Instituto Superior de Ciências do Trabalho e da Empresa

THE IMPACT OF LOW-COST AIRLINES ON MADEIRA ISLANDS

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Dissertation submitted as partial requirement for the conferral of

Master in International Management

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March 2009

ISCTE
BUSINESS SCHOOL

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Abstract

This study identifies the short term impacts of Low-Cost Airlines (LCAs) on Madeira Islands. By analysing the relevant literature, this study describes the interdependence between tourism and air transport, and the effect that the low-cost airline concept has on both industries. Both generic and industry specific impacts are drawn from the literature, while explaining the advantages and disadvantages of this airline business model.

LCAs have experienced tremendous growth in Europe since its birth in the mid 1990's and have now reached Madeira Islands, a tourism destination still served mainly by charter operations offering tour operator's package holidays. Research made out of airport and tourism statistics, shows evidence of a significant mismatch between offer and demand in the tourism industry that could possibly be diminished by the entry of LCAs in the market.

Findings suggest that, as previously observed for other regions, LCAs do in fact generate significant airport passenger growth, therefore increasing the number of tourists visiting the islands and spending nights at the hotels. However, the average length of stay decreases as more flight frequency induces flexibility and shot-break vacations.

While long term impacts are yet to be measured, in order to achieve a balance between tourism supply and demand, as well as higher economic development, all players in the market must join efforts in developing strategies that will promote sustained growth.

Keywords: Low-cost Airlines, Tourism, Air Transport, Regional Development

JEL Classifications:

L93 - Air Transportation

R11 - Regional Economic Activity: Growth, Development, and Changes

Resumo

Este estudo identifica os impactos de curto prazo das companhias aéreas *low-cost* na Região Autónoma da Madeira. Através da análise da literatura relevante, este estudo descreve a interdependência entre o turismo e o transporte aéreo, bem como o efeito que o conceito de companhia aérea *low-cost* tem em ambas as indústrias. Impactos genéricos e específicos foram retirados da literatura, explicando as principais vantagens e desvantagens deste modelo de negócio. Tendo crescido significativamente na Europa, desde o seu aparecimento na década de 90, as companhias aéreas *low-cost* chegaram agora à Região Autónoma da Madeira, um destino turístico ainda maioritariamente servido por operações *charter*. A pesquisa efectuada com base nas estatísticas dos aeroportos e turismo, evidenciam um desiquilíbrio entre a oferta e a procura no sector do turismo, que pode eventualmente ser atenuado pela entrada de companhias aéreas *low-cost* no mercado.

Os resultados obtidos sugerem que, à semelhança do verificado anteriormente noutras regiões, as companhias aéreas *low-cost* geram um crescimento significativo do tráfego aéreo de passageiros, consequentemente contribuindo para o aumento do número de turistas que visitam as ilhas e respectivas dormidas. Contudo, devido à maior flexibilidade decorrente da crescente disponibilização de voos que potencia estadias de menor duração, a estada média decresce. Embora os impactos de longo prazo estejam ainda por medir, de modo a obter o equilíbrio entre a oferta e procura no sector do turismo, bem como maior desenvolvimento económico, todos os agentes presentes no mercado deverão conciliar esforços no sentido de desenvolver estratégias que promovam um crescimento sustentado.

Palavras-chave: Companhias aéreas *low-cost*, Turismo, Transporte Aéreo, Desenvolvimento regional

JEL Classifications:

L93 - Air Transportation

R11 - Regional Economic Activity: Growth, Development, and Changes

Executive Summary

This study identifies the short term impacts of Low-Cost Airlines (LCAs) on Madeira Islands. By analysing the relevant literature, this study describes the interdependence between tourism and air transport, and the effect that the low-cost airline concept has on both industries. Both generic and industry specific impacts are drawn from the literature, while explaining the advantages and disadvantages of this airline business model.

LCAs have experienced tremendous growth in Europe since its birth in the mid 1990's and have now reached Madeira Islands, a tourism destination still served mainly by charter operations offering tour operator's package holidays. Research made out of airport and tourism statistics, shows evidence of a significant mismatch between offer and demand in the tourism industry that could possibly be diminished by the entry of LCAs in the market.

This study measures the impacts of LCAs entry in the market, namely in terms of passenger growth, airline's average load factor, number of registered guests, nights spent at hotels and average length of stay.

There is strong evidence that the number of passengers and tourists visiting the island grow significantly, therefore increasing the number of nights spent at hotels. The average load factors for the markets from where LCAs operate generally show a tendency to grow. This stimulation is basically supported by new frequencies launched by LCAs that are offered at lower fares. However, although the increased frequency results in more tourists and nights spent at hotels, the consequent induced flexibility allows short and weekend breaks that have a direct impact on the decrease of the average length of stay.

Additionally, it is possible to identify some of the negative points of relying on LCAs growth to develop a region. The excess capacity on offer that might result from increased frequency may cause the LCA to leave to market quite rapidly. Further to this, the LCA model is, above all, constantly focused on cost savings so negative impacts from external factors can result in LCAs leaving the market as well.

Findings suggest that there is in fact a role to be played by LCAs in Madeira, with regards to developing both tourism and air transport sectors. Future perspectives drawn in this study hold that there is still potential for LCAs to increase considerably the number of routes and frequencies offered to Madeira Airport, expanding to other markets that are presently served by charter air connections only. The stimulation that can be brought by LCAs entering these markets is likely to result in significant growth for these incoming markets to Madeira Islands.

Still, while growth can in fact be achieved, issues related to sustainability and co-existence with other types of airlines, have to be taken into serious consideration. Long-term impacts are yet to be measured but in order to achieve an adequate balance between tourism supply and demand, as well as higher economic development, all players in the market must join efforts in developing strategies that will promote sustained growth.

Acknowledgements

Life is made of challenges and writing this master thesis while trying to develop my professional career was one of the biggest I have ever faced. Although it is well worth the effort, I could never leave forgotten those who have supported me during this demanding period of my life.

First, I would like to thank all my colleagues and professors at ISCTE Business School and Ekonomska Fakulteta in Ljubljana, Slovenia, for the wonderful experience of returning to "school" and meeting so many different people from diverse backgrounds and cultures. To my supervisor, Professor António Robalo, a special word of gratitude for all his help, understanding and guidance.

Secondly, I thank also to everyone who has worked with me over the last seven years, for all the shared knowledge and experience which has made me a better professional, and to Madeira Airports, which have been my second home for almost three years now and guided me towards this subject.

Thirdly, I would like to express my special thanks to all my family and friends, who have always been there for me, pushing me to do better every time. I thank my mother for the persistence, to my wife for the incredible patience and unlimited support, and to my beautiful baby daughter Madalena, for the inspiration.

I could have never done it without you!

Lisbon, 31st of March, 2009
Sérgio Gonçalves

List of Abbreviations and Acronyms

AA	American Airlines
AF	Air France
AirT	AirTran Airways
ALS	Average Length of Stay
ANAM	Aeroportos e Navegação Aérea da Madeira, S.A.
AS	Alaska Airlines
ATA	American Trans Air
AWA	America West Airlines
AZ	Alitalia
BA	British Airways
BRS	Bristol Airport
DL	Delta Air Lines
DREM	Dirrecção Regional de Estatística da Madeira
DRT	Direcção Regional do Turismo da Região Autónoma da Madeira
ELFAA	European Low Fares Airlines Association
EU	European Union
EZY	easyJet
GDP	Gross Domestic Product
GSM	Globespan
IATA	International Air Transport Association
IB	Iberia
KL	Dutch KLM
LCA	Low-Cost Airline
LF	Load Factor
LGW	London Gatwick Airport
LH	Lufthansa
NW	Northwest Airlines
OO	SkyWest Airlines
RevPar	Revenue per Available Room
SK	SAS Scandinavian Airlines
STN	London Stansted Airport
SWA	Southwest Airlines
TOM	Thomsonfly
TW	TWA Airlines
UA	United Airlines
UK	United Kingdom
US	US Airways

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1. Introduction

In less than last two decades Low-Cost Airlines (LCAs) have made a huge impact on the aviation industry throughout Europe, namely in airports and competing airlines. There is strong evidence that LCAs stimulate demand and develop markets although the sustainability of its business models is yet to be put to test. Increased passenger traffic and number of flights, together with a significant growth of its market shares, make it impossible not to take into account the influence of LCAs. Regional airports have emerged and are now competing with the main European airports, allowing new direct services between European city pairs that were not available before through established airlines. Traditional airlines are adapting to the new market conditions and adjusting to different business models.

Apart from the effects on the aviation industry, LCAs are also relevant contributors to the way travel and tourism is changing all over the world. Not only airlines but tour operators are being forced to change their operational features. Regions are making an effort to adapt to this new demand, seizing all the opportunities to develop its tourism.

One of the most significant achievements for LCAs is the democratization of air travel, making it available to basically everyone across Europe. This concept keeps spreading to different airports, cities and regions but it is important to understand that not all have necessarily the same interests. This paper intends to analyse LCAs and its business models, understanding generic and industry specific effects in order to measure the short term impact on Madeira Islands.

The importance of understanding LCAs' impact on Madeira Islands

Being one of the most important destinations in Portugal, Madeira Islands' tourism industry accounts for approximately 21,3% of the region's GDP and 14,3% of total employment. The estimated total revenue from Madeira Islands' tourism in 2008 is € 297 million, from which € 184 million are direct revenues from accommodations[1].

[1] Source: DREM

For geographical reasons it is natural that the islands' tourism industry performance depends directly on air transport. Therefore it is relevant to study the changes that might occur in terms of the islands' tourism industry following the entry of LCAs.

Table 1: Weight of registered guests on Madeira Airport passengers

Year	Registered Guests	*2	Airport Passengers (Arrivals + Departures)	Registered Guests/Airport Passengers
2004	842.210	1.684.420	2.272.512	74,1%
2005	864.870	1.729.740	2.319.753	74,5%
2006	908.095	1.816.190	2.360.857	76,9%
2007	967.134	1.934.268	2.418.489	79,9%
2008 (November)	954.634	1.909.268	2.277.890	83,8%

Source: ANAM and DREM

In order to measure these changes and describe the adaptation process, variables like the number of airport passengers, the number of tourists visiting the islands, the number of nights spent and the consequent average length of stay, among others, can be strong indicators of the effect LCAs will have on such an important sector for Madeira Islands economical and social development.

In fact, this paper tries to conclude if the LCA concept applied to Madeira Islands does bring more tourists to the region and what are the impacts of an expected increased number of flights on offer on the average length of stay, for example. In theory, more frequency and flexibility will result on a decrease on this indicator, which is very likely to be accompanied by more tourists looking for short-breaks or even weekend-breaks.

Research and Methodology

This paper gathers information from several authors and institutions in order to understand the evolution of LCAs and its business model. Academic and industry related studies and articles proved to be an enormous source of data on this subject, allowing a detailed perspective on the European market with regards to LCAs.

Apart from the articles and studies on the low-cost concept and the variables associated to it, this study includes specific data and statistics on both Madeira Islands air transport and tourism industries, in order to measure the impact LCAs have had on the first year of operation in the region. This data was supplied by the airport authorities and the regional statistics entity[2]. Data was further analysed and processed in terms of time series, allowing it to describe the evolution of the most relevant indicators over time. Naturally, particular attention was drawn to markets from where LCAs had started offering air transport services to Madeira Island over the 2007/2008 period.

General Structure

The second chapter of this paper describes the origin of the low-cost concept in aviation and its evolution in Europe from late 1980's to present time, focusing on liberalization as the main driver for the business model's expansion in Europe.

Following this historical overview, chapter three analyses the LCA concept, its sources of cost advantage when compared to traditional airlines, describing as well the most usual strategies followed by this sort of airlines.

Chapter four focuses on the impacts LCAs have had in Europe, both in generic and industry specific terms. Generic impacts include consequences for subjects such as environment, consumers, regions, security and safety, etc, while the industry specific impacts studied in this paper are related to airports, airlines and tourism. The main advantages and disadvantages of LCAs are also mentioned at the end of this chapter.

[2] ANAM and DREM

In order to measure impacts on Madeira Islands, it is essential to primarily characterise the region and understand the importance of tourism and air transport for the local economy and respective development. Strategic guidelines defined for Madeira Islands' tourism industry in order to better match supply and demand, as well as the strategic role of the airports in developing this industry are illustrated on chapter five. A SWOT analysis completes this characterisation and introduces possible opportunities and threats that may arise due to the entry of LCAs in the region.

Using data available from the airport authority and regional tourism statistics it was possible to measure and identify some impacts of LCAs for some of Madeira Islands incoming tourism markets. Chapter six of this paper includes a country detailed overview for the period between 2006 and 2008, which corresponds to three different stages: 2006 was the last year before LCAs entered the region, 2007 was the first year of low-cost operations to Madeira Airport, and 2008 was the beginning of the consolidation process and also further growth in the number of low-cost services and routes on offer to this airport. A comparison between markets that are served by LCA operations and charter-only markets is also presented. The chapter finalizes by describing some future perspectives for Madeira Islands tourism and air transport industries, in line with the main international trends and the discussions on the sustainability of the LCA model.

The last chapter of this study summarises the main conclusions and the limitations of this work. Recommendations for future research are also stated at the end of this paper.

2. Historical Overview

2.1. Low-Cost Airlines in Europe

Having its origin in the United States, the low-cost/low fares/no frills airline business model is not a European invention. The concept was developed and implemented after deregulation of the United States air transport market in the late 1970's when Southwest Airlines[3] launched itself as a low fares airline offering services from its Love Field hub, a secondary airport in Dallas, Texas. This airline has been consistently profitable every year since 1973 (Grotte, 2005).

Liberalisation – the driver for European expansion

The deregulation process of European air transport took place between 1987 and 1997. Prior to that, the industry was highly regulated and rather inflexible in a way that there was no real competition between national carriers and most fares were set through bilateral agreements between states. These air service agreements shaped the industry in terms of routes, fares, capacities and frequencies. In fact, several regions were left outside the network of flag carriers since there was little possibility to attract new air services and most of them were only served by connections to the main hub airports.

The liberalisation of European air transport was gradual and consisted on four stages:

i) Under the first package of measures in 1987, fare restrictions were reduced and airlines were given additional flexibility to cooperate within the limits of existing air service agreements.

ii) In 1990 the second package of liberalisation measures allowed all European airlines to carry passengers to and from their home countries and other EU member states. Flights with a stop-over in a third country were allowed to a greater extent and fares and capacity restrictions were further abolished.

iii) With the third package of measures in 1993, all airlines holding a community license were allowed to serve any international route within the European

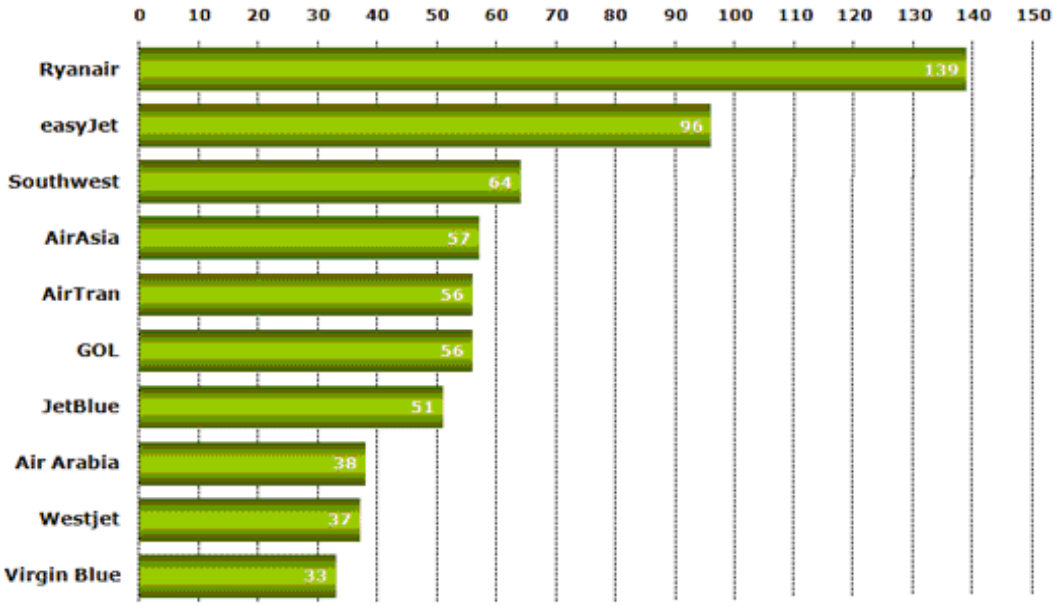
[3] Services began in 1971

Union and had almost full freedom to set fares as it was no longer required to submit fares to national authorities for approval.

iv) Later on, in 1997, all carriers holding a community license were given the *right of cabotage*, i.e. the right to operate domestic routes within the whole of the EU.

Earlier liberalisation took place between Ireland and United Kingdom in the mid 1980's, therefore creating the conditions for the emergence of the first European low-cost airline, Ryanair. In the first years, Ryanair emerged as a new entrant on the market between Ireland and UK having the dominant Aer Lingus and British Airways as competitors. In 1993 it started offering services between UK and continental Europe. Its main competitor EasyJet launched the first flights in 1995 out of London's Luton airports to the UK and to continental Europe in 1996. These airlines are now the two largest LCAs in Europe and offer over 100 million seating capacity a year between them.

Figure 1: Number of airports served by the top 10 LCAs



Source: anna.aero, OAG Max Online (September 2008)

Ryanair and EasyJet are also among the largest airlines in Europe together with German Air Berlin, as shown in the following table. Lufthansa, Air France, Iberia, SAS, British

Airways, Alitalia and KLM are the flag carriers that complete this top 10 list in terms of seating capacity.

Table 2: European seat capacity by carrier (top 50)

	Airline	2004	2005	2006	2007	07 v 06	
1	Lufthansa	60,899,753	57,374,327	58,969,743	61,790,248	4.8%	↑
2	**Ryanair**	**31,734,793**	**38,166,247**	**48,256,137**	**59,883,706**	**24.1%**	↑
3	Air France	52,729,680	51,664,788	51,463,365	53,009,202	3.0%	↑
4	**easyJet**	**30,134,490**	**35,891,137**	**40,391,969**	**45,012,387**	**11.4%**	↑
5	Iberia	41,178,069	43,112,388	42,040,444	41,111,232	(2.2%)	↓
6	SAS	32,020,720	41,571,984	39,763,975	39,936,716	0.4%	↑
7	British Airways	45,345,937	43,772,260	39,402,061	36,582,202	(7.2%)	↓
8	Alitalia	30,282,974	31,254,649	30,214,611	30,993,869	2.6%	↑
9	**Air Berlin**	**9,857,774**	**17,677,676**	**20,927,382**	**27,318,066**	**30.5%**	↑
10	KLM	17,128,713	17,265,355	17,314,340	18,502,499	6.9%	↑
11	Spanair	10,600,910	12,287,077	13,502,133	15,007,114	11.1%	↑
12	SWISS	11,903,256	11,594,420	12,012,808	13,968,317	16.3%	↑
13	Air One	8,554,634	9,122,625	9,469,559	12,146,925	28.3%	↑
14	Hapag Lloyd Express	3,480,478	4,519,074	5,421,468	11,500,105	112.1%	↑
15	Aer Lingus	8,159,990	9,547,687	10,616,734	11,458,574	7.9%	↑
16	TAP-Air Portugal	9,736,491	9,765,217	10,358,427	11,400,765	10.1%	↑
17	Austrian	10,534,099	9,999,035	10,628,096	11,399,149	7.3%	↑
18	FlyBE	6,854,437	7,824,673	8,332,608	11,166,389	34.0%	↑
19	Air Europa Lineas Aereas	7,648,584	9,754,408	9,630,992	11,152,469	15.8%	↑
20	Finnair	6,204,602	9,695,403	10,071,210	9,618,114	(4.5%)	↓
21	Olympic Airways	9,791,864	8,679,107	8,748,195	9,148,045	4.6%	↑
22	Germanwings	4,081,072	6,331,697	7,848,464	8,759,332	11.6%	↑
23	Vueling Airlines	163,332	2,716,954	5,688,180	8,532,327	50.0%	↑
24	Norwegian	3,184,516	4,158,060	6,335,111	7,853,891	24.0%	↑
25	bmi	10,312,591	9,809,262	8,701,758	7,660,371	(12.0%)	↓
26	Aegean Airlines	5,935,211	5,906,870	6,372,073	7,245,300	13.7%	↑
27	SN Brussels Airlines	5,034,984	4,804,040	4,853,577	7,168,501	47.7%	↑
28	CSA	5,560,745	6,612,192	6,412,145	6,697,425	4.4%	↑
29	Meridiana	7,636,597	6,788,222	6,417,929	6,637,056	3.4%	↑
30	Wideroe	6,736,170	6,705,254	6,446,971	6,428,061	(0.3%)	↓
31	Clickair			329,400	6,365,520	1832.5%	↑
32	bmibaby	4,597,160	5,291,866	5,878,378	6,215,916	5.7%	↑
33	Sterling European	2,106,083	2,457,591	5,002,034	6,043,016	20.8%	↑
34	Jet2	1,214,192	3,281,244	3,756,548	5,523,626	47.0%	↑
35	LOT - Polish Airlines	4,842,134	4,903,852	4,950,910	5,437,464	9.8%	↑
36	Wizzair	1,102,505	2,783,520	3,842,360	4,994,394	30.0%	↑
37	Thomsonfly	862,180	2,623,968	2,802,078	4,890,062	74.5%	↑
38	Binter Canarias	3,321,356	3,763,859	4,082,056	4,636,378	13.6%	↑
39	SkyEurope	1,063,916	2,275,467	3,295,602	4,308,468	30.7%	↑
40	Malev Hungarian Airlines	3,569,664	3,739,244	4,011,933	4,011,427	(0.0%)	↓
41	Transavia Airlines	3,680,540	3,835,519	3,912,230	3,862,464	(1.3%)	↓
42	Wind Jet	814,272	1,886,788	2,490,120	3,218,940	29.3%	↑
43	Tarom	2,641,342	2,987,096	3,644,596	2,956,509	(18.9%)	↓
44	MyAir		1,030,952	1,532,356	2,914,322	90.2%	↑
45	Croatia Airlines	2,537,592	2,838,292	2,668,006	2,820,419	5.7%	↑
46	Blue1	1,908,767	2,185,014	2,755,630	2,781,710	0.9%	↑
47	Air Baltic	1,153,272	1,773,844	2,058,193	2,774,828	34.8%	↑
48	dba	4,731,098	5,935,144	6,621,270	2,774,765	(58.1%)	↓
49	Air Malta	1,836,447	1,893,861	2,223,363	2,423,544	9.0%	↑
50	Cyprus Airways	2,273,539	2,053,381	2,108,589	2,389,408	13.3%	↑

Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

Liberalisation has certainly been the driver for the development of LCAs and their networks in Europe. Nowadays, the geography of low-cost networks is to a great extent the geography of European Union air transport liberalisation (Dobruszkes, 2006).

In recent years there were two important factors related to liberalisation that led to the introduction of new routes by the LCAs. The acceptance of new EU members from Central and Eastern Europe and secondly the adoption of EU legislation by countries that have not yet joined (Vidovíc *et al*., 2006)

The enlargement of the EU and consequent deregulation gave LCAs renewed impetus, allowing Central and European Union to be a key growth area. In fact, from 2004 new low-cost routes were introduced in countries like Slovakia, Hungary, Poland, Slovenia, Bulgaria, Czech Republic and more recently Turkey[4].

Table 3: Departing low-cost airline seat capacity by country

Rank	Country Name	2002	2003	2004	2005	2006	2007	07 v 06	
1	United Kingdom	28,054,433	38,059,278	44,097,898	52,772,501	58,311,061	66,351,678	13.8%	↑
2	Spain	5,692,198	10,265,487	14,984,713	22,648,038	28,036,595	40,680,642	45.1%	↑
3	Germany	8,826,878	16,254,231	20,048,675	27,258,994	32,451,496	40,022,448	23.3%	↑
4	Italy	10,120,980	16,937,357	20,147,974	20,792,636	25,269,202	30,780,463	21.8%	↑
5	Ireland	7,543,956	8,940,148	9,532,776	10,995,841	13,425,489	15,212,762	13.3%	↑
6	France	3,112,642	5,974,287	8,874,638	8,993,213	11,059,463	13,855,453	25.3%	↑
7	Norway	838,148	3,101,939	3,814,523	4,394,872	6,460,417	7,520,259	16.4%	↑
8	Netherlands	3,032,645	3,617,168	4,252,238	4,812,164	5,733,014	6,179,846	7.8%	↑
9	Poland			919,875	2,182,753	4,187,842	5,342,660	27.6%	↑
10	Sweden	564,802	1,767,434	2,952,904	4,788,093	5,576,032	5,239,949	(6.0%)	↓
11	Switzerland	1,366,674	2,306,189	2,877,918	3,682,334	4,598,249	5,151,161	12.0%	↑
12	Portugal	543,320	844,730	1,066,738	1,688,803	2,690,078	3,850,535	43.1%	↑
13	Austria	275,834	880,064	1,746,055	2,228,848	2,384,612	3,657,088	53.4%	↑
14	Denmark	434,047	916,503	1,494,094	1,627,162	2,489,541	2,999,031	20.5%	↑
15	Greece	492,704	842,006	1,078,548	1,602,155	1,364,253	2,386,624	74.9%	↑
16	Belgium	2,542,823	3,091,329	2,825,365	2,566,175	2,988,144	2,289,924	(23.4%)	↓
17	Czech Republic	207,516	457,143	1,252,371	1,562,040	1,739,822	2,130,030	22.4%	↑
18	Hungary		43,584	754,320	1,669,234	1,596,718	1,618,902	1.4%	↑
19	Romania		9,860	83,703	123,410	531,076	1,360,463	156.2%	↑
20	Slovakia	60,003	134,748	319,247	596,162	1,079,337	1,099,500	1.9%	↑
21	Latvia			38,502	341,235	551,035	674,749	22.5%	↑
22	Croatia	195	5,700	56,962	198,006	456,986	647,730	41.7%	↑
23	Finland		79,191	219,814	339,006	448,502	473,129	5.5%	↑
24	Bulgaria	6,678	17,766	19,166	35,386	146,884	327,922	123.3%	↑
25	Lithuania				25,551	192,666	279,817	45.2%	↑
26	Malta	6,195	9,550	12,240	17,665	32,264	187,344	480.7%	↑
27	Cyprus	21,424	149,102	286,827	404,555	300,791	160,870	(46.5%)	↓
28	Estonia			28,953	107,921	132,972	136,431	2.6%	↑
29	Slovenia			42,220	106,149	104,967	103,130	(1.8%)	↓
30	Serbia Montenegro	1,575	6,132	8,436	51,400	24,382	79,343	225.4%	↑

Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

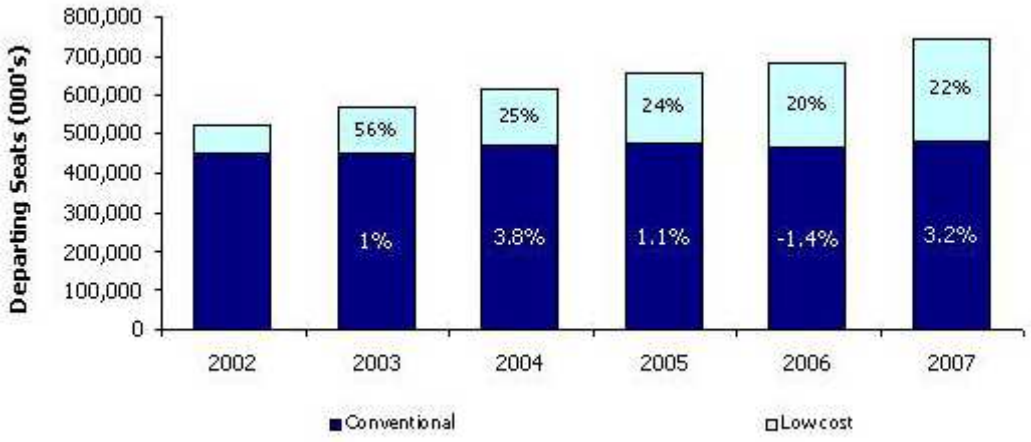
[4] Not an EU member

The United Kingdom is by far the largest LCAs market with over 66 million seats on offer in 2007, for which its London Luton airport contributed with over 14 million seats, being the largest low-cost airport in Europe[5]. Spain Germany and Italy also have an offer of more than 30 million seats each. Finally, Ireland with its home based LCAs Ryanair and Aer Lingus had in 2007 a seat capacity of approximately 15 million.

LCAs market share in Europe

The market share of LCAs in Europe has been increasing rapidly. As shown in the figure below, low-cost seat capacity grew 22% in 2007 while conventional carriers' capacity increased only 3,2%. This continuous rapid growth of LCAs capacity in Europe has resulted in a market share of 35% by the end of 2007.

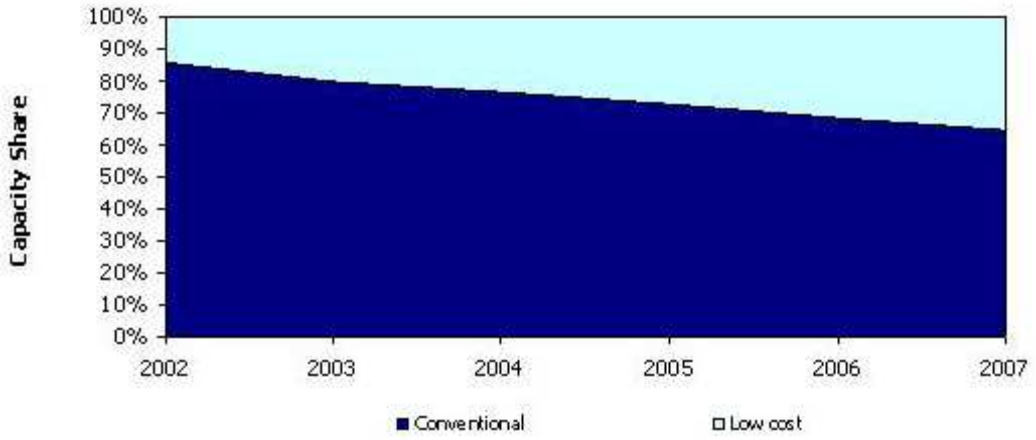
Figure 2: European seat capacity growth by service type



Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

[5] Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008) and Eurocontrol, *Low-Cost Carrier Market Update* (2007)

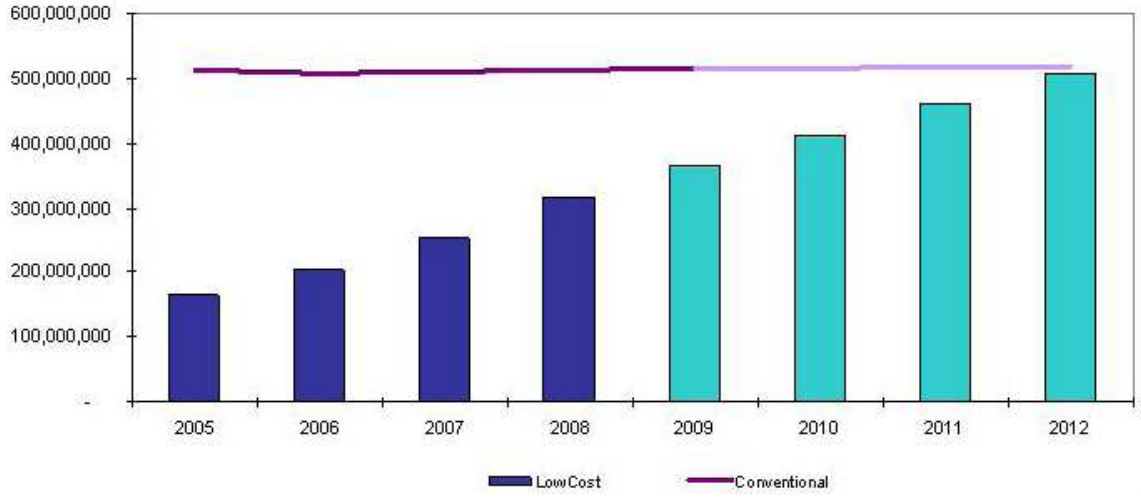
Figure 3: European capacity share by service type



Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

It is estimated that LCAs will account for approximately 50% of the total seat capacity in 2012 of a market with 1 billion seats per annum, which means that the market share will still grow a further 15% when compared to 2007.

Figure 4: European seat capacity forecast by service type



Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

2.2. Low-Cost Airlines in Portugal

Portugal is currently the 12th largest LCAs market in Europe with a low-cost seat capacity of over 3,8 million and the number of low cost carriers has been expanding rapidly in this country. As shown in Table 3, the LCAs seat capacity in Portugal grew 43,1% in 2007.

Lisbon, Oporto, Faro and Madeira are the airports responsible for this global figure and some of these airports have already a considerable share of low-cost seats on offer. Faro is by far the strongest example with 65,3% share of LCAs seat capacity.

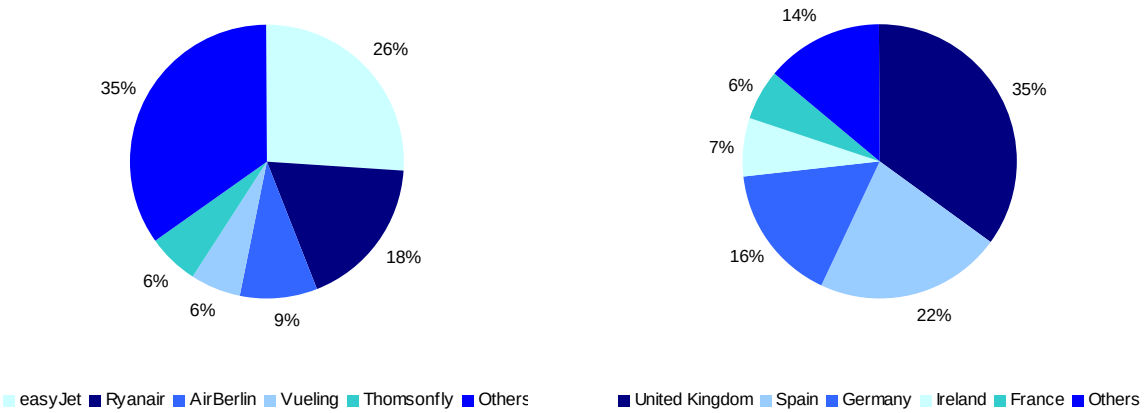
Table 4: Low-cost seat capacity share for Portuguese airports (2007)

Lisbon	14,4%
Oporto	27,7%
Faro	65,3%
Madeira	10,9%

Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

EasyJet is the largest LCAs operating in Portugal with a capacity share of 26%, followed by Ryanair with a share of 18%. In terms of countries, United Kingdom is the largest market with a share of 35% while Spain and Germany follow with shares around 22% and 16 %, respectively.

Figure 5: Low-cost airlines and country seat capacity shares in Portugal (2007)



Source: RDC Aviation Ltd, *SRS Low-Cost Monitor* (2008)

This market overview shows the importance of LCAs in the Portuguese market and the rapid expansion that has taken place. LCAs have started operations to Madeira airport in the last quarter of 2007 and already have a seat capacity share of 10%.

This paper analyses this concept and respective impacts, focusing on the changes that have occurred after this recent change in Madeira's air transport industry.

3. The Low-Cost Airline Concept

3.1. Low-Cost Airline Business Model and Sources of Cost Advantage

If one were to describe in the most basic and simple way LCA's business model this would show a success cycle based on greater efficiencies/lower costs, lower air fares, more passengers and increased revenues. In fact LCAs have developed a business model that allows them to be extremely competitive against traditional airlines by offering passengers cheap fares.

LCAs typically operate modern aircrafts with single class cabins and usually the whole fleet has only one type of aircraft, therefore reducing maintenance and training costs. They also offer very few in-flight frills, such as free meals, drinks or newspapers. These measures allow LCAs to keep their marginal costs very low while being very flexible in terms of yield management by varying air fares according to the time, day or season of departure. Usually the lowest fares are to be found several weeks or months before the date of travel. This way, a LCA can maximize revenue from its potential customer base.

The routes operated by LCAs are usually point to point instead of being part of a network hub as it is the case of most traditional airlines. Avoiding connecting flights simplifies scheduling procedures and luggage handling. LCAs often operate from secondary airports in order to keep airport fees as low as possible. Most of the routes are short-haul which reduces the turnaround time to the minimum and allows a more intensive utilization of the aircrafts.

In terms of distribution there are also important savings, as most LCAs practically restrict their sales to their own websites, where the cost of booking is minimized. Using this channel of distribution helps at the same time to increase revenues in terms of other services on offer on the websites such as car rentals and hotels.

Additional cost savings are achieved by using basic ground facilities and paying staff through variable compensation. This not only motivates the staff but also reduces the business risk in case of a downturn.

All the characteristics described before can be grouped in three basic ones[6]: simple product, low operational costs and positioning. The following table details these characteristics.

Table 5: Characteristics of the LCA concept

Basic characteristics	Detailed characteristics
A simple product	• one passenger class / one cabin class • simple fare schemes with limited product differentiation • no frills, such as catering, lounges and frequent flyer programmes,… • no ticket repayment and rebooking
Low operational cost combined with high productivity	• single aircraft type reducing training and servicing costs as well as crew and maintenance costs • lower crew wage schedules due to low average seniority and performance linked wage structure, personnel performing multiple tasks (for instance flight attendants also cleaning the aircraft or working as gate agents), etc. • outsourcing of all non-flying jobs (i.e. ground handling, aircraft maintenance, call centres,…) • emphasis on direct sales of tickets, especially over the Internet (avoiding fees and commissions paid to travel agents and computer reservations systems) • the use of secondary airports with excellent slots, low landing fees, less congestion,… • simplified routes, emphasising point-to-point transit instead of transfers at hubs (again enhancing aircraft utilisation and eliminating disruption due to delayed passengers or luggage missing connecting flights) • high seat density • high utilisation of aircraft achieved through short flights and fast turnaround times (i.e. more block-hours/day means lower unit cost) • low rotation time(ª) of approximately 20 minutes • free seating encouraging passengers to board early and quickly
Specific positioning	• aggressive marketing campaigns • leisure travellers and price-conscious business travellers • stronger fuel hedging programmes.

(ª) The time the aircraft is parked on the ground when engines are turned off.

Source: Macário *et al.* (2007), based on Bieger and Agosti (2005), ELFAA (2004), Doganis (2006), Klaas and Klein (2005) and Taneja (2004)

[6] As described by Jiang (2007) and MERCER Management Consulting (2002)

Low-cost vs. Traditional

The LCA business model brings these airlines several advantages when compared to traditional carriers, usually less standardized and cost focused. The main differences observed are in terms of aircraft utilization, on-board frills, airport selection, fleet, distribution/retail, networks and personnel.

Table 6: Main differences between LCAs and traditional airlines

	Low-Cost Carrier	Classic scheduled airlines	Low-Cost advantages
Utilisation	• Fast turnarounds (up to 25 min.)	• Turnaround slowed down by use of major airports with large amount of traffic (approx. 45 min.)	• Higher utilisation
Frills	• No Frills, extras paid for (e.g. catering, extra luggage)	• Entertainment programme, quick check in, lounges, paper tickets, business class, catering	• Lower ancillary costs, less complexity, additional income
Airports	• Primary and secondary airports	• International airports	• Cheaper airport charges
Fleet	• Standardised fleet (only one aircraft type), higher seating density (737-300: 148)	• Various aircraft types, low seating density (737-300: 128)	• Lower maintenance, spare parts and training costs, simpler swopping around of flight staff, higher capacity utilisation
Retail	• Direct channels, use of travel agencies only if extra costs minimal	• Most tickets sold via travel agencies and by the airline itself	• Lower distribution costs, lower complexity
Network	• Direct flights, no transfers, short routes	• Long haul and short haul routes with transfers	• Lower complexity, higher capacity utilisation
Personnel	• High variable-proportion of salary (up to 26 %), better capacity utilisation	• High basic salaries (variable proportion up to 11 %), trade union affiliation	• Lower fixed personnel costs

Source: ELFAA (2005)

Research by Doganis (2006) has proved evidence that the cost per seat for a LCA is 49% of the total cost per seat of a traditional airline. This analysis shows the importance of the business model in terms of gaining cost advantage.

According to the same author, the cost per seat/km for Ryanair and EasyJet is 38 and 55 when compared to an index base of 100 from British Airways. This research indicates that other flag carriers have even greater costs per seat, namely Austrian (129), Lufthansa (117), Air France (116) and SAS (104).

Table 7: LCA's sources of cost advantage

	Cost per seat
Traditional Carrier	***100%***
Low-cost Carrier	
Operating advantages	
Higher seating density	84
Higher aircraft utilisation	82
Lower flight and cabin crew costs	79
Use cheaper secondary airports	75
Outsourcing maintenance /single aircraft type	73
Product / service features	
Minimal station costs and outsourced handling	66
No free in-flight catering, fewer passenger services	61
Differences in distribution	
No agents or GDS commissions	55
Reduced sales/reservation costs	52
Other advantages	
Smaller administration and fewer staff / offices	49
Low-cost Carrier compared to a traditional carrier	***49%***

Source: Doganis (2006)

Most of the features described above are common to most LCAs but it is important to notice that not all of them have the same exact characteristics. For example, Air Berlin has a hub airport in Maiorca-Spain, from where it transfers passengers all over its destinations across Europe.

Types of low-cost airlines

While describing the types of LCAs, one can be less specific and consider only two types Jiang (2007): Independent airlines (e.g. Ryanair, EasyJet) or Subsidiaries of a traditional flag carrier (e.g. Go, Buzz, Centralwings, Clickair).

Francis *et al.* (2006) on the other hand developed a typology in which five types of LCA are distinguished:

- The Southwest copycats – airlines that have been set up as LCAs or remodelled by private entrepreneurs. The most well- known examples are Southwest and EasyJet.
- Subsidiaries – airlines that were set up as subsidiaries by traditional carriers to re-gain market share they had initially lost to low-cost competitors. Some examples include Snowflake by SAS, bmibaby by bmi and Go by British Airways[7].
- Cost-cutters – long-established traditional airlines that attempt to cut operational costs, most of the times by reducing some of the frills once offered. Aer Lingus is a clear example in Ireland.
- Diversified charter carriers – these are basically low-cost subsidiaries of charter airlines, for example Hapag Lloyd Express set up by Hapag Lloyd[8].
- State-subsidised airlines competing on price – even though they are not true low-cost airlines their financial funding based in Government ownership or subsidies allow them to compete in the market at low fares having no need to cover for their long run average costs. Alitalia, TAP and Iberia are some examples.

3.2. Low-Cost Airline's Strategies

There are two main strategies followed by LCAs: One consists on operating totally new markets creating new routes, while the other is based on entering large, established markets where other airlines already operate.

The first strategy is the one followed by Ryanair, currently the largest LCA in Europe. This airline studies the regions identifying potential unexplored markets and targeting secondary airports. As most local airports and authorities are eager to attract airlines, increasing revenues and allowing greater social and economic development, Ryanair usually gets benefits or incentives from these entities. Most of the targeted passengers are price sensitive so this allows the carrier to induce traffic avoiding direct competition.

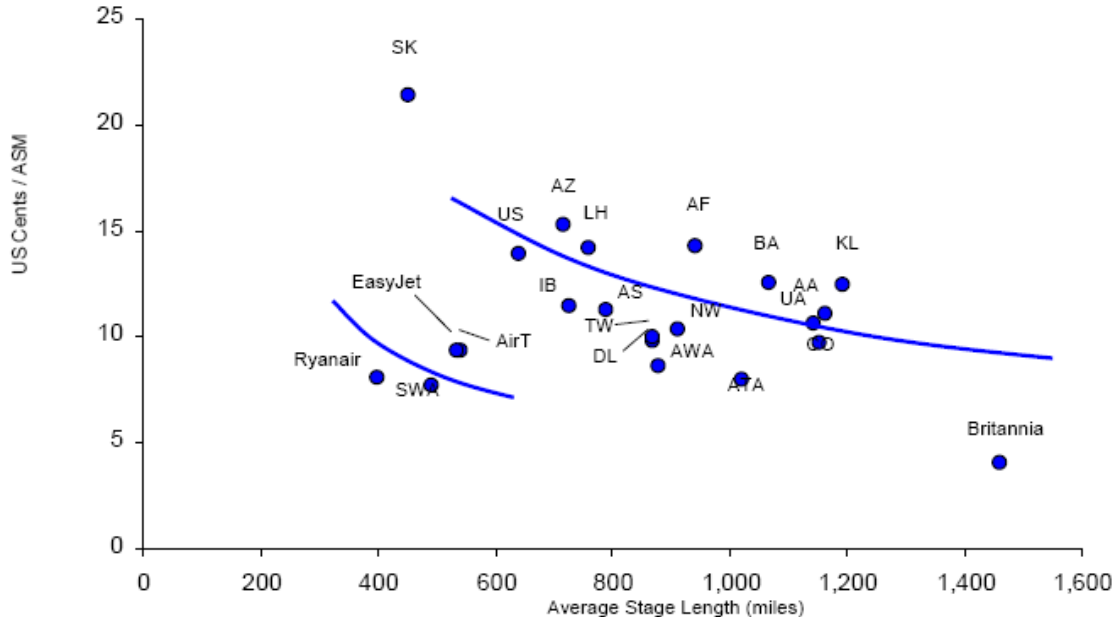
[7] Sold to EasyJet in 2002
[8] Both airlines are know part of TUIfly

Low levels of competition also allow offering less frequencies and focusing on leisure markets without spending resources on matching frequencies or schedules[9]. The Ryanair model is based on cost-cutting rather than on markets.

The second largest European LCA, EasyJet, follows the other strategy. This airline serves primary airports, operating high frequencies and focusing on both new and existing, business and leisure, markets. It accepts competition from other airlines gaining market share by offering double and triple daily flights. More frequency corresponds to higher degree of choice, therefore attracting not only leisure but business passengers as well.

Whatever the strategy adopted, LCAs competitive advantage comes from low fares offered to passengers. Other LCAs try to follow one or other of these strategies but most of them lack the cost advantages of Ryanair and EasyJet.

Figure 6: Costs in US Cents per Average Stage Length



Source: Booz Allen Hamilton (2003)

[9] On approximately 60% of the routes Ryanair operates alone (Macário *et al.*, 2007)

4. The Impacts of Low-Cost Airlines

This chapter analyses the main effects LCAs have on several variables, namely on consumer behaviour, air fares, regional economies, environment, safety and security, and the coexistence with other means of transport across Europe.

Industry specific impacts on airlines and airports are also subject to analysis as these are the main players in terms of both cooperation and competition with the LCA business model. In addition to this, effects on the tourism industry are described since this activity is closely related to air transport.

Finally, the main advantages and disadvantages of LCAs are summarized taking into account all of the above mentioned impacts and effects.

4.1. General Impacts

4.1.1. Benefits for Consumers

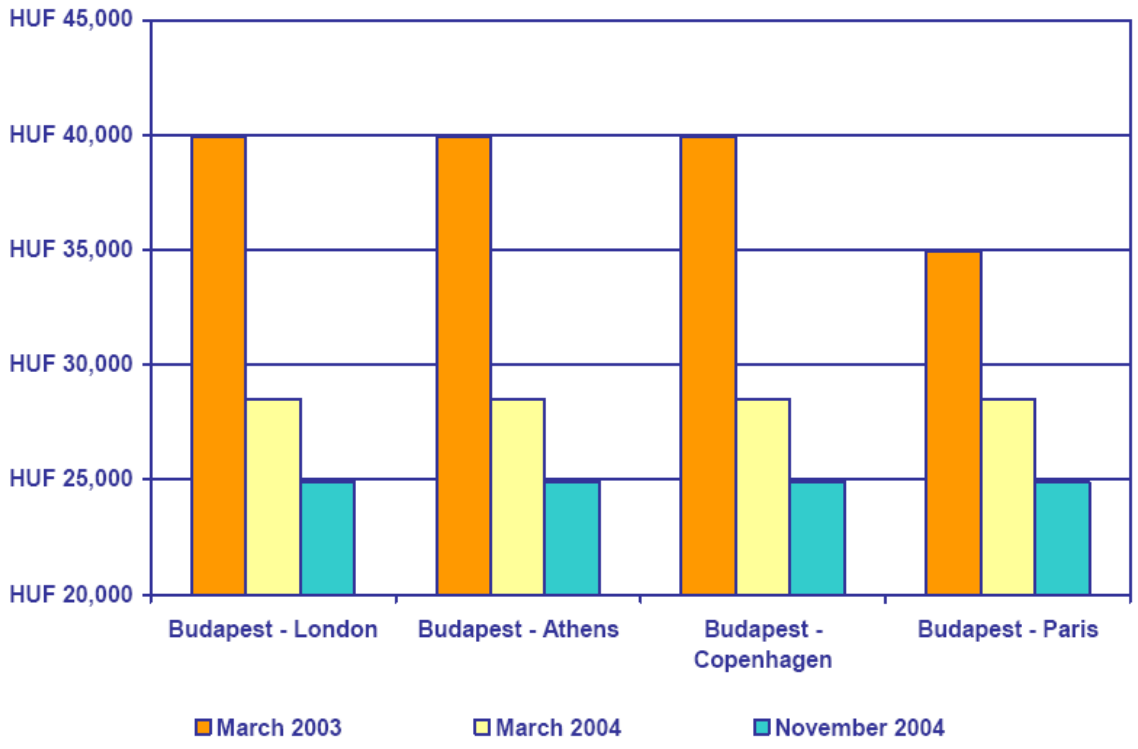
After the liberalization in Europe the number of airlines operating in the market has grown considerably. LCAs have been the main contributors to this growth in terms of adding more frequencies and new direct routes, including underserved routes to regional airports that were not attractive to major carriers connecting most of their traffic in their main hubs.

In addition to the larger number of destinations on offer, low fares have been the other main driver for this increased customer choice. In fact people who travelled using other means of transport or those who could simply not afford to travel started using LCAs.

Increased competition and the growth of LCAs led to a decrease in air fares, since the low-cost model allowed these airlines to offer tickets at much lower prices than the ones

prior to liberalisation. Traditional airlines had to follow, lowering their fares and restrictions in order to retain its market shares.

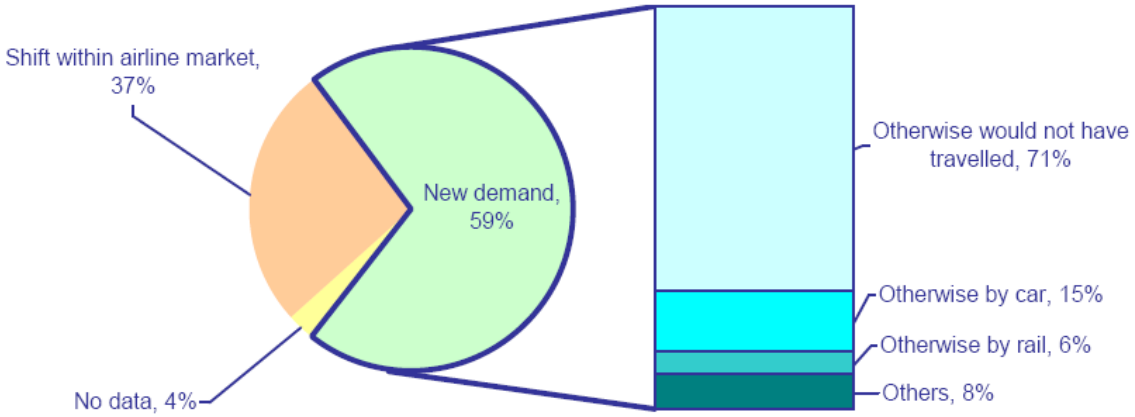
Figure 7: Lowest available restricted economy fares from Malev Hungarian Airlines before and after the entries of LCAs



Source: ELFAA (2004), based on Wizz Air's own research

Evidence shows that only 37% of LCAs' passengers shifted from traditional airlines while 59% represent new demand, meaning passengers that otherwise would not have travelled by air. From this last group, 71% would not have travelled at all. This reflects a positive direct social impact of LCAs on the EU market.

Figure 8: Share of new demand and breakdown of new demand in LCAs' traffic



Source: NFO Infratest, Monitor Group Analysis (2002)

4.1.2. Impact on Regions

Air transport and airport activities are of great economic and social importance to regional economies. According to Macário *et al.* (2007), there are three main classes in which the impact of the air transport activity on regional economies can be split:

- Direct effects, which relates to increased employment in activities directly related to air transport.
- Indirect effects, which are connected to the growth in terms of people flows for tourism and business purposes, fomenting employment and economic activity.
- Catalytic effects, by which regions are able to attract and retain incoming investment and stimulate tourism, achieving sustainable growth in terms of income and employment.

Studies have been conducted to measure this impact on several European regions[10]. For example, a study on the impact of LCAs presence at Cologne Bonn Airport estimates that taxes paid to federal and local authorities reached a total of € 91 million in 2002, while cost and productivity advantages for regional companies were assessed at € 147,6

[10] As an example: Kupfer, F. and F. Lagneaux (2009), Economic Importance of Air Transport and Airport Activities in Belgium, *Working Paper Document No158*, National Bank of Belgium

million. Further to this, the average incoming passenger's expenditure in the region was of € 285,42 per trip[11].

This virtuous cycle for employment and economic development, gives regions strong incentives to capture LCA's traffic as a way to induce air travel to the region. Offering advantageous conditions to LCAs in order to achieve that goal may not be the correct strategy and these activities have already been subject to the intervention of the European Commission as it was the case in Charleroi (Belgium). Following a complaint from competing Zaventem Airport in Brussels, the European Commission ordered Ryanair to repay the local authorities around € 4 million in what were considered to be illegal subsidies in the form of state aid[12].

Nonetheless, the free movement of persons within the European Union is one of the pillars of the EU. In this sense, LCA services between European regions and major international destinations play a decisive role in terms of regional development and integration. By offering low air fares and new destinations LCAs have increased mobility in the EU, contributing to promote equity, integration and cohesion between European regions.

4.1.3. Environmental Issues

Air transport is one of the major sources of pollution and CO2 emissions, therefore LCAs can not be excluded from this negative contribution to the environment even though they appear to have environmentally-friendly features.

In fact, the concerns regarding cost minimisation have consequently improved LCAs ability to reduce waste and energy consumption levels. Operating modern fleets of the new generation reduces fuel burns and decreases noise emissions. As most LCAs tend to operate to/from secondary airports located in less populated areas and avoid flying at

[11] Die regionalen Auswirkungen des Low cost-Marktes im Raum Köln/Bonn (2004), Universität zu Köln

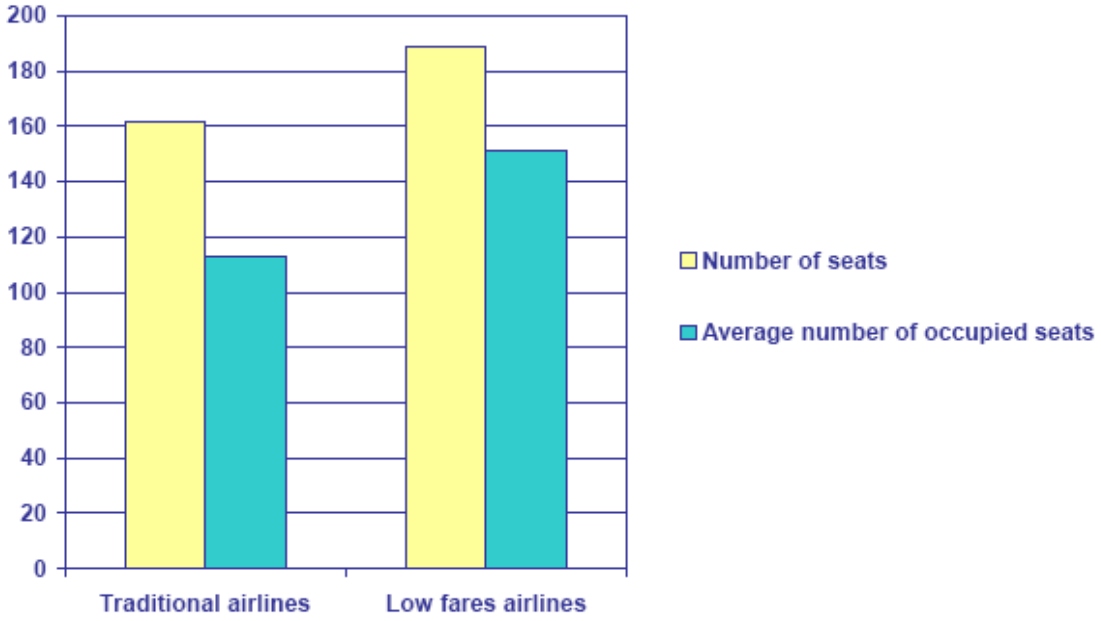
[12] Adapted from Marvel (2004)

night, noise impact is also reduced. Furthermore, secondary airports are less congested so holding and turnaround times are minimised, decreasing energy consumption as well.

The LCA model itself grants higher efficiency as the optimised single class seat configuration reduces the energy consumption and emissions per passenger. Usually LCAs' average load factors are also higher, therefore enhancing this fact even more. Figure 9 shows how the same type of aircraft can accommodate more passengers under the LCA business model than on traditional carriers' configurations, reducing the emissions per passenger and increasing efficiency.

Further to this, LCAs minimise waste production since they offer "no frills" services. If compared to traditional airlines, they do not offer free meals, drinks or newspapers, so the amount of waste generated on board is much lower.

Figure 9: Differences in aircraft configuration and load factor – Boeing 737-800



Source: ELFAA (2004)

Nevertheless, LCAs are real contributors to CO2 emissions and the European Union is currently taking several initiatives[13] to reduce and control the greenhouse gas emissions. Currently these air transport emissions are not included in the Kyoto Protocol limits. Even so, only 3% of the total EU greenhouse emissions are generated by the aviation sector.

4.1.4. Security and Safety

While being regulated by the exact same safety standards and rules as all other European airlines, LCAs are as safe as any other airlines authorised to operate air services in Europe. As mentioned before, LCAs operate young fleets and are equipped with new generation safety technologies.

Unlike for most traditional airlines, any serious safety incident could have a greater impact on a LCA's business and possibly result in bankruptcy, therefore LCAs would never be willing to jeopardise their safety levels.

Further to this, efforts have been made to change the incorrect perception passengers have with regards to safety on board of an LCA. A strong argument for LCAs to defend their maximum concerns over safety and security is the fact that only with modern fleets can they reduce maintenance costs and develop their business strategy.

4.1.5. Low-Cost Airlines vs. Other Modes of Transport

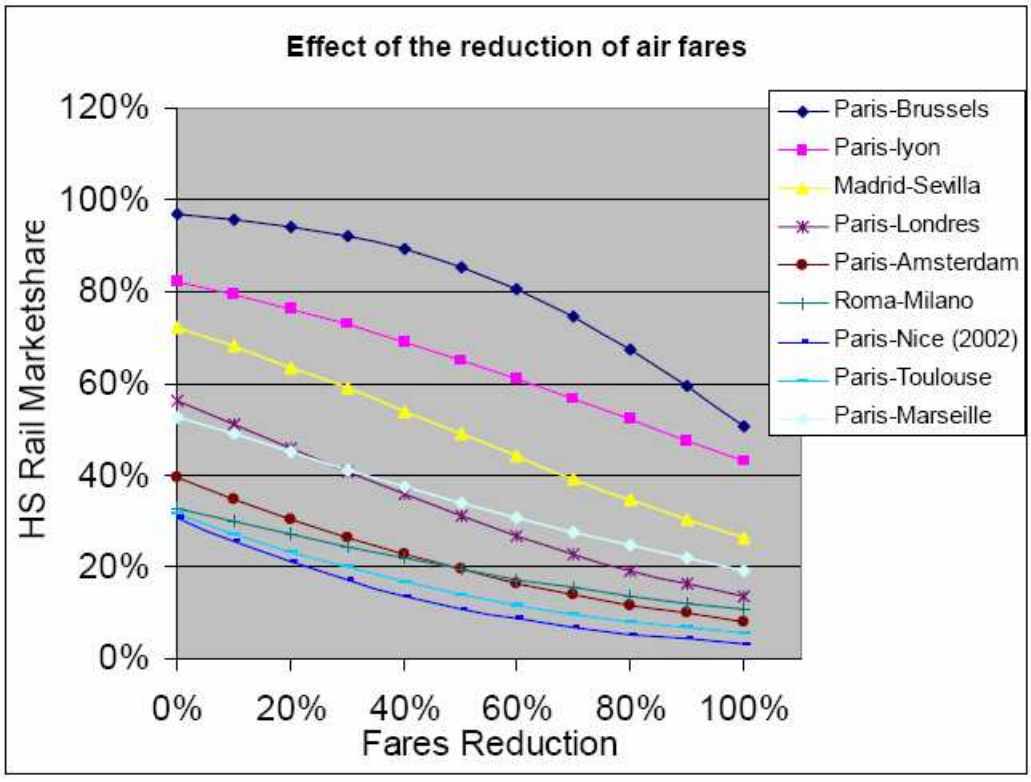
There is evidence of competition between air transport services and other modes of transport, namely in the United States after liberalisation. Other modes of transport have to reduce prices in order to compete with LCAs, but the main LCA competitor is the high speed train as it is the only transport capable to compete in terms of travel times.

[13] European Commission Proposal COM(2006) 818 final

A competitive advantage of the high speed train is the fact that it usually offers services from and to city centres, while air transport offers services from and to airports which are usually further away from the city centres. According to Givoni (2006) this advantage is real up to distances of 1.000 km while in terms of time the high speed train can only compete for travels below 3,5 hours (Esplugas, 2005). The main factors allowing this competition are speed, tariffs, frequency, service quality, punctuality, comfort and also the perception of higher safety levels.

Research by Esplugas (2005) has proven evidence that there are considerable reductions in the high speed train market share following the entry of LCAs into the market. The estimated effect on this market share as a consequence of air fares reductions is described in Figure 10 for several European routes.

Figure 10: Predicted rail market share corresponding to air fares reduction



Source: Espulgas (2005)

4.2. Industry Specific Impacts

4.2.1. Impact on Airports

The LCA concept has had a major impact on European airports as it has changed the market conditions considerably. This meant a forced change in the way airports used to do business. Nowadays, airports have to compete with each other in order to capture more air traffic and airlines opening new routes. Aviation marketing departments and route development strategies are present at almost every European airport these days.

In fact, liberalisation in the air transport sector led to liberalisation of the airport sector as airports are no longer able to set price and conditions to airlines without taking into account its competitors. LCAs are now negotiating lower airport charges in exchange for long term passenger growth and the opening of new routes. Still, there is controversy over the subsidies airports and regions might be granting some airlines, as described before in the Charleroi/Ryanair case.

The induced traffic growth and changes in market conditions have had a particular impact on the regional and secondary airports, usually underutilised and consequently free of slot constraints. The underutilisation meant that fixed costs had to be beard even if there was no significant traffic to cover for them. In this sense, LCAs have created conditions for airports to become more efficient, by increasing revenues from both aviation and non-aviation businesses.

Traffic growth leads to higher revenues for airports from traffic charges, but increased traffic also develops revenue sources such as: car rentals, banks, shops, post offices, restaurants and bars, car parking, bus shuttles, advertising and marketing, etc. For some airports, air traffic charges are no longer their main source of income. For example, Love

Field airport in the United States, home to Southwest Airlines, has three times more revenue from non-aviation business than from aviation[14].

Increased traffic growth and revenues for airports have enabled them to develop their infrastructures, modernising its facilities and building additional car parks and commercial areas that can further increase their revenues in the future.

In order to cope with this shift from the traditional pattern in airport planning, De Neufville (2008) proposed a flexible design strategy for airports enabling them to adjust to the changes in the type, needs and location of traffic. LCAs have become a significant factor in airport planning and their requirements clearly differ from those of traditional airlines, therefore airports have to adapt under a flexible model that must necessarily recognize the forecast uncertainty, the different standards and the changeable clients.

Regional airports vs. major airports – is there traffic diversion?

All across Europe many regional and secondary airports have emerged, and compete with major airports in terms of traffic volumes. It has been argued that regional and secondary airports might be damaging financially the major airports due to traffic diversion, yet there is no evidence of such consequence.

One reason for this is the fact that most major airports suffer from slot and capacity constraints. Therefore, any traffic that might be diverted to a secondary airport would be easily replaced by some other route or airline, probably for international services. Further to this, it has been shown that the development of LCA services usually creates new demand due to the low pricing strategy followed by this type of airlines. Finally, in many cases, the routes launched by LCAs are totally new, connecting regions that were not served by air transport before their entry in the market.

[14] Source: Boston Consulting Group (2004)

Table 8: Some major and secondary airports in Europe

City	Primary airport(s)	Secondary airport(s)
Amsterdam	Schiphol	Rotterdam
Barcelona	Aeroport del Prat	Girona, Reus
Berlin	Tegel	Schönefeld
Brussels	Zaventem	Charleroi
Copenhagen	Kastrup	Malmö
Cracow	Balice	Katowice
Düsseldorf	Düsseldorf International	Cologne/Bonn, Weeze
Frankfurt	Main	Hahn
Glasgow	Abbotsinch	Prestwick
Hamburg	Hamburg Airport	Lübeck
London	Heathrow, Gatwick	Stansted, Luton
Milan	Malpensa	Bergamo
Paris	Charles de Gaulle, Orly	Beauvais
Rome	Fiumicino	Ciampino
Stockholm	Arlanda	Skavsta, Västerås
Vienna	Vienna International	Bratislava

Source: ELFAA (2004)

4.2.2. Impact on Airlines

Over the last thirty years there have been several changes and adaptations in terms of air transport, as a response to several challenges that arise in terms of offer, distribution channels, safety, performance, environment and probably the most relevant, cost efficiency. By taking into consideration the core characteristics of LCAs that have been described earlier in this paper, it is possible to understand that this concept has had a significant effect on traditional airlines and charters airlines as well.

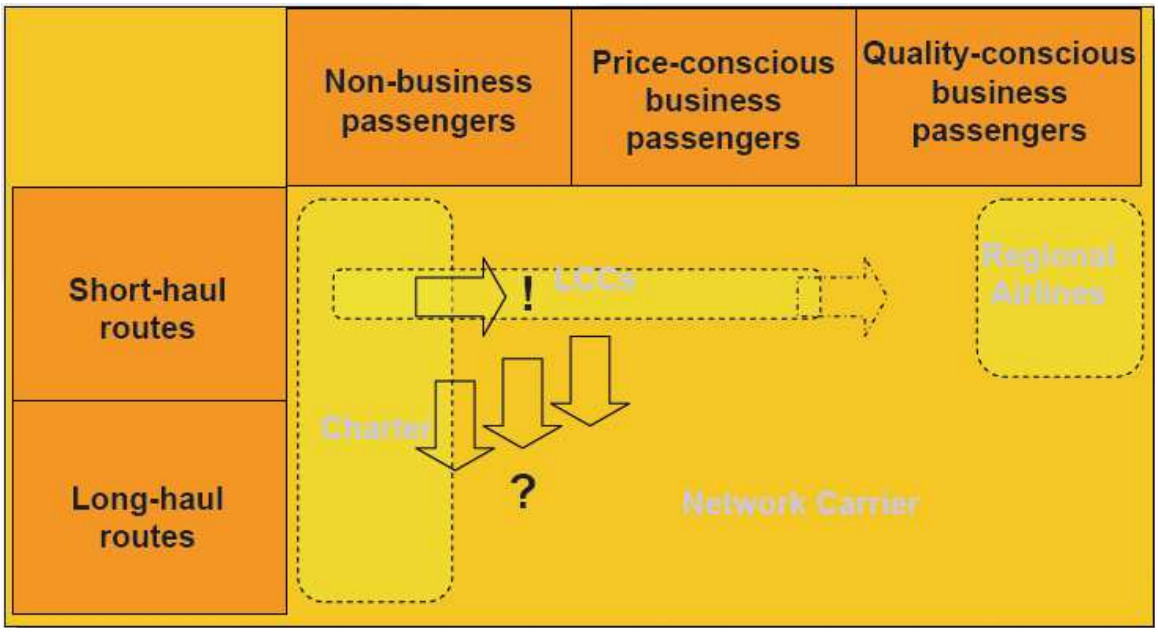
The LCA business model and the competitive advantages that derive from it have created conditions for traditional airlines to be more cost-oriented in terms of their operations. In fact, having a considerably higher cost structure these airlines have to achieve higher average load factors than LCAs in order to reach operational break-even. Even so, traditional airlines are not the only ones struggling against LCAs competition, as these are now targeting resorts and eating into tour operators' market shares. The growing development of routes to Spain, Greece, Turkey, Egypt and Portugal, among others, is a clear indication of LCAs impact on the traditional charter market.

Stimulated by the success of LCAs and eager to regain the lost market shares, many traditional and airlines have started their own LCA subsidiary. Lufthansa's Germanwings, BMI's BMIbaby and Hapag-Lloyd's Hapag-Lloyd Express are some examples of this strategic decision.

At the same time, some airlines have migrated their business models from full service airlines to low-cost airlines or charter airlines to low-cost airlines and vice-versa. For example, Irish flag carrier Aer Lingus has transformed itself from a full service airline into a LCA, maintaining the full service feature only for its transatlantic flights. Air Berlin, on the other hand, has a mixed business model that incorporates features from all the airline business models: full service, low-cost, charter and regional.

Airlines business models have been changing according to new market challenges and conditions, and it is likely that adaptation continues over the next years.

Figure 11: Airline business models: evolution and trends



Source: Kurth (2007) based on Mercer Management Consultants (2003)

Is there a future for charter airlines?

Charter airlines have long been dominating the European travel market but now LCAs are putting this business model to a test. More flexibility provided by more weekly frequencies are encouraging consumers to chose short or weekend breaks, travelling more often on vacation but with less duration. These consumers put together their own holiday packages in opposition to buying the traditional one or two-week packages offered by tour operators (Buck, 2003).

Traditionally, charter airlines serve leisure routes on a weekly basis, carrying clients for tour operators who buy most of the seats on the plane. As package holidays are an extremely price sensitive business, there has been a tendency for vertical integration in recent years. In fact, tour operators have been acquiring not only charter airlines but also retail travel agencies, hotels and cruise liners. Without this vertical integration, most independent charter airlines would not be able to survive in such a competitive market (Buyck, 2002). This way, charter airlines can transfer the commercial risk to the tour operator, achieving economies of scale at the same time. These airlines have to rely on strategic success factors from the associated tour operator, such as: cost efficiency, integration of operational management, product development and marketing (Bieger *et al.*, 2002).

Studies conducted by Mason *et al.* (2000) and Doganis (2001, 2002) have confirmed that the typical charter airline has lower cost per passenger carried than its LCAs or traditional counterparts. When operating the same route, a charter airline has 69% lower costs than a full-service carrier and 10% less than a LCA, even though it keeps offering a full in-flight service.

Having advantages and disadvantages when compared to LCAs, charter airlines have been adopting some strategies used by LCAs in order to attract passengers. Buck (2002) describes three of these strategies. First, charter airlines are putting more flights in order to increase frequency and flexibility. Secondly, instead of lowering the price as time to departure decreases, the new pricing and yield management strategy starts by offering

lower prices for seats sold first. Thirdly, these airlines are also offering direct internet sales to consumers.

There is no doubt that charter airlines and LCAs compete in some markets, but in general both types of carriers have different markets. While routes under 1.000 km of flight sector, with mixed business and leisure, are the most profitable ones for LCAs, the typical charter routes are holiday destinations with a higher stage length, usually over 2.000 km. In addition to this, LCAs are mostly oriented to short and weekend-breaks while charter airlines continue to offer holiday packages with suitable accommodation at very competitive prices. Under these conditions it is likely that both types of carrier have still important roles to play in the European travel and air transport markets.

4.2.3. Impact on the Tourism Industry

There is a strong link between air transport and tourism, and over the last twenty years a growth trend has been evident in both industries. There were also some downturns, for example in 2001 when the terrorist attacks caused a decrease of 3% in worldwide passenger numbers (Konecnik, 2002). Nevertheless, this interdependence between industries is the reason why the tourism industry is now being influenced by LCAs fast growth. LCAs keep offering more and more routes to holiday destinations, putting pressure on tour operators and the traditional holiday packages. Continuous changes in supply and demand create the need to adapt and develop products and strategies within the tourism industry (Herzog *et al.*, 2003).

The emergence of LCAs has revolutionised tourism across Europe. Travelling by air is now being used by tourists instead of less efficient and more time consuming modes of transport. Regions and cities that were previously lacking air services have are now part of LCAs networks and develop its tourism sector. In addition to this, air services offered in tourist routes are now less seasonal, allowing hotels and restaurants to charge less when before they had to increase prices in the high season to cover for the losses in the off peak seasons.

According to the ELFAA (2004) there are three main benefits of LCAs to European tourism. Firstly, LCAs have developed their networks including secondary regions and cities with little international recognition, therefore increasing the number of new tourist destinations accessible by air. Their marketing campaigns frequently focus on the destinations creating brand awareness for the regions. Secondly, by offering year round flights to destinations, LCAs have distributed traffic in a more even way for tourism destinations, decreasing seasonality usually caused by charter operations that take place in winter or summer seasons only. This has a positive effect on all tourism related businesses. Thirdly, the pricing strategy followed by LCAs, offering lower fares for travel in weekdays, has developed mid-week travel, giving an incentive to price sensitive customers to fly outside the weekend peaks.

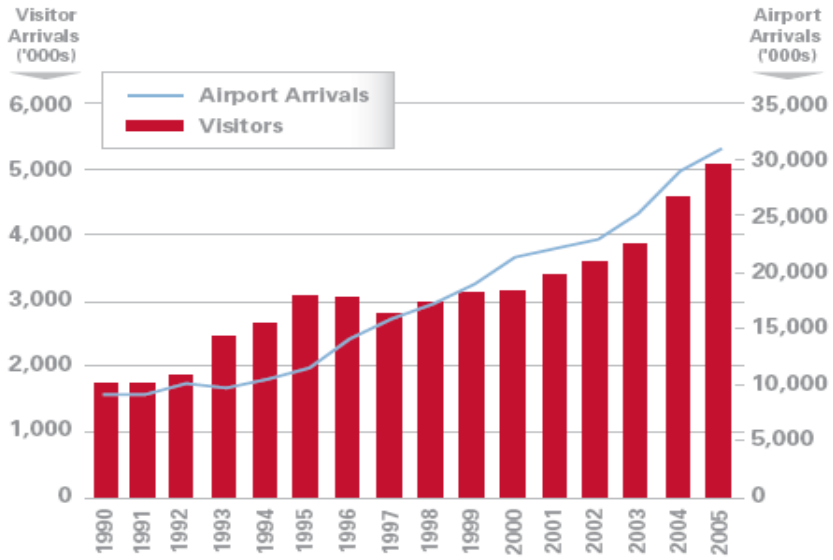
A report by Jones Lang LaSalle Hotels (2006) analysed LCAs and their impact on European Tourism, naming three main effects that might affect a destination following the launch of LCA flights: the pull effect, the push effect and the derived effect. In the first case, cities tend to experience a decrease in long-term tourism demand as domestic tourists use LCAs to travel abroad. This often offsets the growth of international demand, and can be experienced by major gateway cities such as London or Paris.

Figure 12: London visitor demand versus airport arrivals

Source: LaSalle Hotels (2006)

The push effect, on the other hand, describes the positive impact some destinations experience with the boost in demand following the entry of LCAs. By offering new routes and low fares, LCAs tend to generate strong increases in tourism, not only in holiday seasons but also off-peak. La Salle Hotels mention Berlin, Barcelona, Budapest and Prague as some of the cities experiencing this push effect.

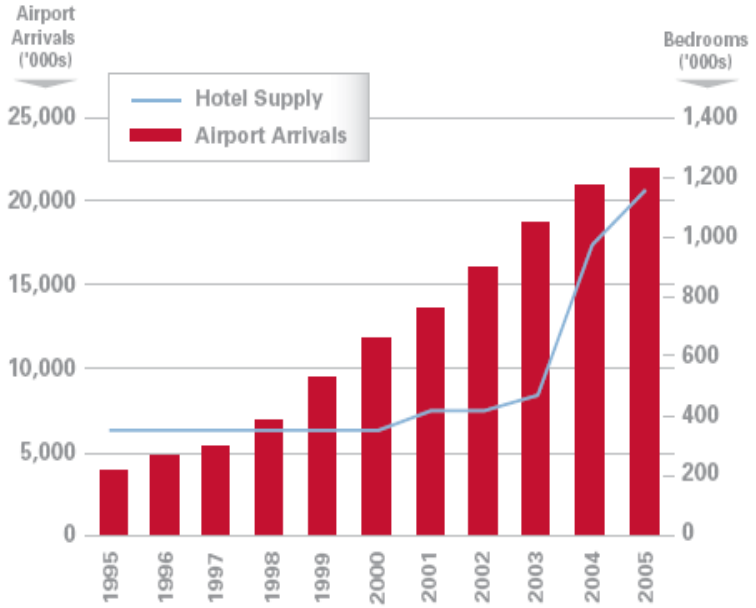
Figure 13: Barcelona visitor demand versus airport arrivals



Source: LaSalle Hotels (2006)

Finally, the third effect is the derived effect. This takes place in areas adjacent to secondary and regional airports, where the arrival of LCAs promotes growth in bed nights and hotel supply in the area, mainly due to the distance between the airport and the city centre. This way, tourists are often inclined to stay a night at an airport hotel, either before or after the flight.

Figure 14: Stansted airport arrivals versus hotel supply



Source: LaSalle Hotels (2006)

Apart from the effects on the tourism demand described before, LCA operations have impacts on other variables. For example, there is evidence that LCA passengers are willing to spend the money saved from the flight on better hotel accommodation, shopping, restaurants or sightseeing activities.

In addition to this, it can be argued that the hotel industry is not the only own benefiting from the increase in tourism demand but also the second homes market. In Spain and France, the second homes market experienced a very significant growth after the increase of LCA flights from the United Kingdom and Germany. [15]

[15] Jones Lang LaSalle Hotels (2006)

4.3. Advantages and Disadvantages of the Low-Cost Model

The overall balance concerning low-cost airlines operations may seem positive at a first glance however there are some setbacks that must be taken into consideration. Here are listed some of the main advantages and disadvantages of this concept:

Positive

- Improves efficiency in airports
- Improves the sector's efficiency by increasing productivity and competitiveness
- Responds rapidly to market opportunities
- Increases traffic in secondary and regional airports
- Enhances economic and social development in secondary regions
- Promotes investment in new regions, by creating new direct routes
- Brings equality to air transport and broad access to international tourism

Negative

- *Cannibalizes* approximately 36% of the existing air traffic
- High flexibility when it comes to changing/abandoning routes creates uncertainty and instability for the region's economic development
- Too much price competition may pose a threat to the system's sustainability
- Frequently depends on incentives schemes to establish a new route or frequency
- Ability to block new entrants

5. Characterisation of Madeira Islands Tourism and Air Transport

Madeira and Porto Santo Islands[16] as well as the uninhabited Desertas and Selvagens Islands form the Portuguese archipelago of Madeira, positioned in the Atlantic Ocean approximately 500 km from the African coast and 1000 km from the European continent. It is situated between latitude 32º22'20" / 33º7'50" and longitude 16º16'30W / 17º16'38"W.

Its location determines the following average flight times from some major European cities:

- 1h30m flight from Lisbon
- 3h15m flight from London
- 3h10m flight from Paris
- 5h flight from Berlin
- 2h flight from Madrid
- 5h30m flight from Stockholm

Madeira Island is the largest island of the group, with a surface area of 741 square kilometres. Porto Santo is located 40 kilometres from Madeira, with a surface area of 43 square kilometres. With Madeira and Porto Santo being the only inhabited islands, the archipelago has a population of 246.248 inhabitants (in 2007).

The islands have a mild climate because of their privileged geographical position, with an average temperature of 17ºC in the winter and 23ºC in the summer and a moderate level of humidity, that confer upon these islands exceptional subtropical features.

Madeira has both winter November/March (UTC +0) and summer April/October (UTC +1) time periods. The currency unit is the EURO.

[16] As Porto Santo Island represents only 6% of total tourists, this chapter will include this island in the overall region's analysis.

5.1. Madeira Islands and the Tourism Industry

Tourism represents an important tool for both economic and social development at local, national and international levels. Madeira Islands' insular economy is extremely open and clearly depends on external supply and demand, so tourism plays a fundamental role in this region.

For Madeira Islands' economy, tourism creates an opportunity to develop its economic activity and to create new jobs, along with several utilities, such as accommodation, gastronomy, handcraft embroidery, leisure activities and construction.

At present, the current dynamic in markets' demand, supply and competition between destinations creates strong challenges for regions in terms of their strategic positioning in short, mid or long term. Madeira Islands are no exception to this and those who can adapt better to change are likely to be the ones who achieve higher levels of success in the future.

Tourism Satellite Account (TSA)

The Tourism Satellite Account's purpose is to evaluate the gross internal product which results directly and indirectly from travel and tourism activity, showing the considerable significance of tourism over the economy and the society in general.

The TSA in Madeira Islands is still under implementation, however a TSA for 2001 was published, showing that the gross value added from the tourism activity totalizes € 293 million which represents 10,5% of the region's total. In terms of tourism's Gross Domestic Product (GDP) contribution to the region's GDP, the € 688 million account for 21,3%. Finally, with regards to employment, the number of jobs in the tourism industry represents 14,3% of total employment on Madeira Islands[17].

[17] Source: DREM

5.1.1. Supply and Demand in the Regional Tourism Industry

Tourism Supply

Madeira Islands represent one of the main tourism regions at national level. The region's performance in this particular sector allowed Madeira Islands to converge economically and socially to the national and European standards. In fact, Madeira Islands potential as far as tourism is concerned, makes it one of the most important sectors of the economy, sustaining its growth in terms of regional GDP.

This development has been supported mainly by a growing pattern of tourists searching for a destination with the specific characteristics and features that Madeira Islands have to offer, brought together to make it unique and distinct from other European destinations, for example: proximity and easy access to the island; temperate and mild climate all year round; quality infrastructures; untamed landscape; safety; serenity.

During the last decade, several quality improvements took place in the region to meet the growing demand, anticipating the expansion of Madeira International Airport as well. Madeira Islands offer visitors a series of hotel units that provide a wide range of choice especially on higher quality segments (4 and 5 stars typology represent approximately 50% of total units). The number of units increased from 154 in 1999 to 195 in 2007, consequently increasing the number of beds available. In sum, between 1999 and 2007, Madeira Islands increased its bed offer from 20.098 to 27.332, which represents a 36% growth at an annual average growth of 3,9%. For 2008, the number of beds is expected to be 27.887 supplied by 199 hotel units[18].

Tourism Demand

The common tourist in Madeira Islands generally comes from European countries, searching for quality hotels and leisure activities. Usually the tourists are middle-aged or

[18] Source: DREM

older, with a tendency for longer stays. Only 19% of tourists travel to Madeira Islands due to professional reasons[19].

Nonetheless, the tourist profile changes according to each season. During the winter season the tourist is frequently from Northern Europe and older, while during the summer season, especially in the peak months of July and August, the tourist is usually from Western Europe, namely mainland Portugal or countries like France and Spain, and slightly younger, travelling quite frequently in family.

Table 9: Registered Guests by Country of Residence

Registered Guests by Country of Residence									
Rank	Pax	2004	2005	2006	2007	2007 (Nov)	2008 (Nov)	08vs07(Nov)	% Total
1	United Kingdom	197.486	197.696	178.355	188.843	173.270	224.166	29,37%	23,48%
2	Portugal	225.242	227.724	238.153	239.677	221.351	205.923	-6,97%	21,57%
3	Germany	140.848	147.616	163.103	174.023	165.468	156.181	-5,61%	16,36%
4	France	49.420	47.620	56.790	63.152	61.491	79.421	29,16%	8,32%
5	Spain	30.832	39.582	45.527	46.948	44.969	41.573	-7,55%	4,35%
6	Netherlands	24.807	26.188	28.181	29.219	27.880	31.915	14,47%	3,34%
7	Finland	33.734	29.460	25.663	20.773	17.606	23.931	35,93%	2,51%
8	Belgium	18.163	19.842	20.318	21.184	20.621	22.022	6,79%	2,31%
9	Sweden	25.060	27.542	22.106	21.926	19.441	21.953	12,92%	2,30%
10	Austria	13.878	14.264	23.303	33.807	33.140	21.000	-36,63%	2,20%
11	Denmark	18.329	19.580	18.803	20.320	17.943	18.462	2,89%	1,93%
12	Italy	5.392	6.726	16.619	20.340	19.728	15.919	-19,31%	1,67%
13	Switzerland	10.716	11.664	14.088	13.800	13.165	14.004	6,37%	1,47%
14	Poland	0	0	1.029	3.526	2.622	10.437	298,05%	1,09%
15	Ireland	5.116	4.728	5.653	7.441	6.596	8.832	33,90%	0,93%
	Total Guests	842.213	864.870	908.095	967.134	904.336	954.634	5,56%	-
	% Top 15/Total	94,87%	94,84%	94,45%	93,57%	93,47%	93,83%	-	-

Source: DREM

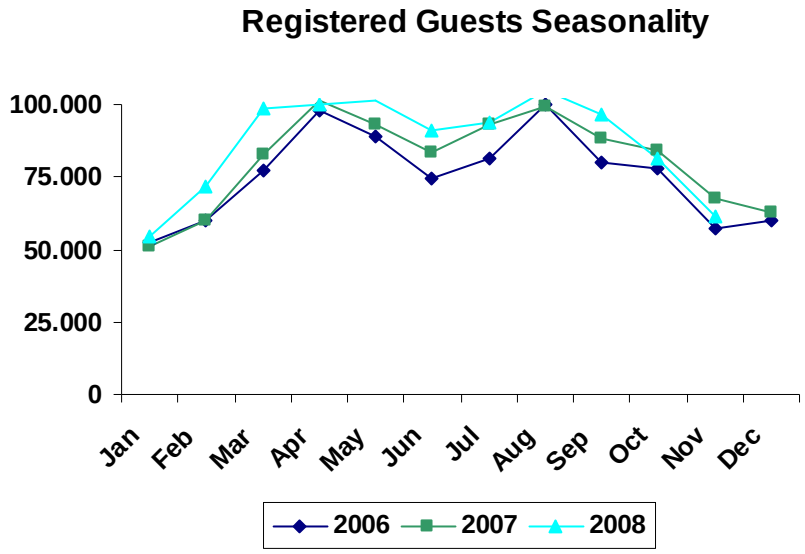
As show in Table 8 the main markets in terms of demand are the United Kingdom, Portugal and Germany. These three markets account for over 61% of total registered guests out of a total of approximately 1 million. Other significant markets are France, Spain, the Netherlands, as well as many other European countries. From the analysis of this table one can notice that all top 15 markets are located in Europe, and altogether represent around 93% of total registered guests on Madeira Islands.

[19] Source: DRT, *Estudo sobre o Gasto Turístico na Madeira*, Synovate Portugal (2003/2004)

In terms of seasonality, Madeira Islands are not very dependent on summer or winter seasons, as demand is almost evenly distributed around the year. Still, some peaks can be observed in March and April, when events like the Flower Festival take place along with Easter holidays, and from July to September, the peak Summer months.

When comparing 2008 to previous years, seasonality has not experienced significant changes but it is relevant to mention that growth in the number of registered guests was achieved every month up to November, when the international financial crisis made its first impacts. The subsequent devaluation of the British Pound also led to a decrease in the main incoming market, somehow explaining this reduction in overall demand for Madeira Islands as a tourism destination[20].

Figure 15: Seasonality of Registered Guests in Madeira Islands (2006-2008)



Source: DREM

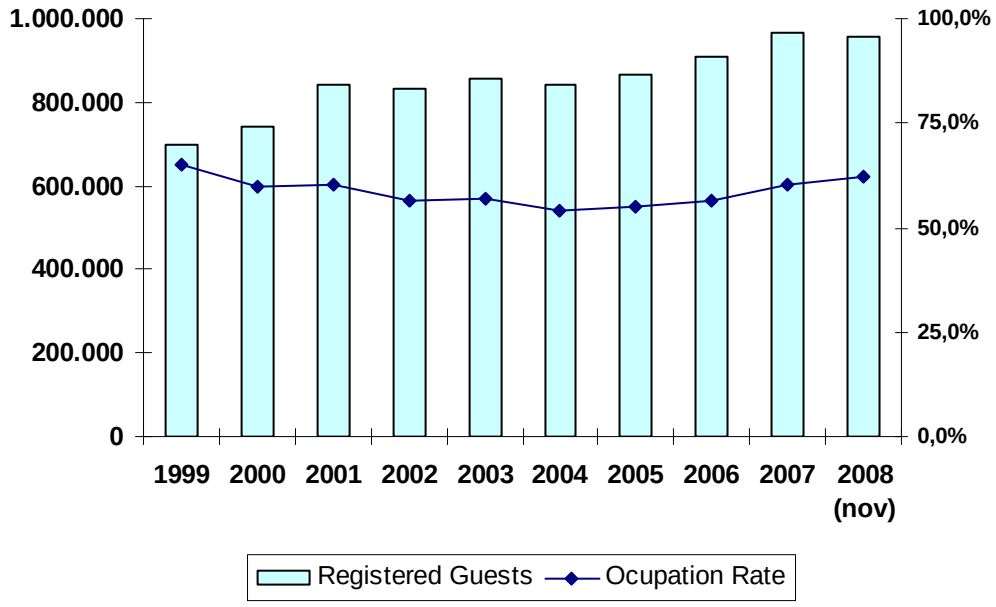
[20] At the moment of research no data for December 2008 was available

Mismatch between Supply and Demand

In recent years there have been several drivers influencing directly on indirectly Madeira Islands tourism have changed, namely: the high increase in the number of beds available; the infrastructures' development (particularly, the airport's expansion and better road accessibilities), and markets instability while trying to adapting to demand.

A significant number of new hotel units and beds are now available in the market, which increased the offer (3,9% annual rate in beds between 1999 and 2007). However, despite this extra supply, demand did not match that growth (2,9% annual rate between 1999 and 2007 in terms of hotel nights), leading to lower occupation rates. The hotel units that suffered more from this evolution were the apartment-hotels (2,3% growth in offer against 0,8% growth in demand) and hotels (5,2% of offer growth to 4,1% of demand)[21].

Figure 16: Registered Guests vs. Occupancy Rate



Source: DREM

[21] Source: DREM

However, as shown in Table 9, there has been some recovery in terms of occupancy rate over the last five years, which is estimated to be 60,3% in 2008 (62,3% by November 2008). Still, the average occupancy rate was 65% in 1999.

On the other hand, the RevPar is showing consistent and significant growth since 2005, when this income indicator reached its lowest result (€ 29,6). Additionally, the daily average expenditure per tourist grew at an annual rate of 2,7% between 1999 and 2007, which in real terms reflects a decrease taking into consideration the annual inflation rates.

Table 10: Tourism Indicators for Madeira Islands

Tourism Indicators					
	2004	**2005**	**2006**	**2007**	**2008 (Nov.)**
Registered Guests	842.213	864.870	908.095	967.134	954.634
Beds	26.215	26.282	27.784	25.579	28.177
Occupation Rate	53,9%	54,8%	56,4%	60,1%	62,3%
Average Length of Stay (days)	6,5	6,5	6,3	5,3	5,3
RevPar (€)	31,3	29,6	34,5	35,6	36,6

Source: DREM

5.1.2. Strategic Guidelines for Madeira Islands Tourism

The changes described previously in this chapter made it critical for the tourism agents to adapt their services and products in order to make them more competitive. Furthermore, instruments like the PENT[22] and POT[23] were developed in order to provide strategic guidelines for the future, by setting new boundaries and goals.

In 2007, the Portuguese Government published **PENT** a document with the purpose of setting the main guidelines for Portuguese tourism until 2015. This plan describes the evolution of the tourism industry and its economic relevance, and therefore, the updated situation with regards to Portugal and its main differentiation factors for each region.

[22] PENT – Plano Estratégico Nacional de Turismo
[23] Plano de Ordenamento Turístico da Região Autónoma da Madeira

PENT points out several unique features of Madeira as a tourism destination, based on the following resources: Nature; Funchal city; traditional villages like Camacha and Santana; Porto Santo's beach; Madeira's indigenous Laurissilva forest; harbours and docks; quality hotels, Madeira wine and the Congress Centres.

Based on this analysis, PENT indicates a series of items that ought to be improved, namely: professional qualifications; cooperation among the tourism companies; ability to act in a coordinate way when it comes to international strategic issues; relations with tour operators; use of the internet distribution channel; lack of accessibilities to meet the increasing number of short term stays.

According to the guidelines and the analysis, and considering the general goals set for Portugal until 2015, several goals were set for Madeira Islands in terms of average annual growth rates: +7,5% income; +2,7% foreign visitors; +2,1% national visitors.

As a consequence of these conclusions and goals, this strategic plan is to be implemented and developed according to five main orientations: territory, destinations and products; brands and markets; resource qualification; distribution and selling; innovation and knowledge.

POT was created in August 2002 as an instrument to guide the tourism sector in terms of territory. This plan guides public and private investments in order to assure sustainable growth and balanced distribution of tourism infrastructures across the region.

This plan established a series of restrictions and limitations for Madeira Islands up to 2012, such as:

- Maximum of 35.000 beds available in Madeira Island (23.000 in Funchal)
- Maximum of 4.000 beds in Porto Santo;
- No more than 10% additional capacity for the pre-existing unit
- Recovered historical buildings and rural houses turned into hotels are limited to 100 beds.

According to this specific model for Madeira, POT expects to implement 3 main strategic guidelines:

- Consolidate the leading product – the main target is to developing high quality resorts focused on 4 and 5 stars typology, along with an increased offer in terms of walks, gardens, shopping, historical heritage, animation, natural beauty and landscape.

- Develop other tourism segments – creating new products in order to generate diversified offer.

- Develop complementary offer - mostly by creating theme-based offers in order to attract new markets and support the existing ones.

5.1.3. The Strategic Importance of Madeira Airports

As described in chapter 4, air transport has a strong effect on regions and respective economies, creating employment and contributing considerably to develop the regions tourism. If there is evidence of this for several regions, then there is no question on the strategic importance of air transport for an archipelago located in the Atlantic Ocean with very limited maritime passenger connections with other regions[24].

Being an archipelago, Madeira Islands development strategies concerning its tourism industry must be defined in a coordinated way involving the air transport sector. Madeira Islands comprise two airport infrastructures: Madeira International Airport and Porto Santo Airport. Almost all passenger traffic is directed to Madeira International Airport while Porto Santo Airport is served by domestic connections and some charter flights from Portugal, Italy and United Kingdom with reduced significance to this study.

Passenger traffic at Madeira International Airport has been growing at a slow yet sustainable way over the years. However, recent trends in the air transport industry and

[24] The only regular scheduled maritime connections are between the islands of Porto Santo and Madeira, to the Canaries and to Algarve in mainland Portugal.

especially the entry of LCAs have lead to changes in the regional tourism industry. These will be further analysed on the next chapter of this paper.

Table 11: Top 15 markets – Madeira International Airport

TOP 15 Markets								
Rank	**Passengers**	**2004**	**2005**	**2006**	**2007**	**2008**	**08 vs. 07**	**%Total AM 2008**
1	Portugal	1.128.138	1.118.775	1.124.066	1.057.701	1.068.033	0,98%	43,65%
2	UK	448.657	450.206	446.927	503.034	587.501	16,79%	24,01%
3	Germany	261.790	283.478	312.561	329.061	287.413	-12,66%	11,75%
4	France	59.378	56.333	53.637	61.387	64.968	5,83%	2,66%
5	Spain	58.938	79.427	74.829	72.477	53.194	-26,61%	2,17%
6	Finland	66.484	57.266	53.964	43.365	50.758	17,05%	2,07%
7	Netherlands	36.436	40.741	45.398	47.475	43.120	-9,17%	1,76%
8	Austria	26.511	28.056	42.784	59.250	42.247	-28,70%	1,73%
9	Belgium	31.401	34.319	35.802	36.292	37.338	2,88%	1,53%
10	Denmark	31.917	32.629	32.792	38.872	35.857	-7,76%	1,47%
11	Sweden	45.978	50.391	37.268	34.026	35.511	4,36%	1,45%
12	Venezuela	19.216	21.024	21.483	32.661	29.344	-10,16%	1,20%
13	Switzerland	6.592	9.448	14.881	21.857	29.176	33,49%	1,19%
14	Poland	0	243	0	4.684	18.903	303,57%	0,77%
15	Ireland	9.893	10.026	11.673	14.221	16.977	19,38%	0,69%
	Total Pax	2.272.512	2.319.753	2.360.857	2.418.489	2.446.924	1,18%	-
	%Top15/Total	98,19%	97,96%	97,76%	97,43%	98,10%	-	-

Source: ANAM

Table 10 clearly shows that the main markets for Madeira International Airport correspond to the same main markets in terms of registered guests. The reason why Portugal is more significant to air transport than to the tourism industry comes from the fact that these statistics include passengers who are residents in Madeira, as well as many tourists that fly via TAP's hub at Lisbon Airport.

TAP is the largest airline operating at Madeira Airport in terms of passengers in 2008, with a market share of 38%, followed by Sata International (9%), easyJet (9%), Air Berlin (6%) and Thomsonfly (4%).

The airport traffic is mainly charter and most routes are operated once a week. This has a direct impact on the tourist profile and the average length of stay.

Taking into consideration the correlations between the region and the airport, the interdependence between Madeira Islands tourism and air transport industries is quite evident. Not only the tourism depends on the air services but the airport growth itself depends on the performance of the destination and respective demand.

Consequently, apart from Madeira Airports own Incentive Program to support new routes or increased frequencies, the airport authority and both national and local Tourism entities have developed specific tools to promote Madeira Islands as a destination in close cooperation with airlines and tour operators[25].

Air transport liberalisation between Madeira Island and mainland Portugal

Until 2008 the routes between Madeira Islands and mainland Portugal were subject to Public Service Obligations (PSO) which determined minimum service levels and strict conditions to airlines interested in operating the routes.

This led to a situation in which competition was not stimulated and airlines operated on the routes between Madeira and Lisbon or Oporto at higher average fares than they would operate some intra-EU flights. One of the facts contributing to this market distortion was the fact that the subsidy paid by the government to local residents in Madeira was calculated as a fixed percentage on the ticket fare. This was a clear incentive to airlines to increase the fares on these domestic routes.

In April 2008, following a request from the Portuguese Government, the European Commission approved the full liberalisation of routes between Madeira Island and mainland Portugal. The new market conditions and the average fares practised by operating airlines until then, led to the interest of other airlines in offering services on these routes. British easyJet, which had already services from Stansted, Gatwick and

[25] Initiative:pt and Fundo para Investimento em Promoção Turística

Bristol to Madeira International Airport, entered the Lisbon-Madeira route in late October 2008, starting the first low-cost domestic route in Portugal.

5.2. SWOT Analysis

The following SWOT analysis on Madeira Islands presents some of the main strengths, weaknesses, opportunities and threats to the local tourism industry:

Strengths

- mild climate
- safety
- natural heritage
- untamed landscape and water courses
- reduced seasonality (mainly due to climate and senior European tourist profile)
- quality infrastructures
- control over the construction of new hotel units (limited to 4 and 5 stars)

Weaknesses

- low budget for promotion causing limited or inadequate promotion
- perception of Madeira as a senior's destination
- only accessible by air transport
- excess of available beds
- timeshare's strong position in the local tourism industry
- excessive construction in Funchal
- commerce closed on Sundays
- low penetration of low-cost airlines
- high airport taxes

Opportunities

- low-cost airlines in order to bring more passengers/tourists
- direct and online sales
- new passenger terminal at Funchal's harbour – cruise industry

- the need to adapt the existing offer
- growth of revenues beyond accommodation
- new hotel or business models
- new activities / enlarged offer
- family vacations
- co-branding campaigns
- synergies between Atlantic islands
- higher life expectancy
- tourists look for new experiences and healthy offers like *body & mind*

Threats

- decrease in quality of services due to excessive offer
- dependence on charter-flights
- low-cost airlines claims for financial support
- tendency to short-breaks as well as last minute reservations
- competition over prices
- tour operators leaving the market
- mergers and acquisitions between airlines and tour operators
- current economical situation around the world

Source: PwC (2008), own work

6. Low-Cost Airlines Impact on Madeira Islands and Future Perspectives

6.1. Low-Cost Airlines Market Analysis

As described in the previous chapter, Madeira Islands tourism industry faces a rather significant mismatch between supply and demand, forcing low average occupancy rates at the hotels. Additionally, the SWOT analysis points out the poor penetration of LCAs in the region as one of the weaknesses, therefore considering LCAs an opportunity. Nevertheless, the same analysis mentions that LCAs put pressure on regions and airports, namely in terms of financial support when starting new air services. In the last quarter of 2007, Madeira International Airport experienced the entry of several LCAs[26]. These operations are described in the following table, showing the airlines, routes and number of weekly frequencies for each.

Table 12: Low-cost airline's services to Madeira Airport

Airline	Route	Weekly Frequencies	Start Date
Aer Lingus	Dublin	2	Oct.07
Sterling	Copenhagen	1	Oct.07
easyJet	London Stansted	7	Oct.07
easyJet	Bristol	3	Oct.07
Thomsonfly	Manchester	2	Oct.07
Thomsonfly	London Gatwick	2	Oct.07
FlyGlobespan	Edinburg	1	Oct.07
easyJet	London Gatwick	5	Mar.08
Transavia	Paris Orly	2	Apr.08
easyJet	Lisbon	14	Oct.08

Source: ANAM

In order to understand the short term impact of these new operations, this paper analyses each market individually, both in terms of tourism indicators and air traffic statistics. While as for Denmark, Ireland and France the low-cost services did not reach a very significant level, for Portugal and in particular the United Kingdom, there are enough weekly frequencies and routes to draw some conclusions.

[26] Air Berlin operates to Madeira International Airport under typical charter operation therefore is not considered to be a LCA in this context.

6.1.1. Denmark

The route Copenhagen-Madeira operated by Sterling Airlines, experienced the first LCA service between Denmark and Madeira Island. Being a winter only operation, the effects observed in the first year are positive in terms of passenger growth and registered guests from the Danish market. Nevertheless, the performance in the last quarter of 2007 was under the usual performance of charter airlines. Sterling had an average load factor of 60,5% which was quite lower than the overall country average: 91,4%.

In 2008, there was significant growth for the first months, following the continued operations from Sterling during the winter season. The LCA load factor increased significantly, as well as the Danish market as a whole. This shows the existent additional route potential and the stimulation effect LCAs usually have when entering an under-served route.

Table 13: Denmark – Airport Statistics

Denmark – Passengers and Load Factors			
	2006	**2007**	**2008**
Total Country	32.792	38.872	35.857
Total LCA	-	2.172	3.547
% Share LCA	-	5,6%	9,9%
Load Factor Country	92,2%	91,4%	94,1%
Load Factor LCA	-	60,5%	82,0%

Source: ANAM

With regards to tourism up to November 2008, it was observed a 2,9% growth in registered guests and 3,6% in nights spent at hotels. The average length of stay also decreased due to additional frequency of flights and flexibility. Still, by analysing the airport statistics which already included December 2008, one can notice the reduction in terms of total passengers from Denmark. The main reason for this was the bankruptcy of Sterling Airlines[27], following the international financial crisis, which prevented the winter operation to re-start in October 2008.

[27] Sterling Airlines ceased to exist at 29/10/2008

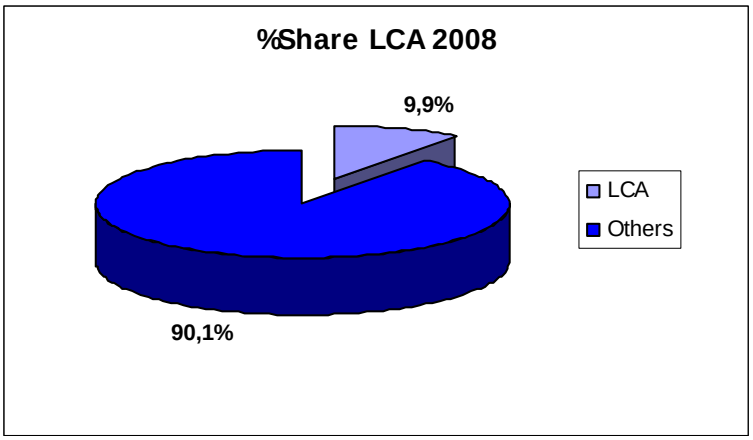
Table 14: Denmark – Tourism Statistics

Denmark – Registered Guests, Nights and Average Length of Stay					
	2006	2007	2007 (Nov)	2008 (Nov)	08 vs. 07 (Nov)
Registered Guests	18.803	20.320	17.943	18.462	2,9%
Nights	131.099	137.712	122.939	127.358	3,6%
Average Length Stay	5,8	5,8	5,8	5,7	-

Source: DREM

Despite the fact Sterling has left the market, the low-cost penetration in the incoming Danish market was 9,9% in 2008, while in 2007 it was 5,6%. Further growth might have been achieved in case LCA operations had continued.

Figure 17: LCA market share in the Danish market



Source: ANAM

6.1.2. Ireland

In October 2007, Aer Lingus started offering services between Dublin and Madeira Airport with two weekly frequencies. The only existent connection between Dublin and Madeira was a charter flight from Sata Internacional operated once a week.

The increased number of frequencies available had a very significant impact in terms of passengers carried, and the route has grown over 45% in comparison to 2006. In the meanwhile, Aer Lingus performance was not so good having cabin load factors of 48,1%

in 2007 and 61,9% in 2008, impacting negatively the global performance of the market, despite the observed passenger growth.

Table 15: Ireland – Airport Statistics

Ireland – Passengers and Load Factors			
	2006	**2007**	**2008**
Total Country	11.673	14.221	16.977
Total LCA	-	3.012	5.604
% Share LCA	-	21,2%	33,0%
Load Factor Country	95,1%	77,6%	77,4%
Load Factor LCA	-	48,1%	61,9%

Source: ANAM

Registered guests from Ireland have grown 33,9% in 2008 and nights spent at hotels also grew by 24,8%, so the entry of Aer Lingus on Madeira Airport meant a very strong impulse towards tourism growth. The availability of flights three times a week developed flexibility in terms of travel, allowing short and weekend breaks, therefore impacting the average length of stay which decreased from 6,6 days to 6,1.

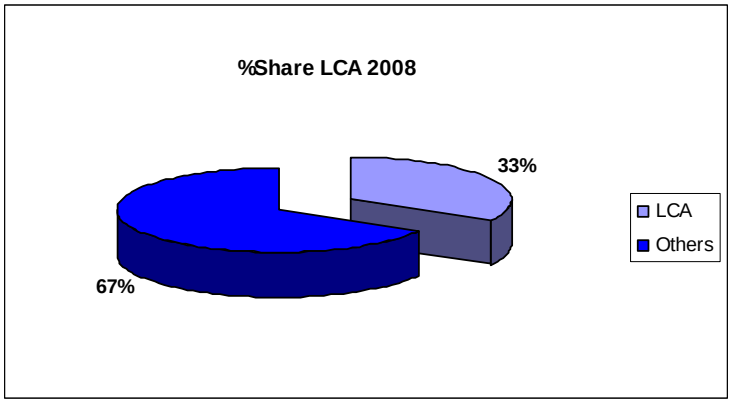
Table 16: Ireland – Tourism Statistics

Ireland – Registered Guests, Nights and Average Length of Stay					
	2006	**2007**	**2007 (Nov)**	**2008 (Nov)**	**08 vs. 07 (Nov)**
Registered Guests	5.653	7.441	6.596	8.832	33,9%
Nights	45.517	56.604	51.537	64.313	24,8%
Average Length Stay	6,8	6,4	6,6	6,1	-

Source:DREM

LCA penetration in the Irish market reached 21,2% in the first year air services were offered and 33% in 2008. This high penetration is explained by the fact that Aer Lingus introduced more frequencies by itself, than the total number of frequencies that existed previously from this market. As shown above, the main disadvantage for the LCA was the low cabin load factor achieved. This was probably the reason why Aer Lingus decided not operate on the winter 2008/2009 season, abandoning the route.

Figure 18: LCA market share in the Irish market



Source: ANAM

6.1.3. France

LCA air services from the French market to Madeira Airport only started in 2008, when Transavia decided to start two weekly frequencies from Paris Orly. As observed for other markets, the number of passengers has grown reaching almost 65.000, while in 2006 there were 53.637. The average load factor of Transavia was 69,5%, which was still under the average in the market: 74,1%.

Table 17: France: Airport Statistics

France – Passengers and Load Factors			
	2006	**2007**	**2008**
Total Country	53.637	61.387	64.968
Total LCA	-	-	9.389
% Share LCA	-	-	14,5%
Load Factor Country	62,8%	65,6%	74,1%
Load Factor LCA	-	-	69,5%

Source:ANAM

As for the tourism industry, there was a strong increase in terms of registered guests and nights spent at hotel with growths of 29,2% and 22,1%, respectively. The average length of stay also decreased from 4,4 days to 4,2, as a result of additional flexibility brought by Transavia's operations.

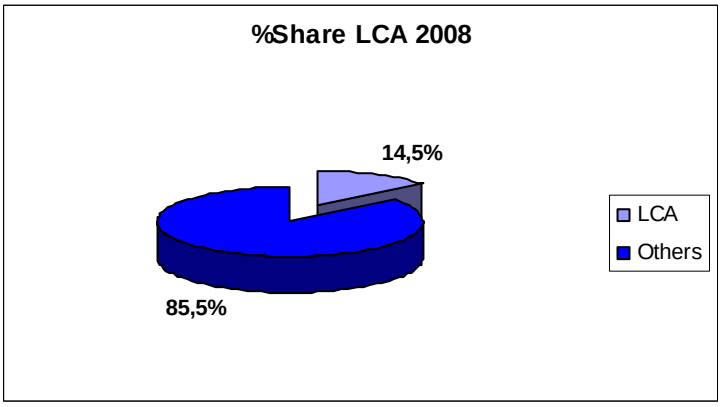
Table 18: France – Tourism Statistics

France - Registered Guests, Nights and Average Length of Stay					
	2006	2007	2007 (Nov)	2008 (Nov)	08 vs. 07 (Nov)
Registered Guests	56.790	63.152	61.491	79.421	29,2%
Nights	266.792	308.768	300.982	367.626	22,1%
Average Length Stay	4,2	4,3	4,4	4,2	-

Source:DREM

The entry of Transavia on the Paris Orly-Madeira route represented a low-cost market share of 14,5% in 2008.

Figure 19: LCA market share in the French market



Source: ANAM

6.1.4. United Kingdom

As described previously in this paper, the United Kingdom is the largest LCA market in Europe. Taking into consideration it is also the largest foreign market for inbound tourism to Madeira Islands, it is quite natural that LCAs have had a stronger interest in starting routes between UK and Madeira Airport. In fact, in 2008 three airlines started offering services from a total of five different UK Airports: London Stansted, London Gatwick, Bristol, Manchester and Edinburg.

Following the launch of these routes, LCAs carried a total of 74.515 passengers just in the last quarter of 2007. In 2008, the total passengers carried by LCAs increased to 266.160 passengers, representing a total market growth of 31,4% since 2006[28]. The LCAs average load factors in 2008 were generally higher than the market's average, which has conducted to a global load factor of 83,5% in opposition to the 81,1% from 2006.

Table 19: UK - Airport Statistics

United Kingdom – Passengers and Load Factors			
	2006	**2007**	**2008**
Total Country	446.927	503.034	587.501
Total LCA	-	74.515	266.160
% Share LCA	-	14,8%	45,3%
Load Factor Country	81,1%	81,2%	83,5%
Load Factor EZY LGW	-	-	85,4%
Load Factor EZY STN	-	72,4%	84,2%
Load Factor EZY BRS	-	70,3%	82,6%
Load Factor TOM LGW	90,8%a)	80,4%	84,3%
Load Factor TOM MAN	86,5%a)	87,4%	90,9%
Load Factor GSM EDI	-	69,0%	86,8%

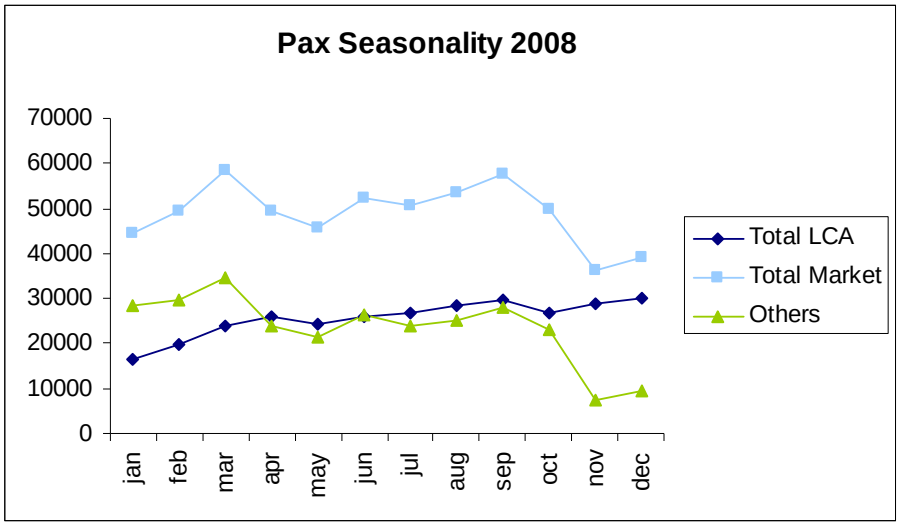
a) Operating has charter in 2006

Source: ANAM

In terms of passengers' seasonality, there is evidence that LCA operations are less seasonal than charter or schedules services offered from the UK market to Madeira Airport. The LCA have a more evenly distributed number of passengers carried while deeper variations can be observed for other airlines in the market, namely in the winter season.

[28] easyJet acquired GB Airways in 2008, therefore including the GE's London Gatwick-Madeira route on its operations

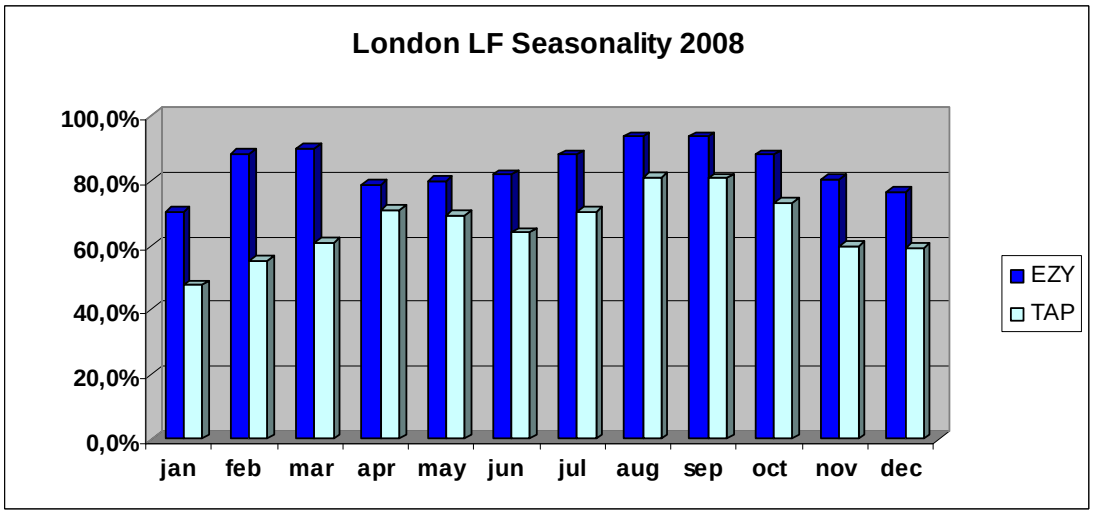
Figure 20: UK-Madeira passenger seasonality



Source: ANAM

By analysing the airport statistics it is possible to identify not only a lower seasonality for LCA operations in terms of passengers but also in terms of average load factors. When comparing TAP's scheduled services and easyJet's low-cost services, for the London routes, it can be observed a higher occupancy for easyJet in every single month of 2008.

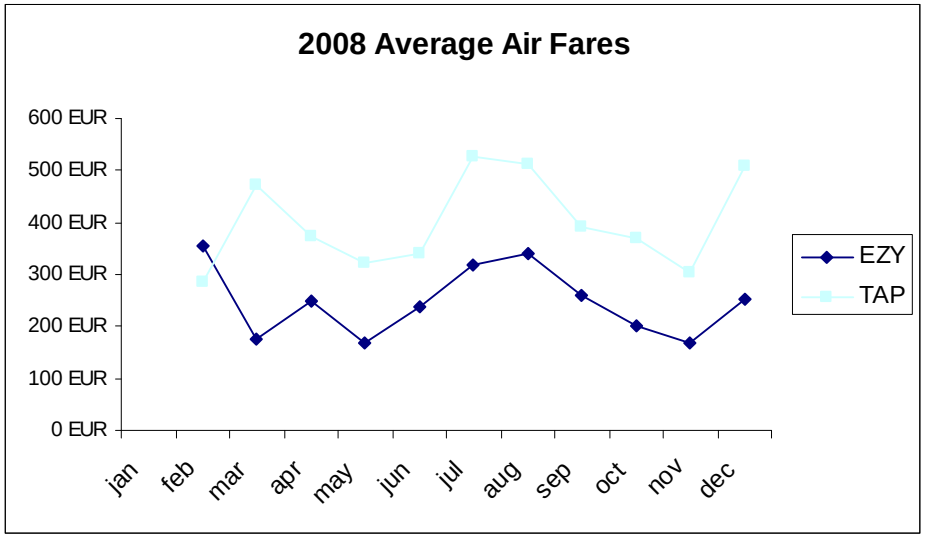
Figure 21: London-Madeira routes load factor seasonality



Source: ANAM

The average fares offered by easyJet on the London Gatwick route were also lower than TAP's. This usual strategy of LCAs stimulates the market and in this specific case helps to understand the rapid growth this type of airlines had in the air transport market between UK and Madeira Airport.

Figure 22: London Gatwick-Madeira average air fares



Source: ANAM

This evolution has certainly had its impact on the tourism industry, where the number of registered guests increased by 29,4%. The number of nights spent in hotels followed this tendency growing 24,2% while the average length of stay decreased to 6,2 days.

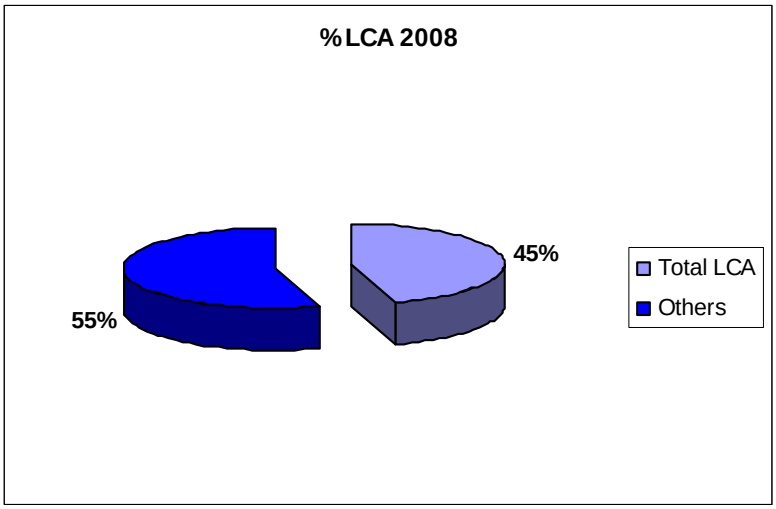
Table 20: UK – Tourism Statistics

United Kingdom - Registered Guests, Nights and Average Length of Stay					
	2006	2007	2007 (Nov)	2008 (Nov)	08 vs. 07 (Nov)
Registered Guests	178.355	188.843	173.270	224.166	29,4%
Nights	1.426.822	1.447.683	1.339.589	1.663.788	24,2%
Average Length Stay	6,7	6,4	6,5	6,2	-

Source: DREM

Having a significantly higher number of low-cost services to Madeira than other markets, the LCAs market share with regards to UK-Madeira is already of 45% in the second year after their entry in the market.

Figure 23: LCA market share in the UK market



Source: ANAM

6.1.5. Portugal

The Portuguese market is the largest market for Madeira Airport in terms of passengers and the liberalisation process described in the previous chapter of this study has created conditions for new airlines to entry the domestic routes. In October 2008, easyJet started offering services between Lisbon and Madeira airports, which means that the effects measured in this analysis only refer to a three month period. Still, as shown in the airport statistics, there was a shift in the negative tendency towards the domestic passengers decrease, as the Portuguese market grew to a total of 1.068.033 passengers in 2008, meaning an increase of 1% in comparison to 2007. The average load factor achieved by easyJet in the last quarter of 2008 was higher than the average registered in the market in 2006 and 2007. Still, the extra capacity led to a decrease in the overall load factor for 2008, as other carriers[29] on the route did not pull out frequencies.

[29] TAP and Sata Internacional

Table 21: Portugal – Airport Statistics

Portugal – Passengers and Load Factors			
	2006	2007	2008
Total Country	1.124.066	1.057.701	1.068.033
Total LCA	-	-	29.942
% Share LCA	-	-	2,8%
Load Factor Country	72,9%	74,5%	67,3%
Load Factor LCA	-	-	75,6%

Source: ANAM

Unlike other markets and mainly due to the fact that LCA operations only started in the last quarter of 2008, there was no increase in terms of registered guests, even though the data analysed only includes data up to November. However, it was possible to isolate data for this month only and there were already some interesting results as the number of registered guests grew 2,5% when compared to November 2007. The number of nights spent at hotels also increased by 11,8%. The average length of stay remains basically the same at 3,2 days.

Table 22: Portugal – Tourism Statistics

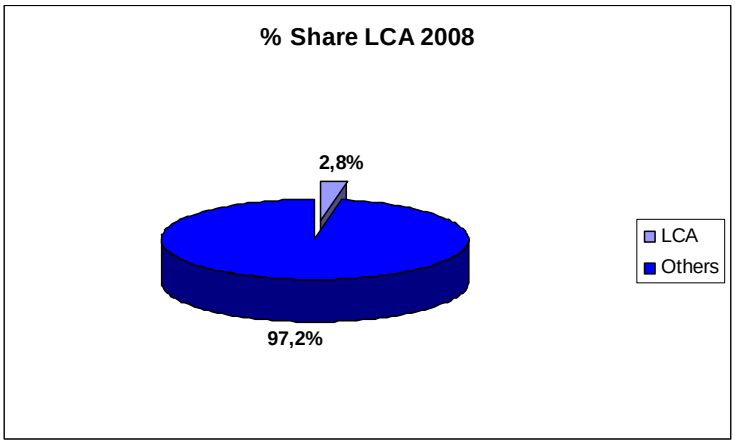
Portugal - Registered Guests, Nights and Average Length of Stay					
	2006	2007	2007 (Nov)	2008 (Nov)	08 vs. 07 (Nov)
Registered Guests	238.153	239.677	221.351	205.923	-7,0%
Nights	818.188	805.825	750.837	713.513	-5,0%
Average Length Stay	3,1	3,1	3,1	3,2	-

Source: DREM

Taking into account the positive results for November, as well as the airport statistics that demonstrate growth for 2008, one can expect similar market behaviour in December 2008. Despite of this, it is still unlikely that the total number of registered guests will increase in 2008 as the route is used by many residents in Madeira Island travelling to mainland Portugal and these obviously do not contribute to the tourism statistics.

The double daily services offered by easyJet on the Lisbon-Madeira route has already contributed to a 2,8% market share for LCA traffic in the Portuguese market with regards to Madeira Airport.

Figure 24: LCA market share in the Portuguese market



Source: ANAM

6.2. Low-Cost Airline Markets vs. Charter Markets

In order to fully understand the short-term impacts of LCAs on Madeira Islands it is important to include an analysis of other markets that did not experience the entry of this type of airlines. This allows an unbiased view of the markets performance and show evidence of the main differences between markets served by LCAs and markets served mainly by charter airlines.

Considering the main tourism and air transport markets for Madeira Islands, it is possible to identify several markets served only by charter airlines. Germany, Spain, Netherlands, Finland, Sweden and Austria are some of these examples. By studying the data available, there is evidence that Sweden and Finland have positive results but are still recovering from significant decreases over the last years. Germany, Spain, the Netherlands and Austria, on the other hand, had in most cases been experiencing stable growth rates but suffered decreases in 2008. Belgium is the only Top 10 market that managed to grow in terms of passengers and registered guests[30].

[30]Tables 8 and 10 in chapter 5

The German market

Given the fact that Germany is currently the third largest market to Madeira Islands in terms of tourists and passengers, a specific analysis of this market was conducted in order to compare its performance with the one of markets previously analysed in this chapter.

The number of passengers form Germany has suffered a substantial reduction in 2008, being 12,66% less than in 2007. Still, the average load factor increased due to the fact that there were less flights offered by operating airlines (-26,7%).

Table 23: Germany – Airport Statistics

Germany – Passengers and Load Factors			
	2006	**2007**	**2008**
Total Country	312.561	329.061	287.413
Load Factor Country	80,1%	82,1%	84,8%

Source: ANAM

The tourism sector was negatively influenced by this reduction in terms of air passengers. By November 2008, the number of registered guests had decreased -5,6% while the number of nights spent on hotels went down by -9,6%. The average length of stay shows the tendency to decrease, as it went from 6,9 in 2006 to 6,6 by November 2008.

Table 24: Germany – Tourism Statistics

Germany - Registered Guests, Nights and Average Length of Stay					
	2006	**2007**	**2007 (Nov)**	**2008 (Nov)**	**08 vs. 07 (Nov)**
Registered Guests	163.103	174.023	165.468	156.181	-5,6%
Nights	1.401.730	1.462.176	1.387.559	1.254.967	-9,6%
Average Length Stay	6,9	6,8	6,8	6,6	-

Source: DREM

Overall results

The following table summarises the results identified per market by the analysis of both tourism and airport statistics.

Table 25: Market performance indicators (2008)

Market	Pax	LF	Guests	Nights	ALS
Denmark	↓	↑	↑	↑	↓
Ireland	↑	↓	↑	↑	↓
France	↑	↑	↑	↑	↓
United Kingdom	↑	↑	↑	↑	↓
Portugal	↑	↓	↓	↓	↑
Germany	↓	↑	↓	↓	↓

Source: own work

From this research and data analysis it can be observed that the number of passengers, registered guests and hotel nights usually increase for markets with LCA operations, while there is a tendency for a decrease in the average length of stay. Denmark is the exception in terms of passenger growth due to Sterling's bankruptcy and consequent loss of an LCA service from Copenhagen to Madeira Airport.

The average load factors are strongly dependent on the capacity offered and this explains the reduction in Ireland and Portugal, where there was probably extra-capacity on offer in the short-term. Still, most data for Portugal is inconclusive with respect to the impact of LCA entry in the market as operations only started in the last quarter of 2008. Nevertheless, the monthly data for November 2008 already shows evidence of the same market behaviour as the one observed for the remaining four markets analysed.

Apart from these effects, the additional data available for the UK market has proven that air fares decreased, therefore benefiting consumers, and that seasonality is not so evident

when it comes to low-cost services. As LCAs pricing strategy usually offers lower rates in off-peak periods, this stimulates demand and contributes to a decrease in seasonality.

Finally, the German market followed the overall tendency to decrease the average length of stay but experienced significant reduction in terms of passengers, guests and nights spent at hotels. As a result of lower offer of flights the load factor of airlines operating this market increased.

6.3. Future Perspectives

Over the last two years Madeira Islands have experienced the entry of LCAs on its air transport market. This has led to considerable air traffic growth for most of the markets served by this new type of operations. Despite of the present international cyclical downturn, IATA estimates show that air traffic volumes will increase from 2010[31]. Additionally, the expected slowdown in LCAs growth will probably affect mainly the mature markets, such as Ireland and the United Kingdom, so further growth can be expected for other markets. Considering that LCAs in Europe have a market share of approximately 35% in 2007, while Madeira Airport has only 10% of low-cost passengers as a percentage of the total passengers in 2008, the expected tendency will be to grow.

Given the performance achieved by LCAs in Madeira Islands for the first two years of operation, it is likely that most of these airlines will maintain the existing routes and possibly launch new frequencies and routes as soon as the market shifts. By looking at currently LCA-free markets such as Germany, Spain and Scandinavia, it is also likely to have new LCAs entering the Madeira air transport market in the future, competing with the existing charter airlines that serve these markets at present.

As LCAs continue to launch new routes, one can expect further airport growth in terms of passengers and consequently a substantial increase in terms of tourists visiting Madeira

[31] IATA estimates the following evolution in terms of global passenger traffic: -3%(2009), 0,9%(2010) and 5,2%(2011)

Islands. The LCAs expected contribute to tourism demand might potentially increase occupancy in hotels, therefore decreasing the mismatch between supply and demand that has been identified for Madeira Islands.

Sustainability of LCAs in Madeira Islands

All the above mentioned perspectives are based on the assumption that the LCAs are sustainable in the long term and will continue to be successful over time. Several authors have studied LCAs in order to understand its expansion and future growth. For example, Francis *et al.*(2006) analysed the development of the LCA model in different countries of the world and identified several stages of development with respect to time: innovation, proliferation, 2nd phase entrants, consolidation and maturity. Research by Dennis (2007) has provided evidence that LCAs routes out of London have been more successful in some markets than others, for instance, LCAs have performed better on routes that did not involve major airports and leisure routes between northern and southern Europe. According to findings from these two studies it is possible to say Madeira Airport is currently on an innovation stage and fits this description of successful routes for LCAs, somehow supporting the expectation of further growth.

Analysing sustainability of the LCA concept itself, can be interesting as well. There is evidence that passengers[32] respond positively to the LCA product and the use of secondary airports, accepting also the trade-off between lower fares and the loss of services provided by traditional airlines (Barrett, 2004). Therefore, factors such as product, productivity, low cost base and the cost reduction corporate culture, should be sufficient to grant LCAs sustainability. Still, the low-cost model does not account for its externalities, namely CO2 emissions, so there is incompatibility with environmental sustainability (Graham and Shaw, 2008). This way, issues related to future environmental restrictions and passenger rights regulations might have a severe impact on a business model based on rapid network expansion and air traffic growth.

[32] Ryanair passengers

Despite of the changes that might arise in the future, there must be a sustainable strategy for Madeira Islands accommodating LCAs and creating conditions for co-existence with other types of airlines. As described previously in this paper, air transport and tourism are two interlinked industries, so the LCAs entry in Madeira Islands represents new challenges for the destination, the airport, the airlines and the government. The destination, the airport and the government shape the regulative environment of air traffic and influence tourism, while at the same time airlines access this information, building their own understanding of the destination's strategy (Bieger and Wittmer, 2006). Madeira has the POT and PENT to provide some guidelines in this process but new challenges might pose the need for a strategic revision of these plans. For example, in the Canary Islands, initiatives have been introduced by the regional government in order to develop a more sustainable model of regional tourism (Bianchi, 2004).

7. Conclusion and Recommendations

7.1. Conclusion

As described in the relevant literature, air transport is closely related to tourism and LCAs can represent a strong push in terms of economical development for regions and tourism destinations. This study analysed Madeira Islands and identified that over the last decade the level of hotel units and beds on offer clearly grew at a faster rate than demand for the destination. Being one of the most important sectors for the economical development of Madeira Islands, the tourism industry faces this gap between offer and demand, while at the same time the airport's expansion has also introduced more pressure into both sectors.

This study measured the impacts of LCAs entry in the market, namely in terms of passenger growth, airline's average load factor, number of registered guests, nights spent at hotels and average length of stay.

There is strong evidence that the number of passengers and tourists visiting the island grew significantly, therefore increasing the number of nights spent at hotels. The average load factors for the markets from where LCAs operate generally show a tendency to grow. This stimulation is basically supported by new frequencies launched by LCAs, and offered at lower fares as demonstrated for the London routes to Madeira Airport. However, although the increased frequency results in more tourists and nights spent at hotels, the consequent induced flexibility allows short and weekend breaks that have a direct impact on the decrease of the average length of stay.

Additionally, it is possible to identify some of the negative points of relying on LCAs growth to develop a region. The excess capacity on offer that might result from increased frequency may cause the LCA to leave to market quite rapidly. The Irish market is a clear example of this, as Aer Lingus cancelled all flights on the Dublin-Madeira route after its performance achieved rather low average load factors in the first months of operation.
Further to this, the LCA model is, above all, constantly focused on cost savings and negative impacts from external factors can result in bankruptcy processes as the one faced

by Sterling in late 2008. In the case of Madeira, this represented an immediate decrease on the number of airport passengers that had grown in the previous year as a result of Sterling's entry in the Copenhagen-Madeira route.

Findings suggest that there is in fact a role to be played by LCAs in Madeira, with regards to developing both tourism and air transport sectors. Future perspectives drawn in this study hold that there is still potential for LCAs to increase considerably the number of routes and frequencies offered to Madeira Airport, expanding to other markets that are presently served by charter air connections only. The stimulation that can be brought by LCAs entering these markets is likely to result in significant growth for these incoming markets to Madeira Islands.

Still, while growth is in fact achieved, issues related to sustainability and co-existence with other types of airlines, have to be taken into serious consideration. Long-term impacts are yet to be measured but in order to achieve an adequate balance between tourism supply and demand, as well as higher economic development, all players in the market must join efforts in developing strategies that will promote sustained growth.

7.2. Limitations of this Work

Since this study was mostly short-term oriented in terms of measuring impacts and effects of LCAs in Madeira Islands, some data was not yet available at the time this analysis was conducted. For example, international air transport data collected refers usually to the period ended in 2007. Additionally, the tourism industry statistics were only available for November 2008, so all figures presented with regards to December 2008 results are estimates from the entity which provided this data. Although this has no significant impact on the conclusions described on this paper, it is always more logical and useful to compare identical periods.

Another limitation of this work has to do with the fact that there is very limited information on some crucial indicators to measure economic impacts on the tourism

industry and the region in general, such as the average daily expenditure per person, the percentage of registered guests that used a LCA to travel to Madeira Island, among others. The first indicator for example, would help to show evidence that, as in many other destinations, the average length of stay decreases but the average daily expenditure rises therefore allowing a greater economic impact for the region than the one it would be experienced by a standard tour operator destination.

In terms of other sources of research, it was possible to identify the existing lack in updated tourism profile studies, either from public or private entities. These studies would allow not only a better analysis on the actual profile but also become important tools in order to measure the evolution of the tourism profile along the next years.

Finally, it is relevant to make reference to the fact that in 2008 both tourism and air transport industries were severely affected by the international financial crisis. In the case of Madeira, this was particularly noticed in the last quarter of 2008, meaning that the demand in the market might not have been at the level it would have in case of an economic expansion cycle. This could possibly enhance some of the effects measured in this study, namely in terms of the positive growth in terms of passengers and registered guests visiting Madeira Islands. Further to this, in this specific case where the United Kingdom is the largest foreign market in terms of inbound tourism, the devaluation of the British Pound when compared to Euro certainly had a downsize effect.

7.3. Topics for Future Research

Given the importance of tourism and air transport to Madeira Islands, it would be important to develop exhaustive and deeper studies on the following subjects:

- **Sustainability and growth of LCA's operations in Madeira Islands** – with a population of less than 250.000 inhabitants, the islands have very limited outgoing potential. This may pose some constraints in terms of future expansion. Additionally, the destination is still mainly charter driven so the study should

comprise an analysis on the most adequate type of air transport for the region and its tourism industry: traditional, low-cost, charter, mixed model?

- **LCA's long-term effect on the Tourism Profile** – as mentioned before in this paper, one of the limitations is the inexistent updated studies on the tourism profile. This useful information would allow local entities to better adapt what the destination as to offer to market demand. On the other hand, it is important to measure other tendencies and effects LCAs might have on a particular region. For example, some regions have experienced a boom in the housing market following the arrival of more passengers willing to buy second homes.
- **The economic importance of air transport for Madeira Islands** – tourism performance is strongly dependent on this sector, but the economic importance of air transport and its strategy has impacts on the wider market. Impacts on employment, services, economic development and integration, are some examples of this and are worth studying.

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