Seely (2012) who cites Chancellor Kenneth Clarke's Budget Speech from 1993. In his speech Kenneth Clarke states that the aviation industry is undertaxed and therefore by introducing this tax, revenue can be raised without any significant consequence to the economy. Although it is true that the aviation industry does benefits from zero rate of VAT and pays no duty on fuel (Airportwatch 2014), APD is one of the highest aviation taxes levied in the world. The growing number passenger flows in the UK means that this tax is a very lucrative source of revenue for the government. Later government reports (UK Parliament 2003) state that the main purpose of the Air Passenger Duty is to raise revenue from the aviation industry and justifies its introduction in the UK with environmental benefits that the tax will bring. It was considered that these environmental benefits will come as a result of the tax negatively effecting air traffic volumes.

However, the number of departures from the UK has increased on average by 2% (Euromonitor 2014) and a recent study by Seetaram et al. (2014) indicates the ADP has only a marginal effect in reducing the number of outbound trips from the UK. It may be argued that consumers do not react to the tax by changing cutting down on number of trips taken but rather re-adjust their budget to absorb the amount of tax paid payable on an international trip. This study which is designed as a pilot study, postulates that consumers are unaware of the level of taxes paid and therefore, do not react to changes in this figure. The aim of this study, therefore, is to examine British consumers' knowledge, awareness, attitude and reaction to changes in the air passenger duty which in imposed on all outbound air travel from the UK, using survey data.

2. RATIONALE FOR TAXING TOURISM

Tourism as an economic activity involves the movement of people and vehicles, as well as the use of natural resources and infrastructures of the country visited (Chang et al. 2011). This inevitably imposes extra costs on governments that need to provide and maintain the necessary tourism infrastructure in order to sustain the economic benefits from the industry. These costs are often covered by local residents through revenue generated from taxes. This is where the classic argument for tourism taxation is drawn. According to Jensen and Wanhill (2002), tourism taxes address inequalities by placing the burden upon the ones responsible for generating the initial costs and therefore, affect domestic welfare positively.

Another significant reason for imposing taxes on the tourist is to correct externalities (Gooroochurn and Sinclair, 2005). The term 'externality' is used by Schipper et al. (2001) to describe any consequences of an economic activity that affect unrelated third parties. One such externality which Tol (2007) carefully acknowledges is the environmental impact caused by the aviation industry. His research acknowledges the industry's high and growing level of carbon dioxide emissions and examines whether the imposition of a carbon tax would correct the externality. His work aims to determine the impact of a carbon tax on consumer demand and to assess whether this impact would reduce the environmental costs. With the use of a simulation model of international tourist flows, Tol (2007) determines that a global carbon tax such as Air Passenger Duty (APD) would affect consumer demand in a way that long-haul travellers would switch to medium-haul destinations and medium-haul travellers to short-haul destinations. Using his findings, Tol (2007) concludes that a global air travel tax of $1000/t CO2 would change consumers' travel behaviour which will reduce carbon dioxide emissions from international aviation by 0.8%. Tol's (2007) findings represent a valuable source of information for the researcher and will be further referred to in the following chapters. More recently, Seetaram et al. (2018) used survey data to show that consumers are willing to pay more for the ADP on long haul flights than for short haul fights and that the majority prefer the revenue to be used for projects related to the environment.

Going back to the rationale of taxing the tourism industry, the study by Gooroochurn and Sinclair (2005) uses the case of Mauritius to prove the efficiency and effectiveness of tourism taxation in improving domestic welfare. Their general equilibrium analysis indicates that revenue generated through the tourism sector decreases government's dependency on other taxes paid by residents of the country. The study directly links to the final rationale of taxing the tourism industry- the exportability of the tax. On one hand, international tourism is a service export (Sheng and Tsui 2009). Therefore, by taxing different tourism services, taxes are exported, and revenue is generated from non-residents. As the tax burden falls on non-residents, the effect of tourism taxation has little effect on domestic welfare (Gooroochurn and Sinclair 2005). On the other hand, however, studies conducted by Fish (1982) question the extent to which tourism taxes can be exported. In his research, he points out that the degree of exportability largely depends on the price elasticity of demand (PED). In other words, if the consumer is price sensitive, businesses absorb a proportion of the tax in order to retain market share. If a proportion of the tax is absorbed by businesses however, this would reduce their revenue and force them to review their expenses in order to close the gap. One way to close this gap might be to reduce the number of staff employed. Therefore, even

though tourism taxes are considered to export tax, the more elastic the demand (i.e. the more price sensitive the consumer), the more the tax burden would fall upon businesses and residents of the country, rather than on the tourists (Fish 1982). The following sections explore the effects of tax and price elasticities in further detail.

3. THE EFFECTS OF TAXES

In order to better understand the benefits and threats to tourism taxation; it is important to note that tourism taxation is a form of government intervention in the market. Taxes have the effect of raising marginal costs of production. Depending on external factors, suppliers might wish to keep their prices low and absorb the full tax without placing a burden on the consumer. They might also decide to cover the tax partially by slightly increasing their prices or shifting the entire tax burden to the consumer by incorporating the tax' full amount in their prices.

Taxation may not be a serious issue where the market power is strong (Sheng and Tsui 2009). However, imposing a tax in a highly competitive environment may pose a threat to the economy. Fish (1982) puts forward a study on West Africa's accommodation sector. In his work he argues that intense competition in the area and price sensitivity of consumers have led businesses to absorb the tax on hotel bed nights with some businesses having to leave the industry. This is one example of how despite governments exporting the tax, a tourism tax can still cause distortion in an economy. On the other hand, Gooroochurn and Sinclair's study (2005) of Mauritius show how tourism taxes are in fact beneficial for the host country. The above two studies prove Jensen and Wanhill's (2002) argument that a tourism tax's impact differs from a country to a country and largely depends on the linkages between the country's tourism industry and the rest of its economy. Authors such as Millet (1987) also stress on the importance of the industry's lifecycle. During tourism's development stage, Millet (1987) argues, leakages from the industry abroad are likely to be high, therefore reducing the welfare effects of tourism taxes. There are different ways in which the effects of tourism taxes can be looked at (Sheng and Tsui 2009; Jensen and Wanhill 2002). However, academic opinions seem to reach an agreement. Looking at the economic effects, according to Sheng and Tsui (2009) tourism taxes reduce a destination's welfare in accounting terms. Effects might be seen in the form of a shrinking Gross Domestic Product (GDP). Despite certain economic costs that may occur, there is evidence that the total welfare of a destination can still increase (Sheng and Tsui 2009). To summarise the literature suggests that tourism

taxation effects depend largely on the country's market power and the price sensitivity of the consumer.

International tourism is a service export used by destinations to finance imports of other goods and services (Sheng and Tsui 2009). In the beginning of the 1960s the industry is considered to be largely free of tax (WTO 1998). However, in recent years both the number of tourism taxes and their level have been expanding with many organisations and academics expressing their concerns (WTO 1998). Authors including Gooroochurn & Sinclair (2005) and Jensen & Wanhill (2002) point out how tourism taxes have become a target for governments. The rate at which tourism taxes have been increasing both in number and in level have generated a debate around the topic of whether tourism taxes are economically rational (Sheng and Tsui 2009). Looking at the United Kingdom, there is a particular tourism tax that directly links to the concerns outlined above.

4. AIR PASSENGER DUTY

Introduced in 1994, Air Passenger Duty (APD) is an air travel tax. As such, APD's main purpose is like the one of all tourism taxes. Its aim is to raise revenue for the UK economy through the tourism sector. The tax applies to all passenger flights departing from any UK airport, travelling both domestically and internationally. The level of tax varies depending on the class of travel and the destination travelled to. Since its introduction in 1994, APD has been reformed 8 times to reach its current scope and levels. For the financial year 2013/ 2014 APD has generated £3.0 billion to the UK economy (Seely 2014). Table 3 presents Air Passenger Duty's steep rate increase throughout the years. Starting at just £5 for Economy and £10 for Business class passengers, the tax has also developed in a way to distinguish between short-haul and long-haul travellers imposing a higher rate for the latter.

Being one of the highest aviation taxes levied in the world, APD has become a controversial subject. With its constant growth over the past years, the APD discussion can be linked to Sheng and Tsui's (2009) concerns on how economically rational tourism taxes are. Businesses have also raised concerns over the tax's effectiveness and its impacts on the economy with most opinions considering the tax as unfair (PwC 2013). This has led to government's decision to proceed with another reform of the tax. The major changes include abolishing Bands C and D, as well as scrapping the tax for children under the age of 12 (Smith 2014). Changes came into practice in April 2015. Apart from raising revenue for the UK economy, APD has also been justified as a tourism tax that would have positive impact on the environment. According to

the UK Parliament (2003), APD was expected to impact negatively the number of people travelling abroad. This belief was based on the law of demand according to which increases in price have a negative effect on demand. However, whether this has been the case is debatable. The following section examines in further detail.

Table 1 - Evolution of the ADP in the United Kingdom

Date of Change	**Reduced Rate £ (Economy Class Travel)**				**Standard Rate £ (Business Class Travel)**			
01.11.94	5.00				10.00			
01.11.97	10.00				20.00			
Date of Change	**EEA Destinations**	**Non-EEA Destinations**			**EEA Destinations**	**Non-EEA Destinations**		
01.04.01	5.00	20.00			10.00	40.00		
01.02.07	10.00	40.00			20.00	80.00		
'EEA' and 'Non-EEA' Categories are abolished. Introduction of a Four Band System								
Date	**Reduced Rate £ (Economy Class Travel)**				**Standard Rate £ (Business Class Travel)**			
	Band A 0 – 2,000 miles	**Band B** 2,001-4,000 miles	**Band C** 4,001-6,000 miles	**Band D** Over 6,000 miles	**Band A** 0 – 2,000 miles	**Band B** 2,001-4,000 miles	**Band C** 4,001-6,000 miles	**Band D** Over 6,000 miles
01.11.09	11.00	45.00	50.00	55.00	22.00	90.00	100.00	110.00
01.11.10	12.00	60.00	75.00	85.00	24.00	120.00	150.00	170.00
01.04.12	13.00	65.00	81.00	92.00	26.00	130.00	162.00	184.00
01.04.13	13.00	67.00	83.00	94.00	26.00	134.00	166.00	188.00
01.04.14	13.00	69.00	85.00	97.00	26.00	138.00	170.00	194.00
01.04.15	13.00	71.00	-	-	26.00	142.00	-	-

Compiled by authors

4.1 Effects of APD on Inbound and Outbound Travel

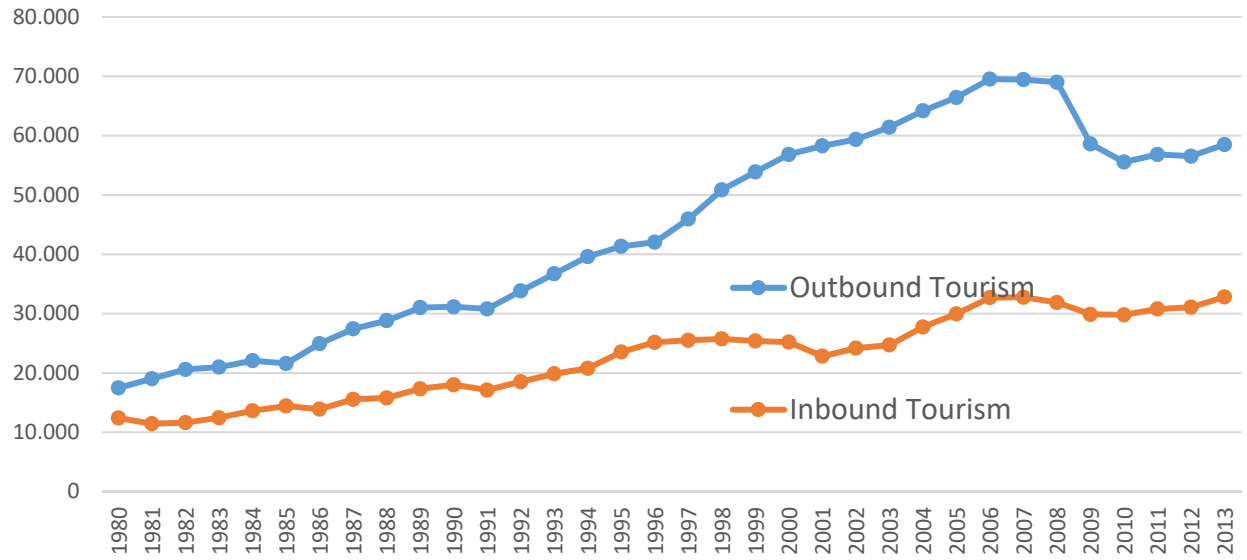
The discussion previously held has led to the conclusion that travel taxes can both improve the domestic welfare of a country, but they can also cause distortions in the economy. Revenue generated from tourism can be either linked back to the industry (Jansen & Wanhill 2002), or used to finance projects and support government expenditure without imposing a burden upon residents. Looking closely at APD however, the revenue generated from the tax

is gathered from incoming travellers, but also from UK residents travelling abroad. Figure 1 illustrates the tourism flows to the UK for the period 1980 – 2013. The first observation made is that there is a widening gap between inbound and outbound tourism levels. It is argued that in the Post Brexit era with a sharp depreciation in the British Pound this gap may narrow as UK becomes more affordable as a destination for tis main market and outbound travel become more expensive for British travellers. With air transport being a preferred method of travel for outbound travellers (Euromonitor 2014), it could be argued that a larger percentage of APD revenue is gathered from UK residents and once again raises Fish's concern (1982) whether the tax is exportable.

As a comparison to APD, this study considers the Passenger Movement Charge-a departure tax in Australia that is like APD. According to research conducted by Forsyth et al. (2014) the tax raises costs of travel for inbound tourists and therefore reduces the number of visits to the country. Although the Passenger Movement Charge is proved to have some positive economic impacts on GDP, employment and economic welfare, through an increase in domestic travel, these are offset by a drop in visitation numbers to the country due to rising air travel prices. Looking at Air Passenger Duty in the UK, Mayor and Tol (2007) stipulate that the doubling of the tax in 2007 would lead to a slight decrease in passenger arrivals to the UK, as consumers are in fact price sensitive and would switch their travel destination. Seetaram, Song and Page (2014) state that although the APD leads to a decline in the number of outbound trip from eh UK, the effect is fairly small, thus negating any potential gains in term of reduction in emission related to air travel.

Song, Seetaram and Ye (2019) find that travellers account for the increase in cost of their international trip, resulting from the APD, by reducing their expenses at the destination. Durbarry's (2008) gravity model draws upon the same conclusion after modelling inbound tourism demand in the UK. Looking at data from recent tourism statistics however (ONS 2013), the factual information contradicts both Mayor and Tol's (2007) and Durbarry's (2008) opinion on the effects of a rising departure tax such as APD. As Figure 1 shows, inbound tourist arrivals have been steadily rising only to reach 32.8 million visits in 2013- an increase of 164% from 1980. The upward trend in visitor arrivals has been disrupted twice following the 9/11 attacks in the US in 2002 and the 2009 financial crisis.

Figure 1 - Tourism Flows in the UK



Complied by authors using data from Office of National Statistics, UK.

The study of Passenger Movement Charge (PMC) draws upon the conclusion that despite rising departure taxes, Australian residents would pay higher prices to travel overseas (Forsyth et al. 2014). Even though a small percentage of outbound travel demand would be offset due to higher air fares, Forsyth et al. (2014) claim that rising tax would set an increase in domestic travel. When looking at the effect that APD is considered to have on outbound travel, it is estimated that fewer people would travel to nearby countries, however the level of people travelling mid and long-haul would increase (Mayor and Tol 2007). According to Mayor and Tol (2007) this is due to the departure tax raising short-haul ticket prices relatively more compared to the increase in prices for mid and long-haul flights. Going back to Figure 1, between 1980 and 2013, outbound travel from the UK has witnessed an increase of 230%. The biggest drop in outbound tourism is witnessed during the 2009 economic crisis which has led to a record fall in the value of the sterling (Smith 2008) and higher air fares due to costs of fuel (Rhodes 2015). Despite the 2009 economic crisis however, outbound tourism levels have continued to grow as seen in Figure 1. Following the figures and discussions above, it can be concluded that despite the increasing levels of APD, both inbound, as well as outbound tourism levels continue to increase. The following section will try to understand consumer awareness, attitude and reactions to the APD in order to understand the low marginal effect of this tax.

5. METHODOLOGY

Given this research is intended as a pilot study which aims at providing insights into consumer behaviour to design a major in-depth study on consumer behaviour in the air travel industry, it was deemed appropriate to collect data using an online survey. According to Bryman (2012), this method is adequate when the study is limited by time and finance which is the case here. Furthermore, online surveys are useful for obtaining data from a wide geographic spread of (Sue and Ritter 2007). The limitation however as Jennings (2001) points out is that it may pose a threat of alienation of participants that do not have an online presence.

5.1 Questionnaire Design

The survey is structured to reflect central themes derived from the literature (Dwyer, Gill and Seetaram, 2012). Section 1 relates to personal information about participants. It forms a profile of the respondents and provided valuable information for the researcher to structure different market segments based on *income, age, type of traveller, nationality*. This would allow the researcher to compare the level of APD knowledge between different categories. It would also enable the researcher to look at separate market segments and assess different segments' behavioural response to changes in APD.

Section 2 attempts to examine consumers' actual travel behaviour by questioning participants about their last international experience. This enables easier recollection of information and quicker question completion, as it relates to an actual experience (Finn et al. 2000). Open-ended questions eliminate the threat of limiting participants to a set of options. Questions distinguish between long, medium and short-haul travellers. They establish participants' purpose of travel and determine their relationship concerning the booking (i.e. whether it was a personal booking, direct booking etc.) while further shaping consumer profiles.

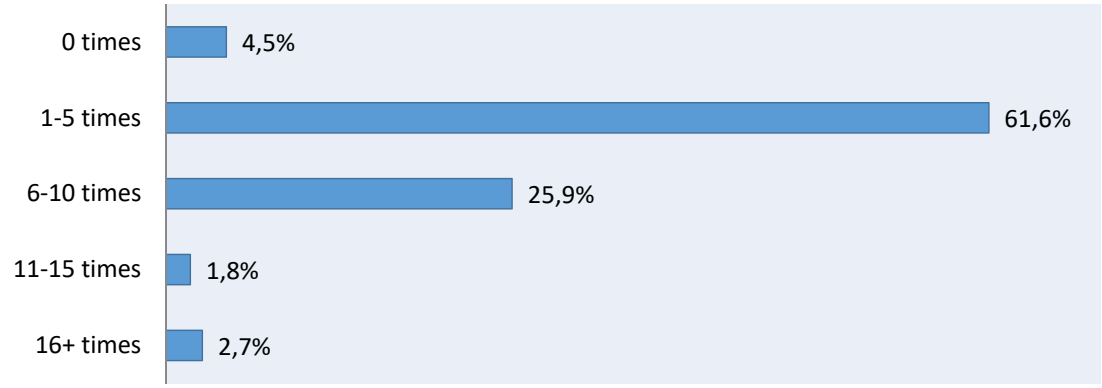
Section 3 is regarded as most valuable section of the survey. It generates data linked directly to the subject researched – tourism taxes and APD. The section provides a simple introduction of APD in order to set the background. The section proceeds to examining participants' attitude towards APD and their opinions regarding the purposes of the tax. The final question puts participants in hypothetical situations where APD's levels were increased or decreased. The statements used reflect the main points previously derived from the literature and research the effect that changes in APD have on participants' travel behaviour.

5.2 Data Collection and Sample Description

The link to the online questionnaire was made public predominately through email and social media due to the viral nature of the two (Sue and Ritter 2007) in February 2015. A snowball technique was developed to increase the sample size and strengthened the penetration amongst the population. After rejecting questionnaire that could not be used, the sample size for this study is 112. The limitation of the study, however, is that the sample is favours those who have access to the internet and are regular users. This explained the higher proportion of younger people in the sample with 56% aged between 18 and 24. The remaining 44% however, represents a suitable number of participants from the other age groups. Results confirm Jennings's (2001) concern of online surveys alienating participants who do not have an online presence, as only 2% of respondents fall under the '65+' age group suggesting their inability to access the survey. This is furthermore reflected in income level of the sample. For example, Thornton et al. (1997) suggest, there is a connection between the age and income which may explain why 42% of people surveyed fall under the 'Less than £19,999' annual income, 23 percent of the respondent earned over than £50,000 per year.

It is likely that the degree of exposure to the taxes will influence consumers' level of knowledge and awareness of these taxes and this in turn will influence their behaviour towards them. Therefore, for the purpose of this research, it is regarded as necessary to establish the degree to which participants are directly affected by APD. Questions aim to establish the background of participants by researching their nationality and their place of residence for the past 3 years. The results indicate that 55 percent of the respondents are British Citizen. However, 69% has been living in the UK in the past 3 years. 61% had travelled abroad from the UK at from 1 to 5 times in the past 5 years. 87.5% of these trips were by air. This is in line with secondary data obtained from Euromonitor (2014).

Figure 2 - Frequency of Outbound Travel in the past 3 Years



The data revealed that travellers were taking frequent short trips, as those who flew more than 5 times were more likely to have travelled to a Band A destination. 71% of the destinations flown to fall under APD's Band A. This could suggest certain degree of price sensitivity on behalf of participants (Smyth and Pearce 2008). It is not surprising as only 10.7 % of the travellers were on business trip. According to Dresner (2006), business travellers are the least price sensitive customers. However, data suggests that most international trips were undertaken on a low-cost carrier (47%), 43% travelled on full-service airlines and the remaining on charter flights.

6. RESULTS OF THE EMPIRICAL STUDY

6.1 Knowledge of Taxes Paid

Participants were asked question specific to taxes that they would have incurred during their trip to try to understand their level of knowledge and awareness of such taxes. Note that questions were specific about taxes and other charges were not considered. Only 29.5% of respondents knew that a tax had been levied on their tickets. 59.8% replied they did not know whether a tax has been levied or not while 9.8% replied no taxed has been charged. Only 20.5% believe they had paid any taxes during the whole trip including at the destinations. 37.5 % believe that they did not pay any taxes during the trip although travellers to Europe would have incurred bed taxes and VAT or other forms of value added taxes on their consumption in the UK and abroad during the trip. These results are consistent across the income levels and irrespective of type of carrier used. However, most of the respondents agree that they will be interested in knowing the extent of the taxes that they have incurred on their trip including taxes paid at the destination. The next section focuses on the Air Passenger Duty.

6.2 Awareness of the APD

Despite the media coverage and campaign about the APD from both the government and industry, during the data collection period, only 37% of the respondents have some knowledge of the APD. Overall, participants indicate a reasonable level of knowledge regarding the structure of the tax. Of those, 55.4% know that the APD is a tax charged on international flights. Although the consumers surveyed believe that the level of APD is the same for both low-cost and full-service carriers (41.1%), they (28.6%) believe that business and economy

classes are charged at the same rate which is not the case. Responses show a general awareness of the tax's reforms over the years with 22.3% believing that several changes took places since 1994 although in general they are not able to correctly name these changes. Amongst the purposes of introducing APD, respondents believe the tax is used to generate government revenue (41.1%), pay government debts (25.9%) and finance environment related projects (27.7%). Respondents do not believe the purpose of the tax is to discourage people from travelling (49.1%). In reality, this tax is an important source of revenue generation for the government and the exact used of the tax is not known. It is believed the revenue is used to finance public expenses and may or may not be financing tourism-related or environmental projects. The nature of the usage of the taxes, however, seem to matter for the consumers. As seen in the next section.

6.3 Attitude towards APD

The attitude of the consumers towards the APD is examined in this section. 59% of respondents agreed that it was fair to tax air travel. In fact, only 15% of respondent agreed that it was not justified to impose taxes on air travel. Willingness to pay depended on the purpose of the tax with a high percentage expressing an interest in knowing how the tax revenue will be used (54.5%). Respondents with income level of 20,000 and higher are even more eager to know more about the usage of the tax revenue. 41.1% of the respondents agree that the tax revenue be used for tourism related projects. There is however a marked difference between the responses of low-cost airlines with only 30.8% agreeing that it was justified to use airline taxes to raise revenue for tourism related project compared to 56.6% for travellers of full cost airlines. These results varied by income levels of the respondents. 53.3% of income level of respondent with income of up to £19,999 disagree the tax revenue be used to finance tourism related project as compared to only 28% of respondents with income of £20,000 and above who disagree with the same.

Financing environmental project was the more popular option for the usage of the tax revenue. 45.5% of respondents agreed that it is justified to raise funds for environmental project by taxing air travel. This is consistent across the sample among respondent of varying income level and type of airline used. The findings tally with the argument from Brouwer et al. (2008) who suggest that consumers have a growing awareness of environmental issues and are more willing to pay tax to reduce negative impacts and correct for externalities. The findings from this study seem to suggest that the willingness to pay for the tax is higher if earmarked for environmental projects. This result suggests that the APD is an efficient but

ineffective tax, as it will not significantly reduce consumption but the implied lower elasticities to taxes suggest that increases in the APD is a lead to higher government tax revenue. This needs to be further investigated and the relevant tax elasticities be calculated to further inform this issue. Therefore, unless the tax revenue is used in carbon mitigating projects, the APD is not an effective way of reducing emissions from air travel.

6.4 Influence on travel behaviour

The respondents were asked to consider two different scenarios, the first where the APD is expected to rise and the other with APD expected to fall. Surprisingly, most of the traveller strongly agreed that a rise in the APD will not discourage them from travelling as frequently confirming an implied low responsiveness among travellers to changes in the structure of this tax. Only 30.4% agreed that they will reconsider international outbound trips. These findings are consistent across income levels and type of airlines used. This may be explained by the fact that 45% of the samples are non-British citizens and therefore, may be traveling to their country of origin to visit friends and families regularly, and are therefore less likely to cut down on travel. 61.1% state that they are unlikely to cut down on international travel because they were not willing to forgo their holiday. This research hypothesises that if the cost of the ticket rises due to an increase in taxes charges and consumers are not willing to reduce the number of flights, they may be more willing to adjust their behaviour to avoid the taxes. However, consumers seem to be willing to absorb the cost. Only 8.9% agreed that they will choose short haul destination to avoid paying higher taxes on long haul ones contradicting Tol (2007) to some extent. Tol (2007) states that carbon taxes will lead to long-haul travellers flying to closer destinations. The question which arises is how will consumers finance this increase in taxes?

27.7 % agree that they will reduce their non-travel expenses which means that the travel budget is unlikely to be affected but that the tax incidence will to some extent fall on businesses, which may not be directly related to the travel industry and have distortionary effects on the British economy. On the other hand, 36.6 % indicate that they will reduce their travel related expenses indicating that a rise in taxes will to some extent lead to a reallocation of the travel budget among the different items of expenditure which is confirmed in Song, Seetaram and Ye (2019). Of these, 45.5% travelled on full cost airlines and 30.2% travelled on low cost airlines. The expected fall in expenditure on travel related goods and services depend on the demand elasticities. However, the finding in this study has implications for destinations even more so if higher taxes in the UK lead to a reduction in expenditure at the

destination, in less developed countries that are reliant on tourism revenue as an engine for economic growth. Only 16.7% of respondents will consider cutting down on the duration of their trips following an increase in taxes.

On the question on how consumers will behave faced with a fall in taxes, it is interesting to note the asymmetry in the responses. 45.5% agreed that a fall in taxes will encourage them to travel more, compared to only 30.4% who will reconsider international travel if taxes are to increase. This suggests that consumers are more responsive to fall in the cost of air travel than they are to increases. The resulting savings from their budget will encourage them to spend more at the destination (53.6%). 37.5% would increase their expenditure locally on non-tourism related products. The finding is similar for all income groups and types of airline used. These results may indicate that a fall in taxation will not only benefit the destination but may have positive effect on the British economy too.

7. SUMMARY AND CONCLUSION

The aim of this study was to examine British consumers' knowledge, awareness, attitude and reaction to changes in the air passenger duty which in imposed on all outbound air travel from the UK. Data were collected using an online survey. The key findings of this study are that consumers have limited knowledge of the air passenger duty and other taxes that they incur when they take international trip. A significant proportion stated that they did not incur any taxes on their trip when in fact they would have paid for the ADP, VAT in the UK and other taxes at the destinations such as sales tax, bed taxes and so on. In fact, most travellers believe that taxing air travel is justified, and that the revenue received should be used for financing environmental projects. Most respondents stated that an increase in the APD is unlikely to discourage them from travelling. The increase in the cost of travel will encourage approximately one third of the respondents to either spend less on their trip at the destination. This will have consequences as home as well as a fair number stated that the increase will encourage them to cut down on their non-tourism related expenses in the UK. On the other hand, only 45.5% of travellers agreed that a fall in taxes will encourage them to travel more. The extra saving from a fall in taxes will either be spent at the destination or in the UK. These results are relevant for both the British economy and the economies of destinations as changes in the structure of air taxes will cause consumers to adjust their expenditures. The exact nature and value of the adjustment will depend on respective prices elasticity the computation

of which is beyond the scope of this study. The findings can be used to develop a larger and more in-depth study on consumer behaviour in travel industry of the UK.

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THE IMPACT OF AIRPORT DEVELOPMENT ON THE TOURISM IN THE GREEK ISLANDS OF THE SOUTH AEGEAN SEA

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ABSTRACT

The current work focuses on the islands of the South Aegean and attempts to highlight the importance of airport infrastructure for their tourism development. The impact of other island characteristics (area, shore length, population, number of beds in various classes of accommodation, cost of accommodation, island's attractiveness, distance from Piraeus port, etc.) was also investigated using regression analysis. The results revealed that airports having runways above 1,800m serve direct international flights and have a very significant contribution to the tourism development of the associated islands. On the contrary, islands having airports with short runways are served through Athens International Airport yet, the number of tourist arrivals by air is low, having a minor impact on their tourism product. The characteristics of these islands indicate that they have strong potential for further tourism growth given that their airport infrastructure will be improved overcoming technical and environmental barriers.

KEYWORDS

Tourism, Islands, Greece, Transportation Infrastructure and Services, Regression Analysis

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1. INTRODUCTION

Greece is a small country of about 11 million inhabitants with 15% of them living in more than 220 inhabited islands. Greece has a long coastline, washed by three main seas: the Sea of Crete to the south, the Ionian Sea to the west and the North and South Aegean Sea to the east. At the region of South Aegean (see Figure 1) there are 79 islands geographically and administratively divided into the prefecture of Cyclades (with the islands of Naxos, Andros, Tinos, Paros, Kea, Milos, Amorgos, Ios, Syros, Kythnos, Mykonos, Sifnos, Serifos, Thira, Sikinos, Kimolos, Folegandros, Anafi, Antiparos and many smaller ones) and the prefecture of Dodecanese (with the islands of Patmos, Astypalaia, Leros, Kalymnos, Kos, Nisiros, Chalki, Tilos, Simi, Rhodes, Karpathos, Kasos, Kastelorizo, Leipsi, Agathonisi, etc.). Airports exist in six of the islands of Cyclades, namely Milos, Mykonos, Naxos, Paros, Thira and Syros as well as in eight islands of Dodecanese (Astypalaia, Kalymnos, Karpathos, Kasos, Kastelorizo, Kos, Leros and Rhodes). The existence of such a significant number of airports in the region can be justified by the needs of time-sensitive passengers and cargoes as well as by excessive tourism demand.

Figure 1 - South Aegean Region depicting Islands with Airports having Airport Services and Islands with no Airport Connections

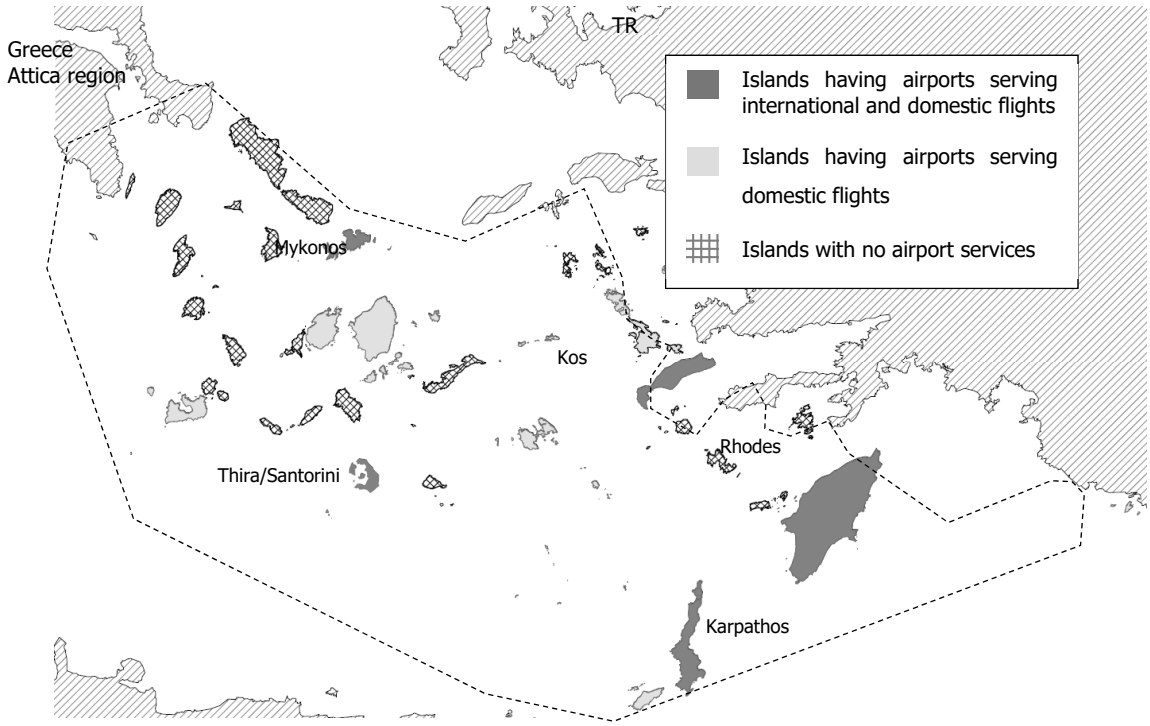


Table 1 presents the volumes of domestic and international tourist passengers that flew from/to each of the above airports during 2016. Tourism is a major economic contributor in S. Aegean region. According to 2017 data (Ikkos and Koutsos, 2018) the tourism sector directly contributed a 77% of the region's GDP, having the highest per capita GDP. Table 1 also presents the volumes of cargo and mail transported, which are quite low if compared to the total volume of 90,380 tn of cargo and 10,850 tn of mail, transported via all Greek airports (mainly via airports of Athens and Thessaloniki). Further analysis revealed that Rhodes airport acts as cargo and mail distributor to other island airports with a total outbound cargo of 110 tn (to Karpathos, Chania, Sitia, Kos, Kasos and Kastelorizo) and 73.5 tn of outbound mail (to Karpathos, Kasos and Kastelorizo). The inbound cargo is only 6.8 tn originated from Karpathos, Kos and Samos airport.

Table 1 - Tourist Arrivals, Cargo and Mail in Airports of South Aegean, 2016

		Tourist arrivals		Cargo (kg)		Mail (kg)	
Airport	**Code**	**International**	**Domestic**	**From**	**To**	**From**	**To**
Karpathos	AOK	80,545	13,620	12,434	73,200	4,355	76,190
Kalymnos	JKL	0	3,570	1,409	9,770	1,480	103,480
Mykonos	JMK	295,352	148,711	11,816	78,213	2,103	5,145
Naxos	JNX	0	12,135	0	0	0	0
Syros	JSY	0	2,406	635	20,953	43	12,800
Thira	JTR	367,388	295,632	9,859	135,036	12,475	32,489
Astypalaia	JTY	0	3,896	0	16	4	0
Kos	KGS	784,444	30,936	35,638	307,877	21,633	32,892
Kasos	KSJ	0	879	536	8,600	427	28,080
Kastelorizo	KZS	0	2,159	97	2,266	404	34,840
Leros	LRS	0	5,278	4,051	25,330	3,892	119,490
Milos	MLO	0	15,962	1,434	44,720	129	24,400
Paros	PAS	0	22,338	0	5	0	1,000
Rhodes	RHO	1,871,087	83,663	113,298	724,345	74,822	29,520
Total		**3,398,816**	**641,184**	**191,207**	**1,430,331**	**121,767**	**500,326**

Given the peripheral position of Greece in relation to the Eurozone, air transport is the main transport service for foreign tourists and airports are considered to be the international gateways to the country (Tsouka et al., 2018). The main scope of this paper is to identify the impact of airports as a factor related to the tourism development of the South Aegean islands. The literature review on the subject is presented at Chapter 2. The methodological approach and the content and results of the relevant analysis are presented at Chapter 3. The last Chapter contains the conclusions.

2. LITERATURE REVIEW

The existing literature on the factors that affect tourism development covers many aspects: tourism infrastructure in terms of services necessary to meet the needs of tourists and increase satisfaction during their stay (Jovanović and Illić, 2016), transport infrastructure and accessibility, accommodation, amenities provided at the destination (Cooper et al., 2008; IATA, 2015; Haneef, 2017), information provided about the destination through official websites (Mak et al., 2012), the sustainability factors and performance of tourism destinations (Gitelson and Crompton, 1984; Diaz and Rodríguez, 2016) as well as the carrying capacity especially in small islands (Saveriades 2008; Briguglio et al., 2002; Hall, 2010) and the effect of overcrowding on tourist attractions (Jiménez and Hernández, 2011). A number of publications concern Greece and Greek islands focusing on the assessment of tourism carrying capacity and highlighting its importance in developing long-term sustainable policies (Tselentis et al., 2006; Coccossis et al., 2002). A recent study about the islands of South Aegean (INSETE, 2015) identified the main purposes of tourists visiting South Aegean Islands (enjoy the sun and sea, visiting friends and relatives, discovering landscape and nature, culture and religion, etc.). Sotiriadis and Varvaressos (2015) analysed the current situation and the problems faced for leisure tourism selecting Greece as a destination in order to formulate recommendations for other countries. A number of researchers focus on the comparison of alternative tourism destinations, among them the study of Pappas (2005) for the urban island host destinations in the Mediterranean region and the paper of Serra et al., (2014), which performed a comparative analysis of tourism destination demand in Portugal. Other researchers deal with issues of tourism competition between countries such as the Mediterranean countries (Patsouratis et al., 2005; Quintiliani, 2009; Sánchez et al., 2015).

Several methodologies have been used to model tourism attractiveness and competitiveness. Du Cros (2001) explored the relationship between cultural heritage destinations and tourism, and developed a methodology procedure to classify cultural assets based on their physical status and market attractiveness. McKercher and Ho (2006) extended the previous research by introducing additional assessment criteria, such as the size and scale of the site, physical and market access, and attractiveness. Several quantitative methods have been applied to evaluate tourism potential. Mamun and Mitra (2012) used multicriteria techniques to quantify social and physical attributes of tourism potential, and applied the methodology to an area of India. The multicriteria approach has been adopted by other authors: Ilban and Yildirim (2017) assessed the tourism performance of 15 countries that are the most popular global tourist destinations. Similarly, Shamai and Mosivand (2011) used multicriteria methods to study the factors that attract tourists to a destination, and determined the hierarchy of towns based on

these factors. The factors assessed for each town included: hotels; motels; suburban units; restaurants; tour and travel agencies; travel service offices; transportation companies; art galleries and cultural exhibitions; public parks; number of public transport systems; special tourism areas; and capitalization opportunities.

Vengesayi (2003) used the popularity of tourist destinations to formulate a holistic model, the Tourism Destination Competitiveness and Attractiveness Model, by proposing the reputation, branding, destination experience, and cost trip as main input factors. Baldigara and Koić (2015) modelled the international tourism demand in Croatia using regression analysis. The regression analysis was also used by other authors for the investigation of tourist demand in other countries (Naude and Saayman, 2005; Cankurt and Subai, 2015; Tularam et al., 2012).

Many publications in scientific journals or in tourism magazines, especially from less developed countries, have highlighted the strong interrelationship between air connectivity and the successful national or regional tourism growth (UNWTO and ICF, 2016; OECD/ITF, 2018; Dimitriou and Sartzetaki, 2018; Malta Profile, no date) or the need to develop air connectivity as a necessary tool for the development of tourism (Maslen, 2016) or even as an excuse (the luck of sufficient air connectivity) to justify the low level of tourism in certain areas of their countries (Business Line, 2018). Among them, Iñiguez et al., (2014) used complex network theory techniques to investigate the implications of air connectivity for tourism, while Akça (2018) compared the connectivity competitiveness for a number of selected airline hubs by use of computational analysis as well as sensitivity analysis for the investigation of connectivity measure under different factors and practical scenarios of real life.

3. INVESTIGATION OF TOURISM DEVELOPMENT FACTORS

The multi-island character of Greece and its strong dependency on tourism requires a complex network of maritime and air services. A significant number of coastal shipping services connect the islands with mainland ports yet, only a small percentage of these are serving the islands directly. Most islands are served through round trips (e.g. Piraeus, Paros, Naxos, Ios, Thira) having long travelling times (e.g. Naxos 3.5 to 6 hours depending on vessel type, Amorgos 9.5 hours, Sikinos 10 hours, Rhodes 15~16 hours, etc.). This is especially true for the islands in the final leg of the trip as due to the procedures that are taking place in all previous island ports (ship docking, passenger embarkation/disembarkation, sailing) the travel time becomes long. Another major problem arises due to the strong dependency of islands on national and international tourism leads to strong seasonality: international tourist flows are concentrated in the period from May to September while domestic tourist flows have a stronger

concentration around August. As a result, the passenger flows in some islands are dramatically reduced during the winter period, making the associated transport services non-profitable thus asking for State subsidies (Public Service Obligations) in order to ensure an adequate level of service for coastal shipping as well as for air services.

Furthermore, there is a lack of systematic and accurate data and information concerning the movements of national and international passengers and cargoes within the country, which makes difficult the investigation of transport-related issues. For that reason, the data collection was a very challenging task in the current work as the required data had to be retrieved from various sources namely the Hellenic Civil Aviation Authority (HCAA), the Athens International Airport (AIA), the Ministry of Mercantile Marine, Aegean and Island Policy, the Department of Balance of Payment of the Bank of Greece, actors of Greek tourism market like the Greek Tourism Confederation (SETE) and INSETE (a non-profit organisation founded on the initiative of the SETE) as well as from Centre of Planning and Economic Research (Tsekeris and Skoultsos, 2015).

According to the analysis conducted by INSETE (2015), the main tourism markets for Dodecanese are the United Kingdom, Germany, Russia, Italy, the Netherlands and Sweden, while for Cyclades are the United Kingdom, Germany, Italy, France, the USA and Australia. Table 2 presents the Origin - Destination matrix of the international passengers arriving at the islands of Thira and Mykonos for the Cyclades complex and Rhodes, Kos and Karpathos for the Dodecanese complex. The vast majority of these tourists are visiting the above islands using direct flights. A relatively small percentage (less than 10%) firstly flies to Athens for a short stay and then travels to Greek islands using domestic flights or shipping lines through Piraeus port (the term "Athens first" tourists will be used hereinafter to distinguish this category of international tourists arriving by air). These tourists have the option to visit Greek islands that do not have airport. Table 2 allows for the identification of tourist's preferences in relation to Greek islands and of gaps (defined here as the missing markets) for certain islands. There is a strong preference of British for Rhodes while Germans preferably choose Rhodes and secondly Kos. On the other hand, Karpathos does not seem as a preferred destination by the British or French travelling directly to them by air. Cases like this can be interpreted as market gaps or differently as market opportunities. Nevertheless, such a variance is understandable and is related to the specific preferences of each nationality (as the relevant literature works indicate) as well as to the deals and traditional alliances of tour operators with accommodation owners. Another explanatory reason could be the air distance of the country from Greece in relation to airplane type used and airport's runway length (Ballis and Paravantis, 2018).

So, although accurate information exists for the tourists visiting Greece by direct international flights to Aegean islands (that have airport), there is no clear information about the "Athens first" tourist category. These tourists are not distinguished from domestic visitors (tourists and excursionists that travel to islands for leisure) or islanders (traveling from/to Athens for business or social purposes).

In addition, there are no data from shipping lines other than the total number of passenger embarkation and disembarkation in each port (per three month period). Data for tourism obtained from INSETE provide detailed information concerning the bookings of Greek and international tourists in the hotels of each prefecture (INSETE, 2015; Pantelidis and Kouvatseas, 2006), but not for other lodgings (rooms to rent, camping, hospitality to friends, cruise ships, etc.). The capacity (number of beds) of hotels and rooms for rent is known, yet the separation of domestic and international tourists is known only for the hotels. Also, there is no distinction between domestic tourists (who spend one or more days in the islands) and domestic excursionists (who stay less than 24 hours).

In the case of neighbouring islands, like Paros and Antiparos, the number of native population and national/international excursionists travelling between the islands is quite big (and not been distinguished from the tourists/excursionists). That is valid also for many Greeks living in the mainland, but having summer-houses in the islands (which they visit frequently) as well as for residents of islands travelling to other islands for business and social purposes.

The lack of origin-destination data in the coastal shipping services required the development of a gravity model (Ortuzar and Willumsen, 2011) that was used also to estimate the domestic and international tourist flows based on various assumptions. For example, the number of islanders travelling from/to Piraeus was estimated considering the traffic of winter period, where negligible tourists are visiting the islands. However, this is not valid for the cosmopolitan Mykonos and Thira islands that have tourists all over the year therefore, for these islands, other assumptions (based on hotel utilization data for winter) were used.

The analysis concerned the period April to September where the vast majority of International (mainly European) tourists are visiting Greece and show that 3.4 million tourists are flying directly to the islands of South Aegean and 0.6 others are flying to Athens International Airport to be mixed with the 2.8 million Greeks (and other tourists entering the country by sea or land border points) that to their vacation destinations to South Aegean islands. There are also 0.8 million movements of tourists and visitors circulating among the islands of the region, by sea.

Table 2 – Origin/Destination Matrix of International Passengers Arrivals in the South Aegean Islands by Direct Flights in 2016

			Cyclades	**islands**	**Dodecanese islands**		
	Airport name		Thira	Mykonos	Rhodes	Kos	Karpathos
			JTR	JMK	RHO	KGS	AOK
FROM		Runway (m)	2,125	1,902	3,305	2,390	2,399
	Total number of international passenger arrivals	Percentage of international passenger arrival					
Germany	580,354	17.08%	17,797	11,010	301,601	245,772	4,174
United Kingdom	497,932	14.65%	102,242	61,259	334,431		
Italy	432,779	12.73%	100,481	130,526	106,094	75,079	20,599
Sweden	193,005	5.68%	9,717	1,962	142,503	28,980	9,843
Israel	180,299	5.30%	3,228	9,957	119,885	42,319	4,910
Netherlands	172,540	5.08%	7,273	3,133	60,585	89,792	11,758
Russia	163,977	4.82%	184	4	136,614	27.174	
France	147,133	4.33%	21,646	15,670	83,563	26,254	
Poland	139,355	4.10%	2,644	9	81,093	55,610	
Switzerland	125,007	3.68%	15,809	22,311	40,082	46,806	
Austria	116,047	3.41%	28,650	11,242	46,498	20,551	9,106
Norway	104,556	3.08%	12,705	135	74,945	12,114	4,657
Denmark	103,948	3.06%	9,127		73,369	18,477	2,975
Belgium	90,742	2.67%	4,767	3,138	47,198	35,639	
Finland	83,287	2.45%	4,029		60,779	15,815	2,664
Czech Republic	81,822	2.41%	3,745	8	53,274	21,274	3,522
Other countries	42,540	1.25%	6,402	11,196	21,360	975	2,607
Spain	26,736	0.79%	10,747	8,368	7,614	7	
Slovakia	22,595	0.66%		3	20,489	1,493	611
Lithuania	21,039	0.62%	270		11,120	9,649	
Romania	17,764	0.52%	3,454	1,057	13,253		
Luxembourg	14,653	0.43%			8,428	6,225	
Hungary	13,285	0.39%		2	10,740		2,543
Serbia	10,583	0.31%	807	1	9,222		554
Cyprus	9,889	0.29%	1,664	4,363	3,342	497	22
Ireland	6,948	0.20%			3,005	3,943	
Total per island	**3,398,816**		**367,388**	**295,352**	**1,871,087**	**784,444**	**80,545**

Table composed by the authors based on data retrieved from Hellenic Civil Aviation Authority database

Furthermore, simple and multiple regression analyses were performed. The simple regression analysis aimed to identify relations between factors namely the number of tourists, the area of the island, the coastline of the island, its population, the total number of beds, the number of beds in top categories (more than 4 "stars" for the hotels and more than 3 "keys" for the apartments), the existence of airport (and its runway length), etc. Table 3 presents some of

this data (area, population, total number of hotel and rooms beds, airport infrastructure and national and international tourists and visitors) for each island of South Aegean region.

Table 3 also provides evidence for the relation between tourists' volumes and the existence of an airport on the island. There are four clusters: the first cluster includes the islands of Rhodes, Thira, Mykonos and Kos that have many tourists and visitors. The airports of these islands have sufficient runway length, allowing for direct international flights from Europe. The second cluster includes the islands of Paros, Naxos, Syros, Tinos, Andros, Milos, Ios, Karpathos and Sifnos where there are no direct international flights and tourist volumes are moderate. The islands of Paros, Naxos and Syros have airports yet, with insufficient runway length for international flights. The runway extension in Paros in 2016 from 710 m. to 1,400 metres has already (September 2018) demonstrated a spectacular increase in tourist arrivals by air (the airport's traffic has been doubled and is expected to be further increased). The length of the runway of Karpathos airport allows for international flights yet, its declared capacity is very low (due to the presence of military operations). Andros and Tinos have no airport, but the islands are close to Piraeus Port and have relatively short travel times by sea. Milos, Ios and Sifnos have no airport and are in medium distance from Piraeus Port.

The third cluster contains 14 islands of medium size, most of which have no airport. Even in islands with airports, the runway length allows only domestic flights. Tourist volumes are low and the existence of an airport does not seem to have an impact on the magnitude of tourism. Finally, the last cluster incorporates six very small islands (Kimolos, Sikinos, Kastelorizo, Kasos, Chalki, Agathonisi) with no airports or airports with very short runways that can serve only small aircraft. These islands have very few tourists and visitors.

The simple regression analysis was used in order to create diagrams between factors involved in tourism development. The upper part of Figure 2 shows the relationship between the number of tourists and visitors during the summer period and the area of the island (Km^2). The size of the island seems to affect the number of tourists, yet there are many outliers (Thira, Mykonos, Kos, Paros) that have a significant number of tourists in relation to their size. Such significant deviations are explained through other factors of the analysis, e.g. the glamor of Thira and Mykonos islands. On the contrary, islands like Karpathos and Naxos seem to have moderate tourism (or under an optimistic view, high potential to increase their current level of tourism). The area of the island seems to be related with the population (see the lower part of Figure 2) although islands like Syros and Kos (high population in relation to their size), Naxos, Karpathos and Andros (low population in relation to their size) are outliers.

Table 3 - Area, Population, Total Number of Hotel and Rooms Beds, Airport Infrastructure and National and International Tourists and Visitors

	Area *(Km²)*	Population *(1)*	Number of beds *(2)*	Runway length *(m)* *(3)*	National and international tourists *(4)*	Clusters
Rhodes	1,407	115,490	104,262	3,305	2,070,000	Islands with significant tourist volumes and airports serving direct international flights
Thira	71	15,550	34,318	2,125	1,205,000	
Mykonos	105	10,134	20,740	1,902	925,300	
Kos	288	33,388	55,583	2,390	911,500	
Paros	198	14,926	17,084	1,400	533,600	Islands with moderate tourist volumes and airports not serving direct international flights (with the exception of Karpathos)
Naxos	498	18,904	14,545	900	280,100	
Tinos	197	8,636	5,018	No	265,900	
Andros	381	9,221	4,448	No	147,300	
Syros	102	21,507	6,458	1,080	133,200	
Milos	168	4,977	5,424	795	129,600	
Ios	109	2,024	4,556	No	107,700	
Karpathos	324	6,226	7,513	2,399	104,000	
Sifnos	78	2,625	4,422	No	87,600	
Kalymnos	135	16,179	2,791	1,015	65,200	Islands with low tourist volumes. Most islands have no airport. In islands with airports the runway length allows only for domestic flights
Patmos	45	3,047	2,894	No	61,300	
Kythnos	100	1,456	1,589	No	56,700	
Amorgos	129	1,973	2,522	No	51,700	
Serifos	76	1,420	1,656	No	50,200	
Kea	149	2,455	1,248	No	48,000	
Antiparos	46	1,211	1,794	No	42,800	
Leros	75	7,917	1,999	1,012	38,200	
Folegandros	33	765	1,548	No	37,500	
Symi	65	2,590	930	No	29,700	
Astypalaia	114	1,334	1,558	989	23,500	
Nisyros	49	1,008	305	No	14,100	
Tilos	63	780	975	No	13,200	
Anafi	41	271	233	No	10,000	
Kimolos	56	910	265	No	8,200	Very small islands with very low tourist volumes and airports that can serve small aircrafts
Sikinos	43	273	370	No	7,300	
Kastelorizo	12	492	306	798	6,100	
Kasos	71	1,084	188	983	4,300	
Chalki	37	478	279	No	4,300	
Agathonisi	15	185	28	No	2,400	

Source: (1) Hellenic Statistical Authority, (2) SETE, (3) Hellenic Civil Aviation Authority, (4) Elaborated using data from Hellenic Civil Aviation Authority (international aviation arrivals), Athens International Airport, passenger shipping lines (passenger boarding / disembarking per port) and data for tourist accommodation combined with assumptions made by the authors

From a mathematical point of view there is a moderate correlation between the number of tourists/visitors and the area of the island as well as between the number of tourists/visitors and the coastline length or the population of the island ($R^2 \sim 0.5$). Strong relationship ($R^2 \sim 0.85$) was found between the number of tourists and the number of beds, which, however, cannot be used as an explanatory variable for the number of tourists (although there is a general relationship between supply and demand, providing more beds on an island does not necessarily mean that tourists will grow accordingly).

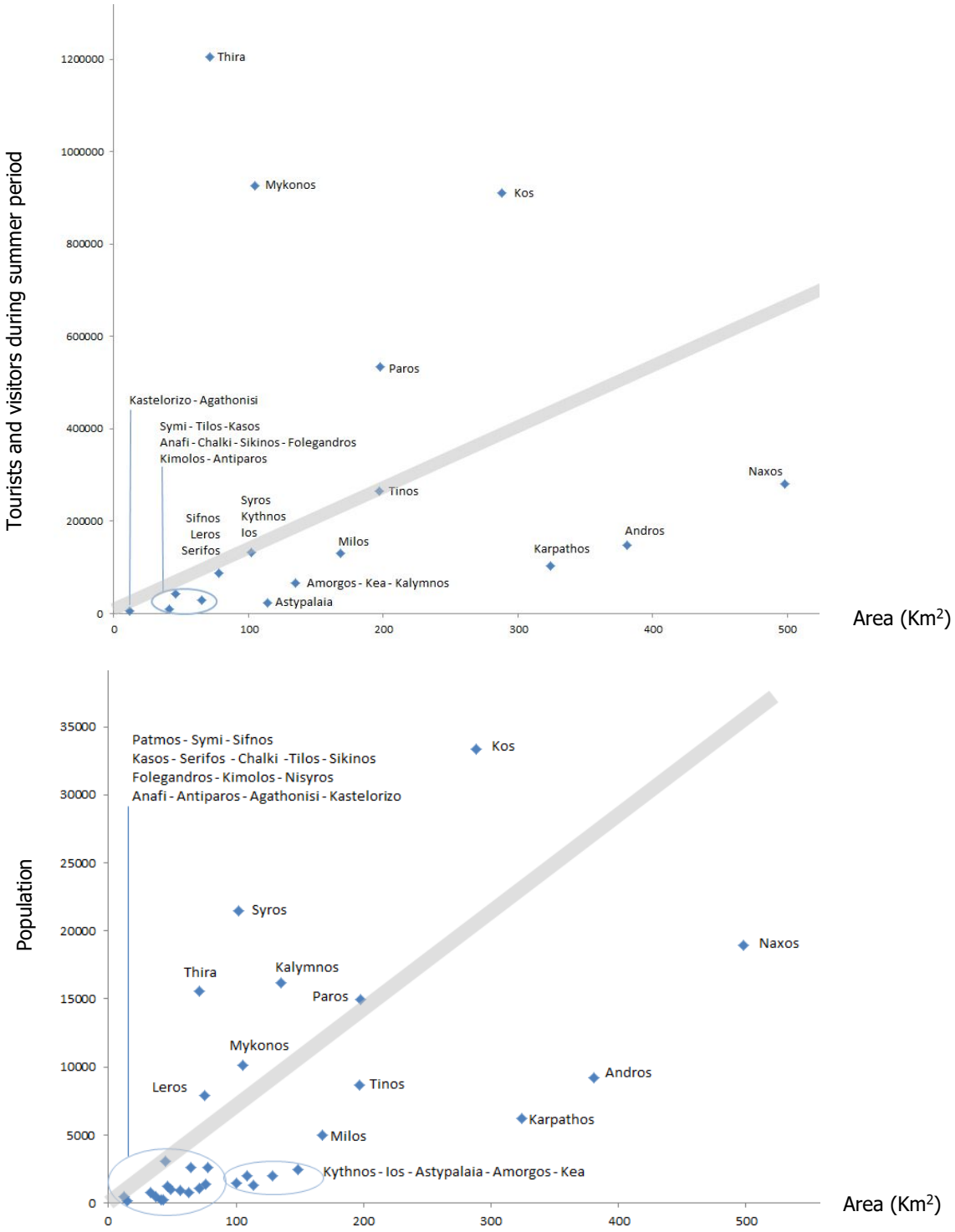
Finally, two multiple regression models were developed. The first model has as a dependent variable the number of visitors/tourists and as independent (explanatory) variables the population of the island, the percentage of beds of 4 and 5 stars hotels in relation to the total number of beds of the island's hotels (as an indicator of the island's glamorous), the duration of the trip by ship from Attica ports and the airport runway length (zero in the case of absence of an airport). The "island" and "coastline" variables are not included because of their high correlation with the population variable. All coefficients of the explanatory variables have a positive sign, with the exception of the trip duration that has a negative sign as the travel time is a limiting factor for visitors/tourists traveling by sea. This model is simple and comprehensible and has a high correlation coefficient (R^2 = 86.7%, adjusted R^2 = 84.8%), although from a statistical viewpoint some requirements are not satisfied to the desired extent.

The second model is more complex as it uses natural logarithms for both the independent variable (ratio of visitors/tourists per island area) and the explanatory variables that are the natural logarithms of the ratio of population per island area, the ratio of coastline per island area, the average rooms' prices, Google hits (as an indicator of how known each island is) and trip duration. There are two dummy variables, one for the existence of an airport on the island and the other showing if the runway length is more than 1,800 meters. The model is statistically correct (VIF for all variables is less than 3.5 with the limit to 5, and the p-values less than 0.05, satisfactory results in residuals analysis) and has a high correlation coefficient (R^2 = 89. 9%, adjusted R^2 = 87.1%) (Ballis et al., 2018).

In both multiple regression models, the runway length is an explanatory variable (affecting mainly the international tourists). The runway length restricts the type and size of aircraft to be used which in turn, affects the airport's catchment area and the economy of flights. ICAO defines four Categories: in Category 3, the airplane reference field length is between 1,200m and 1,800m while in Category 4 this length is more than 1,800m. Upgrade to a higher Category imposes much more requirements (runway width, safety strips, etc.) and for that reason, reaching the limits of each Category is the only pragmatic solution. It must be noted that not all airport runways can be extended due to various restrictions (obstacles, land availability, etc.). Another step of the analysis was related to the types of aircraft landing/taking-off to island airports and showed that Boeing 737-800 and Airbus A320 dominate as they account for 55% of all aircraft with the A320 having a slightly larger share than B737-800. These aircrafts require a considerable length of runway for their take-off and therefore it is not possible to operate on islands with runways of ICAO Category 1, 2 and 3, which are served by aircraft with lower capacity and aircraft range such as AT72 and DH8D (serving mainly category

3 airports) as well as the smaller AT43 and D8A types that seem to be able to take off from all the island airports of South Aegean.

Figure 2 - Tourists vs Area (upper part) and Area vs Population (lower part) for the South Aegean Islands. Rhodes Island is not depicted, data 2016



This analysis also revealed some techniques used by airlines such as the Amsterdam - Kythira - Kalamata - Amsterdam flight with Boeing 737. This aircraft can land and take-off from the 1,461 meter runway of Kythira airport (as it carries a small quantity of fuel) to fly to the nearby

airport of Kalamata. Upon landing to Kalamata, the aircraft can be refuelled and take off again to Amsterdam using the 2,703 meter runway of Kalamata airport, which is adequate for the take-off of the aircraft at full load (all passengers plus a significant quantity of fuel required for the long haul trip to Amsterdam).

Without neglecting or underestimating the potential of any of the South Aegean islands to improve its touristic performance, the analysis concluded that the islands of Karpathos, Paros, Naxos, Milos, Kalymnos and Astypalaia have a stronger potential to increase their current tourism volumes. Airport infrastructure can contribute in this direction especially for Paros, Naxos, Milos and Kalymnos where airport's runways are short and can be extended. However, runway extension can be restricted by the geomorphology of the area (Astypalaia, Kalymnos), proximity of protected and residential areas (Naxos) or protests of groups of inhabitants that are opposed to such a project claiming environmental problems (Milos, further extension of runway in Paros). A balanced approach is required based on fair assessment of all pertinent factors.

Another issue that should not be neglected from such an analysis is the ability of airports, islands and the tourist product in general. There are airports in Greece that reach their limits such as the airports of Heraklion, Corfu and Rhodes, which operate at their maximum declared hourly capacity during the day and have also a significant number of flights during the night. Limits also exist on the island's carrying capacity (an issue that is often found in the international bibliography), and there are already reports in the international press (about the depletion of infrastructure in the busy Greek islands) that encourage tourists in their countries to search for other less touristic and less developed islands in Greece to avoid overcrowding. This fact can also be seen as a development opportunity for the less developed islands, although, in a country in economic crisis, the discussion of the carrying capacity of islands and coastal areas cannot be done in a hospitable environment (Lialos, 2017). Finally, with regard to the tourism product, it should be understood that other Mediterranean countries offer also sun and sea (Spain, Portugal, France, Italy, Croatia, Cyprus, Malta, Turkey, Egypt, etc.). These countries continue to invest in their hotel and transport infrastructure and strive to improve the quality of their tourism services creating a very competitive market (Patsouratis et al., 2005; Quintiliani, 2009; Sánchez et al., 2015).

4. CONCLUSIONS

Tourism is important for the economy of the South Aegean islands. There are several factors that affect the tourism development. In the current work the investigation of the relationships

between the number of tourists with some explanatory variables such as island area, length of coastline, population, number of beds of hotels and rooms to rent, number of beds of 4 and 5 star hotels (as an indirect indicator of the quality of the tourist infrastructure), average rooms price, island attractiveness, distance from Piraeus port as well as port and airport infrastructure. A regression-based analysis showed that there is significant growth potential for tourism in some, less developed islands where airport runways are small and can (where appropriate) be expanded. In such a case, significant obstacles will have to be overcome in terms of both geomorphology and technical issues, as well as of complains of groups of residents who protest claiming environmental issues. Indeed, there are limits to the airports' development, the island's tourism capacity and the tourism product in general due to the competition between countries, and especially between the Mediterranean countries.

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