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Are the Maldives, the Seychelles and Mauritius dependent on the Bosporus-Gulf carriers? – Dependency Analysis and Mitigation Measures

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Abstract

Bosporus-Gulf (BoGu) carriers have significantly been growing into tourism destinations such as the Maldives, Seychelles and Mauritius. Their high market share is driving the growth in the local tourism industry but, at the same time, the dependency on these carriers may constitute a major risk. This paper examines the impact of BoGu carrier arrivals on the local tourism industry drawing on multiple linear regression analysis and finds that all countries are dependent on the BoGu carriers. However, the Seychelles and the Maldives are showing a higher effect size than Mauritius. We investigate reasons for these findings and perform a moderation analysis to identify levers to manage the risks of changes in BoGu carrier capacity.

Keywords: Bosporus-Gulf Carriers; Carrier Dependency; Tourism

1. Introduction

The group of Bosporus-Gulf (BoGu) carriers, led by Emirates Airlines, Etihad Airways, Qatar Airways and Turkish Airlines, has extended their networks into the Maldives, Seychelles and Mauritius over the last 10 or more years. The joint overall growth of the four largest Middle Eastern carrier seats in these three destinations was at 15.2% CAGR [in seats] within the last 10 years as compared to a 4.4% CAGR of all other carriers. In these destinations, BoGu carriers now represent a combined seat share of 33.8%, compared to just 16.8% some ten years ago.

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According to the flight schedule database of Innovata, the BoGu carriers combined operated in 2017 as many as 64 flights a week to the Maldives, 31 to the Seychelles and 23 to Mauritius, which compares to only 7 weekly flights to the Maldives, 2 to the Seychelles and 19 to Mauritius of all European airlines combined. Given this tremendous growth, it is worthwhile to examine how this increase in capacity relates to the local tourism industry and country GDP. It is especially interesting to shed light on the question if there are assessable risks connected to changes in capacity by the BoGu Carriers in destinations with a high share of BoGu arrivals.

There are empirical cases for significant, short-notice reductions in capacity supply to leisure destinations, which would stem from adverse political developments. One example is Turkey after the downing of a Russian fighter plane in 2015 (Lowen, 2016) in which, for political reasons, flight supply from Russia was significantly reduced at short notice, resulting in dramatically declining hotel capacity utilization. Other examples for sharp declines in tourism numbers are countries like Tunisia (Kim, 2015) or, with a reported decline by about 2/3 even worse, Egypt (Geiger, 2017). Both countries have been suffering from tensions and terrorist attacks since the Arab spring.

Service reductions for our sample countries are not really foreseeable today, and the overall political situation seems to be relatively stable. According to World Bank's political stability index for 2016 (theGlobalEconomy.com, 2018), Mauritius (1.05 points on a -2.5 to +2.5 scale) ranks surprisingly high on position 19 worldwide, one place behind Malta (1.08) and ahead of e.g. Portugal (1.02) or Sweden (0.98). The Seychelles (0.72) appear at number 57 in the worldwide ranking, slightly behind Germany (0.76) and ahead of Hungary (0.71). The Maldives are ranked at position 73 (0.41). However, recent press reports indicate increasing political issues for the Maldives, which led to a state of emergency announcement by president Yameen of 5th February 2018, and travel warnings being issued by a number of countries (e.g. Meredith, 2018). However, according to the government, the situation in the country's seaside beach resorts, far away from the capital, still seems to be normal.

In addition, Powley and Kerr (2017) are claiming that especially the Middle Eastern carriers face disruption on "what seemed like unstoppable growth", underlining the need to further assess the impact of BoGu carrier capacity adjustments on countries depending on their passenger feed.

2. Research contribution

Our research brings together the thought worlds of air transport and tourism by linking flight data with tourism data. Both thought worlds are connected via the destination airport. Here, the flight ends from an air transport management perspective and from a tourism perspective, the holiday experience and thus tourism spend starts. Despite this obvious inter-connectedness, to the best of our knowledge no study focuses on the linkage between airline arrivals and tourism outcomes using an empirical study design.

The objective of this study is to analyze the impact of BoGu arrivals on the GDP of the Maldives, Mauritius and the Seychelles and to examine if this effect can be confirmed empirically. If such a dependency from BoGu arrivals can be proven, we analyze the three countries in more detail and derive recommendation on how to cope with this dependency.

In air transport management, a huge body of literature analyzes airport choice by airlines (e.g., Skinner, 1976; Harvey, 1987; Windle and Dresner, 1995; Ishii et al., 2009). Studies in this field focus on analyzing airport choice within a specific pre-defined region, focusing on factors such as ground accessibility or means of transport. Moreover, specific studies have examined drivers of long haul flight supply at secondary airports (e.g., Maertens, 2010; Bel and Fageda, 2010; Sismanidou et al., 2013), while again others have dealt with route (dis)continuity, also referred to as "route churn" (de Wit and Zuidberg, 2016; Manello et al., 2018).

In contrast, studies in tourism management are focusing on destination choices by the travelers (e.g. Jang and Cai, 2002). Moreover, there is a huge body of literature on modeling and forecasting tourism demand for arrivals using

time series models such as ARIMA (e.g., Chan, 1993; Lim, 2001; Goh and Law, 2002). These models usually focus on tourist arrivals in general and do not seek to split the tourist air arrivals into the different carriers.

Few studies are addressing the link between airline connectivity and tourism (e.g. Iñiguez et. al., 2014; Vera Rebollo and Ivars Baidal, 2009). However, these few studies are of conceptual and/or descriptive nature. Our research stands out by the fact that it touches an important topic, the dependency of countries and regions, from the economic decisions of airlines. The topic under research has parallels to the dependency debate that is taking place for tertiary regional airports and their dependency on Low Cost Carriers (LCC).

The focus of our work is on the impacts of BoGu-carrier services to the countries mentioned. We do not explicitly focus on a cost/benefit analysis from the perspective of individual airlines. Implicitly, we assume that the concerned airlines as profit-maximizing entities have evaluated the benefits of the routes and capacity supply to Mauritius, the Maldives and the Seychelles and have come to a positive result, given their published service pattern. Hence, our analysis focusses only on the empirically observed capacity supply and the impacts for the countries concerned, without a wider cost-benefit analysis from the airline perspective.

3. Methodology and Hypotheses

Our analysis is based on the flight schedule data from the Innovata schedules database for the years 2007-2017. We focus on international arrivals only by filtering all domestic travel as well as all trips originating in one of the three destination countries under research. Moreover, our filtering procedure ensures that there is only one seat counted for per passenger instead of two (i.e. neglecting this procedure, each arriving passenger would be considered as two seats – one seat on the arrival flight and another one on the departure flight). Based on this augmented data set, we first compute compound average growth rates (CAGR) to validate the face-validity of our proposition that BoGu carriers have taken a major share in seat arrivals in the countries under research. To enhance the quality of our observations, we confirm our findings on the supply side by triangulating them with Sabre Market Intelligence leg data to ensure that the supply side data is matching the picture from passenger demand data.

The WTTC studies suggest (WTTC 2017a, b, c), that tourism spending impacts the country's GDP via a direct effect (i.e. money spent by the tourist), via an indirect effect (e.g., impact from purchases of suppliers) and via an induced effect (e.g., household goods for tourism employees). Moreover, Sellner and Nagl (2010) propose that airports are driving investment into the region and by doing so they increase the GDP. We extend this view, by proposing that airlines with a significant share of arrivals at an airport would foster GDP growth in this region. Therefore, we postulate our following hypotheses:

H1a: International BoGu seat capacity with destination Maldives is driving the absolute GDP of the Maldives
H1b: International BoGu seat capacity with destination Mauritius is driving the absolute GDP of the Mauritius
H1c: International BoGu seat capacity with destination Seychelles is driving the absolute GDP of the Seychelles

We do not expect the other airlines' (OAL) seat capacity to drive the absolute GDP values as much as the BoGu carriers' seat capacities – the latter's growth has been by far stronger throughout the last 10 years as pointed out already. For the sake of completeness, we will include this effect into a first model. Only if we find prove that our assumption is confirmed, we will eliminate the OAL seat capacity from the model. By doing so, we avoid an omitted variable problem.

In order to perform the analysis, Innovata flight schedule data is matched to a dataset from the International Monetary Fund (IMF) containing GDP data of the years 2007-2017 for the three countries under research. Instead of using GDP growth data, we use absolute GDP values in current prices (in billions of U.S.-dollars) as the seat data is also delivered in absolute figures instead of growth rates. This procedure is recommended for all markets that are analyzed with this method.

We start the analysis sequence by carrying out one multiple linear regression analysis per country to validate if a significant joint impact of the BoGu seat volume and the seat volume of the group of other airlines on the respective country GDP can be supported from our data. We evaluate the strength of the relationship by reporting R^2, corrected R^2 and Cohen's (1988) f^2 measure for effect strength. If BoGu seat volume and OAL seat volume together do not deliver clear indications, we rerun a simple linear regression with only BoGu seat volume as the independent variable. The dependent variable is in all cases the absolute GDP value of the country under research. We use IBM SPSS V23 to perform the different analysis steps. After evaluation of the results of the regression analysis, we review the structure of each of the countries in more detail, in order to derive managerial implications on how to handle a potential dependency situation.

4. Results

As indicated, we first illustrate the compound average growth rates (CAGR) for a 10-year period from 2007 to 2017 based on international arrival seats (table 1). It shows that growth in seat volume has mainly taken place for BoGu carriers in all three destination (15.2%). OAL were also experiencing volume growth but to a much lower extend. The biggest continuous growth has taken place in the Seychelles where a strong growth of BoGu carriers and other airlines took place. This confirms our proposition that the BoGu carrier seat volume of the three countries under research has increased. The growth of BoGu carrier international seat volume did outperform the growth of all other carriers by far.

Table 1. Compound Average Growth Rate (CAGR) 2007-2017 by carrier type and region, own analysis based on Innovata dataset, 2007-2017.

CAGR 2007-2017	BoGu	OAL	TTL
Maldives	14.5%	5.9%	8.5%
Mauritius	15.7%	2.9%	4.6%
Seychelles	16.6%	6.7%	10.7%
Total	15.2%	4.4%	6.9%

Figure 1 gives an overview of the total number of international arrivals based on the Innovata dataset for the years 2007-2017. It shows the impressive growth over time for each of the destinations. Out of the three countries under analysis, the Seychelles face a lower volume of international arrivals but is similar to the other countries from a growth rate perspective.
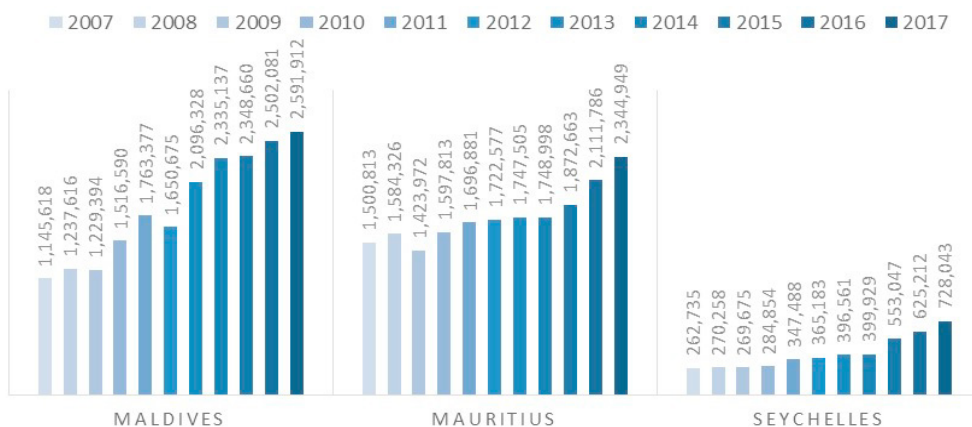

Fig. 1. Development of total international seat arrivals, own analysis based on Innovata dataset, 2007-2017.

Moreover, with only minor exceptions, we find first indications for a steady growth of the overall international seat arrivals for all three countries. This observation is in line with the increasing popularity of Mauritius, Maldives and the Seychelles as tourist destinations. From our in-depth analysis, we found that airline arrivals are by far the most important mode of transport for tourism for these three countries. There are also arrivals by sea (e.g., cruises) but their share is lower than 5%. Figure 2 shows the corresponding BoGu seat shares on international arrivals.
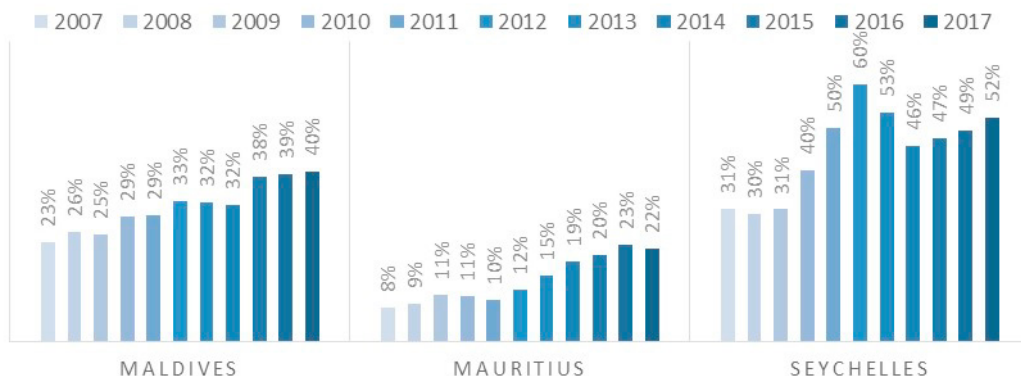

Fig. 2. Development of BoGu share for international seat arrivals, own analysis based on Innovata dataset, 2007-2017.

Induced by this high increase in seat supply, the resulting actual passenger numbers and shares of the BoGu carriers have also been increasing significantly. Looking at the demand side, the international passenger market share of the BoGu carriers (also including smaller Gulf carriers like Saudi Arabian Airlines, Oman Air, FlyDubai and Kuwait Airways) has constantly increased in all destinations, making them responsible for most of the overall growth. Based on Sabre Market Intelligence leg data, passenger demand to the Maldives has more than quadrupled since 2004, from 410k to almost 1.7m, and the BoGu carriers' share has increased from 31% to 47%, which means that almost every other international passenger uses a BoGu carrier. In Mauritius, international passenger numbers have almost doubled, getting close to 1.6m in 2016. Here, the BoGu share has increased from 5% in 2004 to over 20%. In absolute terms, also from the demand-perspective, the Seychelles are a smaller market, with only 440k international passenger departures in 2016. However, the growth rates here are also noteworthy as the market has more than tripled since 2004. Unlike the other islands, first BoGu flights appeared in 2005 only, with both Emirates and Qatar Airways inaugurating flights from their hubs. Meanwhile, the BoGu passenger share is almost as high as in the Maldives and reaches 45%.

The multiple regression analysis performed shows that in none of the countries the inclusion of OAL seat volume as a driver of GDP growth was successful. Whilst for the Maldives and the Seychelles the BoGu seat volume stayed significant despite the presence of a non-explaining independent variable, for Mauritius this was not the case and the whole model must be rejected. Reason for this is the non-significance of the t-test whilst the F-test showed significant results and R^2 indicated sufficient model fit. Table 2 provides an overview of the results. These results fit our assumption that OAL seat volume is not driving the GDP volume of the countries under research.

Table 2. Overview of multiple regression models including OAL seats.

Country	IV	Coefficient	Beta	T	Sig. Value	Significance	R^2	corr. R^2	F value	Sig. Value	Significance
Maldives	constant	1148.37		3.721	.006	1%	.982	.978	223.022	.000	1%
	BoGu seats	.003	.982	7.243	.000	1%					
	OAL seats	.000	.010	.073	.943	n/s					
Mauritius	constant	6690.48		1.300	.230	n/s	.578	.474	5.499	.031	5%
	BoGu seats	.007	.652	1.778	.113	n/s					
	OAL seats	.001	.134	.364	.725	n/s					
Seychelles	constant	691.45		5.293	.001	1%	.781	.726	14.267	.002	1%
	BoGu seats	.001	.627	2.251	.054	10%					
	OAL seats	.001	.297	1.068	.317	n/s					

As laid out before, we eliminate the OAL seat volume from our model in order to improve model fit. In doing so, we find prove for our hypotheses. The results are compiled in table 3. After the elimination of the OAL seat volume, a strong dependency of the Seychelles' GDP (R^2=.75, corr. R^2=.72, β=.866, p=.01***, f^2=2.57), the Maldives' GDP (R^2=.98, corr. R^2=.98, β=.991, p=0.05***, f^2=49.0) and Mauritius' GDP (R^2=.57, corr. R^2=.52, β=.756, p=.01***, f^2=1.1) from Bosporus-Gulf seat volume can be confirmed. For all three countries we conducted an ANOVA analysis and performed an F-Test. Each F-Test was significant (p=.01***). Following Cohen's (1988) recommendation on effect sizes, all three countries show strong effect sizes ($f^2 >$.4).

Table 3. Regression model with only BoGu seats as an independent variable.

Country	IV	Coefficient	Beta	T	Sig. Value	Significance	R^2	corr. R^2	F value	Sig. Value	Significance	Cohen's f^2
Maldives	constant	1169.79		12.338	.006	1%	.982	.980	501.456	.000	1%	49.0
	BoGu seats	.003	.991	22.393	.000	1%						
Mauritius	constant	8543.30		1.300	11.573	1%	.572	.524	12.025	.007	1%	1.1
	BoGu seats	.009	.756	3.468	.007	1%						
Seychelles	constant	802.963		10.149	.000	1%	.750	.722	26.972	.001	1%	2.5
	BoGu seats	.002	.866	5.193	.001	1%						

The effect sizes for the Seychelles and the Maldives are on a higher level than for Mauritius. One explanation for this fact is the stronger position of the flag carriers as well as the strong historical presence of legacy carrier Air France in Mauritius leading to a lower dominance of BoGu carriers. It is especially interesting that the results for all countries indicate an impact of BoGu carriers' seat capacity on the GDP whilst the same for OAL is not significant. This underlines the essential role that BoGu carriers have become for some tourism-focused countries.

This alarming result is supported by WTTC studies for the Maldives, Mauritius and the Seychelles (WTTC 2017a, b, c). Table 4 details the share of the GDP that is directly affected by travel & tourism as well as the combined direct / indirect / induced effects of travel & tourism on the local GDP. Despite the fact that this study takes a descriptive approach, it supports our findings. We can therefore conclude that we find a strong dependency of the GDP of the Maldives, Mauritius and the Seychelles from BoGu carrier international arrival seat capacity.

Table 4. Impact of tourism on GDP. Own figure based on WTTC 2017a, b, c.

Share of tourism on GDP as reported by WTTC	Direct effect of tourism	Overall effect of tourism
Maldives	44.3% of GDP	25.4% of GDP
Mauritius	9.2% of GDP	79.4% of GDP
Seychelles	22.0% of GDP	59.4% of GDP

Our finding suggests that in the event of significant reductions by BoGu Carriers, the existing volume of arrivals would need to be stabilized, as the spillover effect on the local tourism industry would be significant in size. The main explanation for this effect is the lower frequentation of tertiary tourism offers such as restaurants, transport, activities resulting from lower demand in hotel capacity.

5. Managerial Implication and Outlook

The paper shows a dramatic dependency of the Maldives, Mauritius and the Seychelles from BoGu carrier capacity. Even though the risk of a full capacity reduction of the BoGu carriers is currently assumed to be relatively low, despite ongoing political tensions in the Maldives, its impact would hurt the dependent countries a lot.

This is pointing to the question what measures could be taken to minimize the risk from this dependency. From the three countries under research, Mauritius seems to have the lowest vulnerability. Main reason for this is the low BoGu carrier share. Local carriers such as Air Mauritius dominate the market. In the case of a capacity reduction, Mauritius might incentivize one of the remaining OAL to fill the gap. In opposite to the Maldives and the Seychelles, this could work for Mauritius with a BoGu share of 22% in 2017 (see figure 2). For the Maldives and the

Seychelles a vast reduction in capacity can be regarded a major risk. Even though there might be no urgent reason, at least not for the Seychelles, it is strongly recommended to prepare managerial emergency measures for such a case.

Measures to level the airline mix, and to fill a potential gap, could be to attract additional via-services from carriers such as SriLankan. Usually not all BoGu carriers are present in the same extent in each of both the origin and destination countries. Hereby, a special focus could be laid on direct flights from hubs in China or South East Asia, which could be served by the following carriers:

- Singapore Airlines, Cathay Pacific, China Southern and China Eastern currently serve the Maldives only. The detour factor for flights from the Seychelles via e.g. Hong Kong to places in North East Asia, like Tokyo or Seoul, is negligible.
- Air India, which only serves the Maldives, or Jet Airways could also be candidates for additional services, given that the Indian outbound tourism market is expected to show a CAGR of 10% until 2022 (Research and Markets, 2017).

In addition to such a strategic axis with Asia, Ethiopian Airlines, which already serves the Seychelles and offers a good network within Eurafrica, could be approached by Mauritius and the Maldives.

This study is subject to certain limitations. First, the air traffic data in use is limited by as it reflects planned seat capacity, not real arrivals. Second, the methodology applied here needs to be retested for other destinations, in order to assess about the paper's generality. We assume that only very tourism-dependent destinations show effects in similar size. Being Island states, the Maldives, Mauritius and the Seychelles have limited options to circumvent air traffic to transport tourists into their country. Another destination that may show similar results is Gambia which showed heavy fluctuations in annual tourism arrivals in the 80,000-160,000 range in the last 20 years (World Bank / Tradingeconomics, 2018). These were caused by the inaugurations and subsequent withdrawals of full charter flights on behalf of tour operators like German FTI (Reise vor 9, 2018). However, we could not include Gambia in our analysis due to incomplete availability of charter flighty supply data.

One problem of the above derived implications is that the impact of measures like the attraction of additional services by non-BoGu carriers would be rather small, as both BoGu and non-BoGu carriers would certainly reduce their capacities in the case of major political issues that concern the destinations themselves. As far as the implications are concerned, the main message here, which is however outside the scope of the tourism industry, would be "make love not war".

References

Bel, G. and Fageda, X., 2010. Intercontinental flights from European airports: towards hub concentration or not? International Journal of Transport Economics, 37(2), 133-153. http://www.jstor.org/stable/i40103649

Cohen, J., 1988. Statistical Power Analysis for the Behavioral Sciences. 2nd Edition. Hillsdale: Lawrence Erlbaum. ISBN 1-134-74270-3.

Chan, Y. M., 1993. Forecasting tourism: a sine wave time series regression approach. Journal of Travel Research, 32(2), 58–60. https://doi.org/10.1177/004728759303200209

De Wit, J.G. and Zuidberg, J., 2016. Route churn: an analysis of low-cost carrier route continuity in Europe. Journal of Transport Geography, 50, 57-67.

Geiger, D., 2017. The lonely pyramids of Giza: Egyptian tourism's decline. Al Jazeera, 8 June. Retrieved from https://www.aljazeera.com/indepth/features/2017/04/lonely-pyramids-giza-egyptian-tourism-falling-170418050241421.html

Goh, C. and Law, R., 2002. Modeling and forecasting tourism demand for arrivals with stochastic nonstationary seasonality and intervention. Tourism Management, 23(5), 499–510. https://doi.org/10.1016/S0261-5177(02)00009-2

Harvey, G., 1987. Airport choice in a multiple airport region. Transportation Research Part A: General 21(6), 439-449. https://doi.org/10.1016/0191-2607(87)90033-1

Iñiguez, T. and Plumed, M. and Martínez, M., 2014. Ryanair and Spain: Air connectivity and tourism from the perspective of complex networks. Tourism & Management Studies, 10(1), 46-52.

Ishii, J. and Jun, S. and Van Dender, K., 2009. Air travel choices in multi-airport markets. Journal of Urban Economics, 65(2), 216-227. https://doi.org/10.1016/j.jue.2008.12.001

Jang, S. and Cai L. A., 2002. Travel motivations and destination choice: A study of British outbound market. Journal of Travel & Tourism Marketing, 13(3), 111-133. https://doi.org/10.1080/10548400209511570

Kim, S., 2015. Tunisia sees a million fewer tourists after terror attacks. The Telegraph, 22 September. Retrieved from https://www.telegraph.co.uk/travel/destinations/africa/tunisia/articles/Tunisia-sees-a-million-less-tourists-after-terror-attacks/

Lim, C. and McAleer, M., 2001. Monthly seasonal variations: Asian tourism to Australia. Annals of Tourism Research, 28(1), 68–82. https://doi.org/10.1016/S0160-7383(00)00002-5

Lowen, M., 2016. Turkey tourism: an industry in crisis. BBC, 17 June. Retrieved from http://www.bbc.com/news/world-europe-36549880

Maertens, S., 2010. Drivers of long haul flight supply at secondary airports in Europe. Journal of Air Transport Management, 16(5), 239-243. https://doi.org/10.1016/j.jairtraman.2009.09.001

Manello, A. and Scotti, D. and Volta, N., 2018. European regions and air routes' dismissal risk. Paper presented at the 22nd Air Transport Research Society World Conference, Seoul, 2-5 July, 2018.

Meredith, S., 2018. Trouble in paradise: All you need to know about the Maldives' ongoing political crisis. CNBC, 8 February, 2018. Retrieved from https://www.cnbc.com/2018/02/08/maldives-crisis-all-you-need-to-know-about-the-political-turmoil.html

Powley, T. and Kerr, S., 2017. A hard landing for the Gulf's airlines. Financial Times, 5 September. Retrieved from https://www.ft.com/content/c8334df6-8da8-11e7-a352-e46f43c5825d

Research and Markets, 2017. India Outbound Tourism Market: Outbound Tourists, Purpose of Visit (Holiday, VFR (Visit Friends & Relatives), Business, Others), Tourists Spending and Forecast. Summary retrieved from https://www.researchandmarkets.com/research/3wrcg4/india_outbound

Reise vor 9, 2018. FTI baut auf Comeback für Gambia. 29.06.2018. Retrieved from: http://www.gloobi.de/fti-baut-auf-comeback-fuer-gambia

Sellner, R. and Nagl, P., 2010. Air accessibility and growth – The economic effects of a capacity expansion at Vienna International Airport. Journal of Air Transport Management, 16 (6), 325–329.

Sismanidou, A. and Tarradellas, J. and Bel, G. and Fageda, X. , 2013. Estimating potential long-haul air passenger traffic in national networks containing two or more dominant cities. Journal of Transport Geography 26, 108–116. https://doi.org/10.1016/j.jtrangeo.2012.07.010

Skinner, R.E., 1976. Airport choice - an empirical study. Transportation Engineering Journal of ASCE, 102(4), 871-882.

theGlobalEconomy.com, 2018. Political stability - country rankings, Political stability - country data from around the world for 2016 (Source: The World Bank). Retrieved from https://www.theglobaleconomy.com/rankings/wb_political_stability/

Vera Rebollo, J.F. and Ivars Baidal, J.A., 2009. Spread of Low-Cost Carriers: Tourism and Regional Policy Effects in Spain. Regional Studies, 43(4), 559-570. https://doi.org/10.1080/00343400701874164

Windle, R. and Dresner, M., 1995. Airport Choice in Multiple-Airport Regions. Journal of Transportation Engineering 121(4), 332-337. https://doi.org/10.1061/(ASCE)0733-947X(1995)121:4(332)

World Bank / Tradingeconomics, 2018. Gambia - International tourism, number of arrivals. Retrieved from https://tradingeconomics.com/gambia/international-tourism-number-of-arrivals-wb-data.html

WTTC, 2017a. Travel & Tourism. Economic Impact 2017. Maldives, 3.

WTTC, 2017b. Travel & Tourism. Economic Impact 2017. Mauritius, 2.

WTTC, 2017c. Travel & Tourism. Economic Impact 2017. Seychelles, 3.