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The comparison of financial performance of airlines with different business model operated in long-haul market

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Abstract

The competition between low-cost carriers (LCC) and full-service network carriers (FSNC) has been focused exclusively on short to medium-haul markets for a long time. The launch of new aircraft generation combined with further liberalization of intercontinental air transport market presents the backbone of the recent extension of LCCs' service into long-haul sector. Thus, the emergence of this new concept triggered the changes in the landscape of competition, since it tremendously affects the operations of incumbents, mainly FSNCs. The aim of the paper is to examine the overall profit performance of airlines with different business models (LCC vs. FSNCs) that compete in some portion of long-haul market in terms of different competitive parameters. The paper proposes the method that incorporates the major factors affecting airline profit. The method enables the construction of high level causal multidimensional plane that illustrates the behavior of profits in terms of different indicators (such as fuel costs, other operating costs excluding fuel, average stage lengths, average load factor, etc.). The conversion of these tridimensional graphs into two-dimensional one enables the researchers to easily compare the airlines' profits under different selection of dependent variables. The results obtained in this way may have practical benefits to academics, but moreover to airline management and operations that can easily detect the major competitive advantages/disadvantages in contrast to its rival(s).

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1. Introduction

The competition between LCCs and FSNCs has been focused exclusively on short to medium-haul markets for a long time (Dobruszkes, 2006). The launch of new aircraft generation entwined with further liberalization of intercontinental air transport market are among the major reasons explaining the recent attempts of many LCCs to extend their service into long-haul markets. Thus, the emergence of this new concept brought the paradigm change in the airline industry and its effect on competition becomes the challenging tasks. Although the existing academic literature is inconclusive about the sustainability of long-haul LCCs, presence of several successful carriers, particularly in Europe and the U.S., brings the renewed enthusiasm that such a business model could prevail more in the near future. Similar to short and medium-haul markets, the presence of LCCs in long-haul market could impose the competitive pressure on FSNCs to reduce their fares in order to retain the market shares. On the other hand, the sustainability of low fares offered by LCCs is questionable due to the fact that many cost advantages that are feasible in short and medium-haul sector cannot be sustained in long-haul market.

The aim of the paper is to examine the profit performance of airlines with different business models (LCC vs. FSNCs) that operates long-haul flights in terms of different competitive parameters. For this purpose, Norwegian Air Shuttle and British Airways are selected as the illustrative example of the airlines with distinct business models that present competitors in large portion of long-haul (transatlantic) market. The paper is structured as follows. After brief Introduction, Section 2 presents the literature review that investigates new long-haul low-cost business model. Section 3 presents the essential information on Norwegian Air Shuttle, which will serve as an example of the airline that adopted long-haul low cost business model. Section 4 presents the core of the paper that emphasizes the differences in profits performance of British Airways and Norwegian Air Shuttle, as the examples of airlines which operate both medium-haul and long-haul network, but hold different business models. Finally, Section 5 concludes the paper.

2. Long-haul low-cost business model development – literature review

The long-haul low-cost business model is not novel in the airline industry, although its application has been intensified in the last decade. As stated in Wensveen and Leick (2009), the concept of low-cost long-haul flying dated back to 1977 when UK-based Skytrain, the company founded by Freddie Laker, operated between New York and London offering airfares substantially lower than its legacy competitors. Skytrain ceased operations in February 1982 with debts of £270 million (Francis et al., 2007). After the demise of Skytrain, the U.S. based low-cost carrier, People Express, commenced its ambitious plan by offering the service on transatlantic route from New York to London, and subsequently to Brussels, and the continental route from New York to Montreal. Despite its initial success to easily adopt the simple business model, the airline faced a serious management problem in addition to over-capacity issue and finally, ceased its operation in 1987 (Moreira et al., 2011). Since the failure of these two carriers and few other unsuccessful attempts (e.g. Zoom Airlines and Oasis Airlines), it took several decades for the long-haul low-cost concept to become established in the airline industry (Table 1).

Table 1. Overview of long-haul LCC operations in the world. Source: (CAPA, 2017; Soyk et al. 2018).

Name	Affiliation/ Parentage	Operations started	Continent	Status
Laker Airways' Skytrain	-	1977	Europe	ceased in 1982
People Express	-	1983	North America	ceased in 1987
Zoom Airlines	-	2002	North America	ceased in 2008
Oasis Airlines	-	2006	Asia	ceased in 2008
Jet Star	Qantas	2006	Australia	In service
Air Asia X	AirAsia	2007	Asia	In service
Air Canada	Air Canada Rouge	2013	North America	In service
Norwegian Air Shuttle	Norwegian	2013	Europe	In service

Cebu Pacific	Cebu Pacific	2013	Asia	In service
Jin Air	Korean Air	2014	Asia	In service
Azul	Azul	2014	South America	In service
Thai AirAsia X	AirAsia	2014	Asia	In service
NokScoot	Singapore Airlines	2015	Asia	In service
Lion Air	Lion	2015	Asia	In service
WestJet	WestJet	2015	North America	In service
Beijing Capital	Hainan Airlines	2015	Asia	In service
Eurowings	Lufthansa	2015	Europe	In service
Wow Air	Wow	2016	Europe	In service
Level	IAG	2017	Europe	In service

Francis et al. (2007) were among the first who evaluated the applicability of the LCC model into long-haul service. The authors highly stressed the importance of connecting passengers and high yield premium passengers that significantly reduced the economic viability of long-haul flights. The authors also considered that low-cost carriers would face the difficulty of reducing some aspects of services such as a seat pitch, catering and entertainment much below the current level in long-haul markets. Similar to previous findings, Morrell (2008) took a rather pessimistic approach and questioned the problem of generating demand (due to the lack of connecting passengers) to support the existence of hub by-pass service. The author also claimed that lowering long-haul fares significantly from current fares is not feasible for LCCs. On the other hand, Douglas (2010) supported the assumption of long-haul economic viability through the concept of an effective “dual model integration” in which a FSNC founds a LCC long-haul subsidiary. The concept underlines the integration of premium economy classes which allows the carriers the access to higher yield leisure traffic and to price-sensitive corporate travel on congested routes.

Opposed to Morrell (2008) who emphasizes the importance of connecting passengers, Daft and Albers (2012) suggested that there are markets that offer significant point-to-point demand without dedicated feeder traffic. The authors found that ancillary revenues can significantly contribute to airline’s profitability. A recent study conducted by De Poret et al. (2015), who performed a detailed financial assessment of low-cost operation on the transatlantic market leads to similar conclusions. Namely, the authors revealed that higher seating densities, higher cargo revenues and additional ancillary revenues can ensure the economic viability of long-haul LCC operation. A recent study conducted by Wilken et al. (2016) attempts to identify potential intercontinental routes for new low-cost service. Although there are a greater number of routes that can be derived, the authors still emphasize the existence of some kind of “hubbing” to be an important requirement for long-haul LCC.

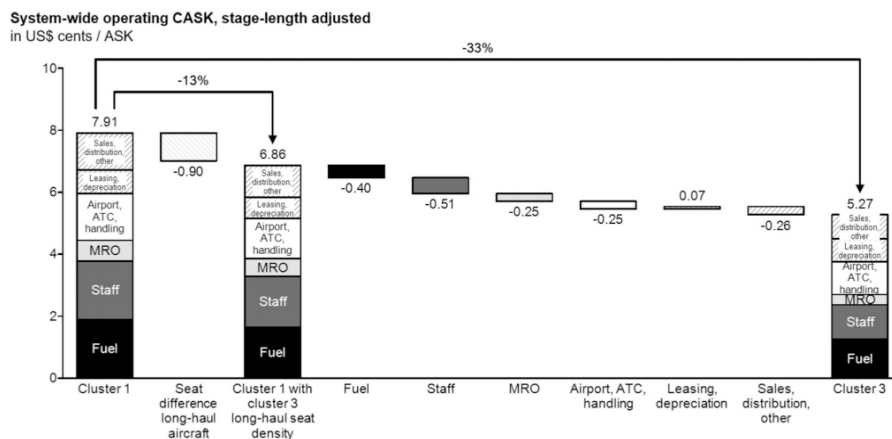


Fig. 1. Differences in operating costs between airlines from two derived clusters by cost items. Source: (Soyk et al. 2017).

Despite previous work that focused on revenue side of long-haul low-cost model, Soyk et al. (2017) focused solely on the evaluation of cost differences between 37 airlines that operate transatlantic routes, among which there are those that adopt low-cost business model (such as Norwegian Air Shuttle). With the cost per ASK accounting for 5.27 US\$ cents (Figure 1), the third cluster derived (consists of only one carrier Norwegian Air Shuttle) achieved the 33% lower unit costs (i.e. 2.50 US\$ cents) compared to legacy hub carriers from the first cluster (7.91 US\$ cents), of which 24 percentage points were considered as sustainable. Within this 24% sustainable cost advantage, 11% is driven by lower staff costs, choice of airports with lower charges and lower costs of sales and distribution (i.e. distinctive business model), while the remaining 13% is directly derived from higher seating densities.

As seen from Figure 1, fuel cost is substantially lower for Norwegian Air Shuttle than other legacy carriers from the first cluster as a result of exploit of modern fuel-efficient airplanes. However, this cost advantage is not sustainable over time as it requires that long-haul LCCs extensively reinvest in fleet modernization significantly earlier than their legacy hub rivals. Finally, in contrast to previous researches, Soyk et al. (2018) find that the emerging North Atlantic long-haul LCCs do not have a revenue disadvantage compared to FSNs, particularly on dense routes approved by the application of the new metric proposed.

3. Financial performance of LCC operating long-haul market

3.1. General overview

Norwegian Air Shuttle was the pioneering company in long-haul low-cost sector in Europe that launched its first long-haul flight in 2013 between Oslo and New York and shortly after between Stockholm and New York. In addition to these transatlantic flights from Scandinavia (including Copenhagen), the carrier introduced long-haul links from three large European metropolises: London (2014), Paris (2016) and Barcelona (2017). By the end of October 2017, the airline's long-haul network encompassed 26 destinations and 48 routes that place it as the largest long-haul low-cost operator in terms of network size and in the second place in terms of weekly seats (CAPA, 2017).

The carrier captured 81.3% of seat capacity in the European long-haul low-cost sector, becoming the first big player in the global marketplace in 2016 (O'Connell and Rodriguez, 2017). Additionally, the low-cost operations in the transatlantic market have experienced a substantial growth with approximately 6% of the total market share in terms of total seat capacity in 2017 compared to around 3% in 2016, the success that is partially driven by the rapid expansion of Norwegian Air Shuttle in this market (CAPA, 2017). With its eleven transatlantic routes (by September, 2018) operated from its base at London Gatwick, Norwegian became one of the major competitors to British Airways in terms of the number of competing city-pair routes (in addition to Virgin Atlantic), but moreover, in terms of fares offered. Then is worth mentioning that many of these routes British Airways operated with American Airlines through the joint-venture agreement that came into effect since November 2010.

The following subsections presents the financial performance of Norwegian and British Airways based on the data published in their respective annual reports (available online) in the period from 2010 to 2017. The first subsection will thoroughly examined Norwegian's financial records since 2010, while the second one provides the comparison of financial performance between those two competitors. The data for Norwegian are given on the quarterly level, while the data for British Airways are only provided on annual basis. Thus, the financial performance of Norwegian will be analyzed on quarterly level in the next subsection, while for the sake of consistent comparison to British Airways, the data for Norwegian will be aggregated on annual level. The selection of these two carriers is based on the fact that both airlines operate the flights within Europe, but also perform the long-haul flights connecting Europe with different parts of the world. The carriers are particularly competitors on the transatlantic market that connects London and several destinations spread across the United States. Although Norwegian is not the only competitor to British Airways on this lucrative market, its innovative approach in business model imposed a burden of challenges to all players. However, bearing in mind that British Airways is the most dominant carrier in this market, it is likely that it will largely bear competitive pressure. Despite the fact that these two carriers are competitors on only small portion of overlapping market in respect to their overall network, their distinct business models and their implication on profit performance is on the focus of this research.

3.2. Operating revenue and profit growth

The analysis of financial performance will follow top-down approach. As observed from Fig. 2, the operating revenue and costs increase over the observed period primarily induced by the increase in passenger volume. The growth of operating revenue appears to follow the exponential trend.

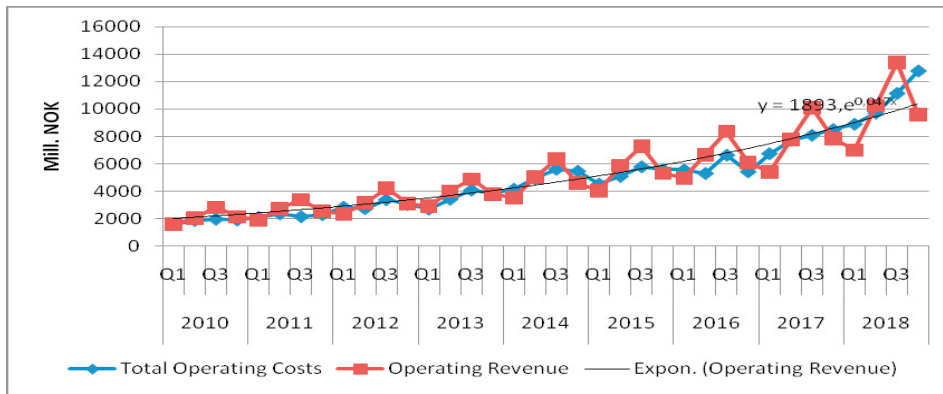


Fig. 2. Norwegian's total operating revenue and cost in the period from 2010 to 2018.

Although below the revenue curve, the operating cost follows the same pattern as operating revenue. However, the periods in which costs outperform the revenue can be observed and this period is characterized by profit loss. In order to have better insight into the profitability behaviour over the observed period, Figure 3 depicts the aggregate annual net profit performance. As observed, the net profit records were positive over the period between 2010 and 2013, the period in which the carrier focused its operation solely on short and medium-haul sectors. The net profit was negative in 2014, the year that coincided with the introduction of long-haul operations from London Gatwick. However, the following two years were very successful in terms of profitability, with 2016 being the most successful with overall annual profit achieved NOK 1135 million. However, in last three years (including the first quarter of 2019) the carriers persistently faced the financial difficulties mainly stem from a variety of reasons. First, the airline applied inadequate fuel hedging strategy that generated substantial financial losses. Second, the carrier severely suffered from the temporary closure of London Gatwick, the airport from which large portion of carrier's long-haul traffic have been operated. Finally, the engine failure on its B787 airplanes forced the airline to ground the large portion of its fleet and to lease the large A380 instead.

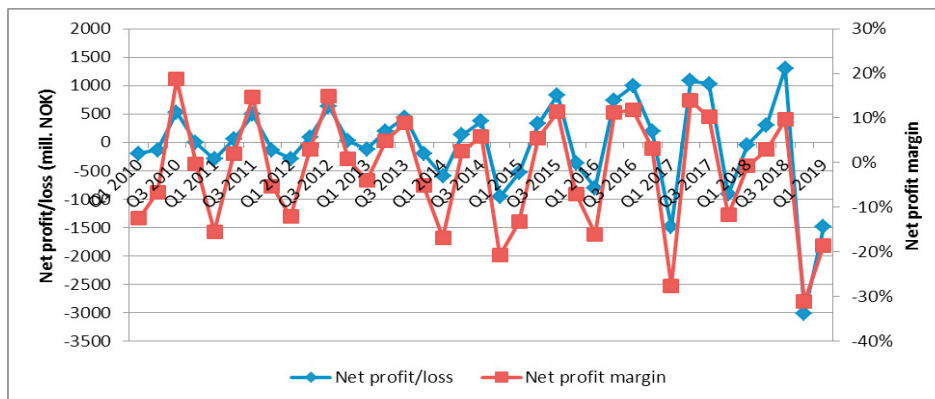


Fig. 3. Norwegian's net profit and net profit margins for the period between Q1 2010 Q1 2019.

Having in mind the high interdependency between the airline's profits and costs, the investigation of cost structure changes would be of particular interest. As it can be observed from Figure 4, aviation fuel costs encompass

the large portion of total operating costs (app. 30%). Fuel costs appeared to increase over the observed period as the airline acquired more airplanes in the fleet as the response of its capacity extension strategy. However, a slight drop in fuel expenses can be observed during 2015 and 2016 as the result of lower price of fuel on the stock. As mentioned above, the inadequate hedging strategy adopted by the carrier during 2018 resulted in the substantial increase in fuel expenses which additionally exacerbated the airline financial performance. In addition to fuel costs, the labour costs gradually increased over the observed period as the carrier expanded its operation in long-haul service which required more personnel in different departments.

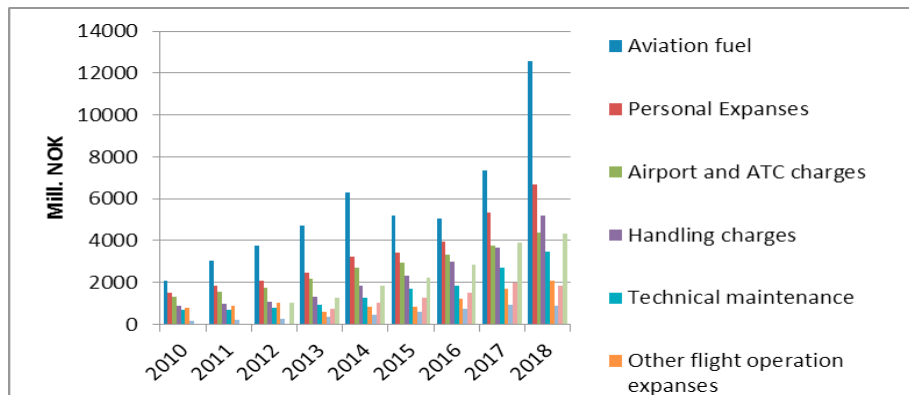


Fig. 4. Norwegian's total operating cost structure for the period between 2010 and 2018.

4. Comparison of profit performance between major LCC and FSNC based on the different factors

This subsection aims to compare the profitability performance of Norwegian and British Airways. The analysis is based on several tridimensional graphs constructed for each carrier separately. The major axis represents the airline's profit, whereas two other axes are the combination of different factors that may affect the airline's financial performance. The tridimensional data given by the data points (x,y,z) is subsequently transformed to two-dimensional with a contours plot presenting the z -value with $z = \text{contour}(x,y)$. The study covers the period from 2010 to 2017. It is worth mentioning that Norwegian started the long-haul operation since the third quarter of 2013, while British Airways has already had very-well developed long-haul network.

The selection of the factors included is result of the careful examination of the relevant literature that investigates the airline profit behavior. As already well documented, the profitability of an airline will highly depend on its ability to maintain the cost base as lower as possible. Fuel costs still constitute the great portion of total operating costs, and this trend is likely to be even more pronounced in the future. Although airlines endeavor to mitigate the fuel cost impact by adopting different hedging strategy, the high volatility of jet fuel prices on the stock brings high risk and uncertainty in airlines' strategy. Thus, we decided to observe the behavior of two airlines' profit based on the unit costs (excluding fuel costs) and aviation fuel. Airline's unit cost is calculated as the total operating costs divided by the available seat kilometers and thus, presents the costs of available seat kilometers that an airline has to compensate by fares thoroughly designed. Bearing in mind that fuel cost accounts for more than a third of total operating cost, it is essential for airlines to maintain the strong focus on controlling other operating costs. Therefore, observing the profit behavior in terms of the variables that separately deals unit costs that exclude fuel and total fuel costs can provide comprehensive picture on airlines' competitive position against each other.

As it can be observed from Figure 5 a) and b), Norwegian has lower unit costs than its competitor British Airways, which further allows the carrier to offer lower fares. Not surprisingly, the results for British Airways show that higher unit costs and higher total fuel costs coincide with very poor profit performance. On the other hand, the situation in which unit costs are still high and total fuel costs are lower, seems to be favorable in terms of profit performance. This brings to conclusion that fuel costs appear to have more importance than other operating costs in the airline's financial performance. On the other hand, Norwegian' positive profit record is highly linked to lower values of fuel costs and lower unit costs. As observed, Norwegian profit performance is equally sensitive to either

higher values of fuel costs (even in the case when other unit costs are substantially low) and higher value of unit costs (excluding fuel). These findings strongly support the claim prevailing among experts and scholars that the long-haul low-cost business (adopted by Norwegian) model is hardly sustainable in the situation of high value of fuel costs.

In addition to costs that play the key role in overall profit performance, the demand for air travel service is an inevitable factor that has to be taken into account when considering revenue side of balance sheet. For this purpose, the load factor is selected as a proxy variable that describes the occupancy rate of capacity offered and is highly associated with passenger demand.

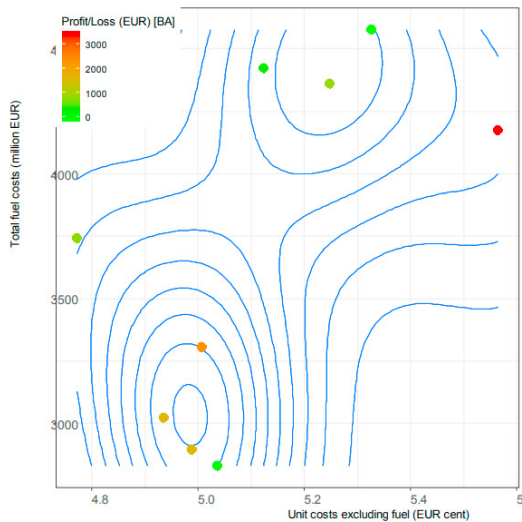
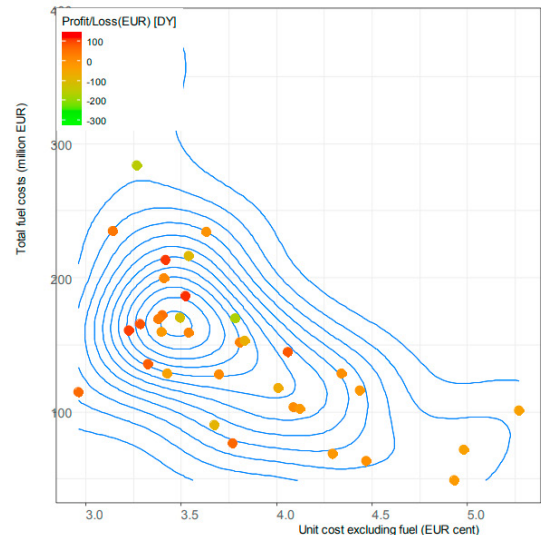


Fig.5.a) British Airways profit behavior based on unit costs (excluding fuel) and total fuel costs.



b) Norwegian profit behavior based on unit costs (excluding fuel) and total fuel costs.

In other words, the airline service is highly perishable product and once the airplane departs the remained empty seats cannot be sold again, generating the substantial losses. Thus, the airline struggles to attain the load factor as higher as possible. Figure 6 a) and b) shows Norwegian and British Airways profit behavior in terms of load factor (y-axis) that generally reflects the efficiency of an airline to attract more passengers on its flights and unit costs (excluding fuel) (x-axis) that describe how much airline is capable to keep its costs at lower base. Both variables are strong determinants of airline profit behavior since they reflect the cost and demand side simultaneously. By comparing the contours between Norwegian and British Airways derived in this way, it can be observed that Norwegian tends to have higher load factors. Additionally, Norwegian positive profit records are secured only in the case of very high values of load factor or very low values of unit costs. The results show very similar behavior of British Airways profit, although this carrier has worse performance in terms of load factor compared to its rival.

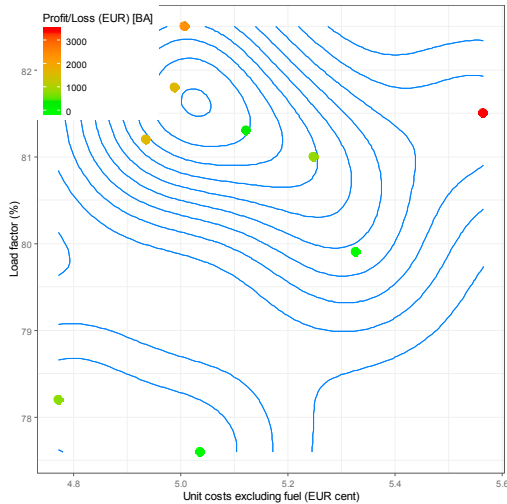
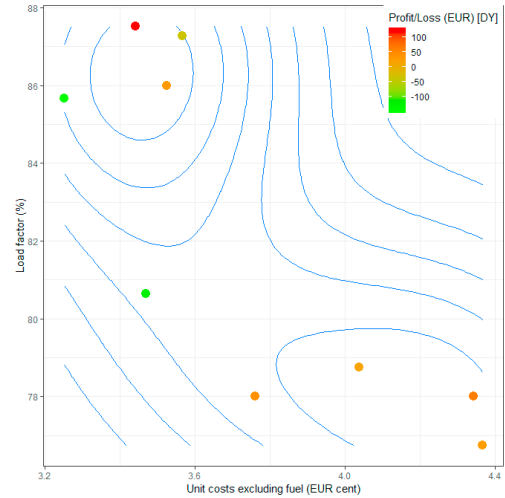


Fig. 6. a) British Airways profit behavior based on unit costs (excluding fuel) and load factor.



b) Norwegian profit behavior based on unit costs (excluding fuel) and load factor.

4.1. Comparison on airlines' market shares on long-haul routes connecting London and New York

Prediction of market shares appears to be an important issue in airline planning, as airlines are generally keen to attract as larger portion of passengers as possible. An airline's ability to gain higher portions of the market could directly affect its revenue side, and subsequently have tremendous impact on its profit. As already discussed, an airline may compete against its rivals in numerous ways including pricing, frequency and many other aspects, which eventually results in the distribution of the market share across airlines in the particular market. Additionally, an airline's market share in the particular market will also highly depend on the performance of the airline's competitors. An airline that can perform more aggressively against its competitors will certainly increase its market share. It could also enlarge the market and therefore the market shares will not growth as it would without enlargement. On the other hand, the higher market share could assure the favorable position for the airline since its dominance may deter a potential entrant to penetrate the market. Namely, an airline with high market share can derive an immense potential through the economy of density, which further allows reduction in prices (as one of the preemptive actions), and thus produce the adverse effect onto a potential competitor.

For the purpose of this research, we aim to present British Airways' market share plane based on the average base fare and unit costs (excluding fuel). The carrier traditionally represents the most dominant player on the one of the most lucrative market in the world that connects London with New York. As seen from Figure 7, London – New York is connected by three airport pairs – London Heathrow – John F. Kennedy (LHR-JFK), London-Heathrow-Newark (LHR-EWR) and London Gatwick – John F. Kennedy (LGW-JFK). London – New York route was operated by two European carriers (BA and DY), four American carriers (VS, AA, UA, DL), one Middle Eastern carrier (KU) and one Asian carrier (AI).

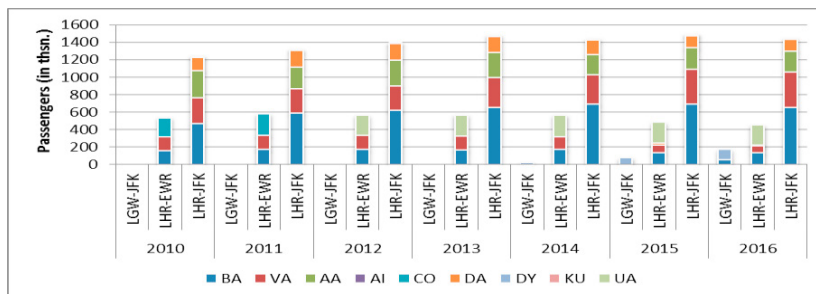


Fig. 7. Number of passengers at the three routes connecting London and New York.

We considered that airline market share in the given airport-pair market will highly depends on the fare offered on the specific route, while that particular fare will be highly driven by unit costs. In order to have better insight into the behaviour of market share under given unit costs and price, the Figure 8 provides two-dimensional plots. Such visualization of results will enable one to easily detect the potential similarities and differences among carriers in terms of market share. The contour line represents the set of the points with the same value of market share, whereas different contour line colours correspond to different values of markets. The same graph will be constructed for Norwegian Airlines for another airport pair route (Q3 2013-Q4 2017), LGW-JFK, in which Norwegian has only one competitor, British Airways. The similar comparison will be carried out at city-pair level, since adjacent competition is present in this market (Q1 2010 – Q4 2017).

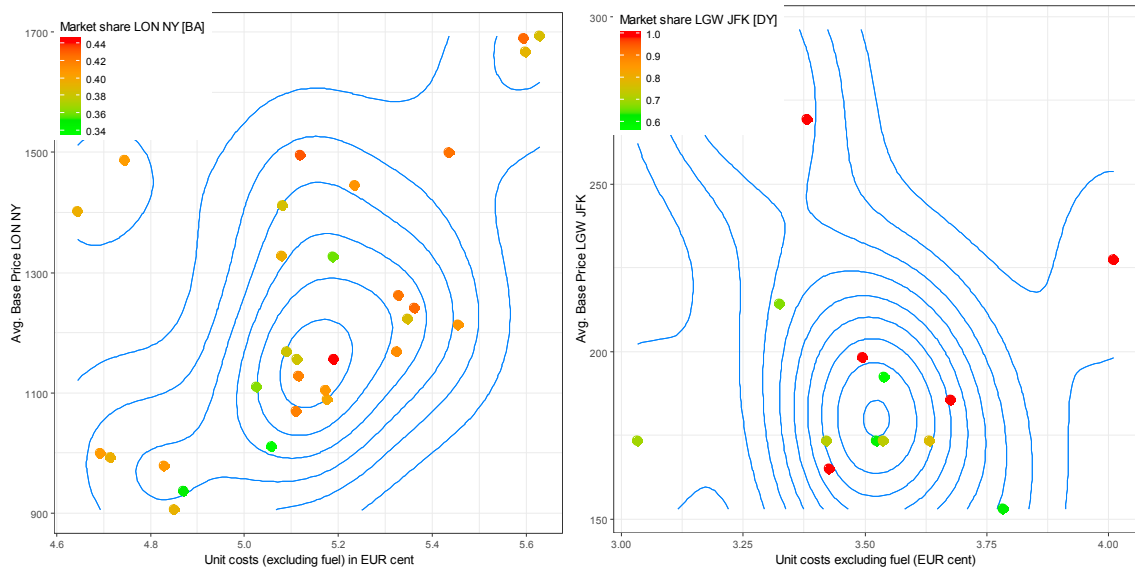


Fig. 8.a) British Airways' market share based on unit costs (excluding fuel) and average fare at London – New York.

b) Norwegian' market share based on unit costs (excluding fuel) and average fare at London – New York.

The interpretation of the results obtained for market share of both companies imposes a specific challenge to interpretation. As earlier discussed, these two companies represent the rivals in London – New York route, but only to some extent. After the Norwegian entered the London Gatwick – John Kennedy route, it was the only carriers offering this route for certain period. It is evident that Norwegian reduced its fares when British Airways introduced the similar service from London Gatwick. Additionally, British Airways had also the impact on the reduction of Norwegian market share that seems to fluctuate between 60% and 70%.

5. Conclusion

The competition between FSNCs and LCCs in long-haul sector has been intensified in last several years. The comparison of profit performance of airlines with different business models becomes particularly challenging task since airlines struggle to sustain profit in this sector. The fierce competition induced by LCCs imposed tremendous pressure on FSNCs to reduce their fares, thus leaving a scarce space for gaining higher revenue and consequently higher profits. The paper provides the practical mathematical tool which enables the detection of the behavior of airlines' profit performance in terms of different factors which mainly involved the operating costs. Total fuel costs as a major contributor in total operating costs were included separately from other costs, since it is well known that long-haul LCC model is highly susceptible to its fluctuation. The application of the tool is shown on the example of Norwegian and British Airways which firmly compete each other in some segments of the transatlantic market. The contour plot constructed for Norwegian mainly reveals that Norwegian's higher profit is highly associated with lower value of total fuel costs and lower value of other operating costs (expressed through unit costs). Additionally,

the load factor records (higher than the industry standard), combined with lower unit costs, will also ensure the positive profit performance. The similar conclusion is observed in the case of British Airways, although business model adopted by this carrier is characterized by the higher values of unit costs and generally not so high sensitivity to load factor (as in the case of LCC). The further researches should be extended by the introduction of additional traffic indicators which can help to enlighten the profit behavior from that particular aspect.

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