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Will Low Cost-Cost Carriers also disrupt Long-Haul Services?

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Abstract

Low-cost carriers (LCC) have become key players in the short-haul to medium-haul air transport systems of a large number of countries on all continents. In this paper we analyze the long-term commercial viability of the LCC concept, which is being rolled out in different business models. We begin by identifying the key components, and their dynamics, of the LCC business model and the legacy carriers' operations. Second, the transferability of the short- to medium-haul LCC business model to long-haul flying is assessed. Finally, we will discuss the potential viability of the three alternative long-haul LCC business models which are currently emerging.

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Keywords: Low-cost airlines; long-haul market; entry barriers; market potential;

1. Introduction

36 years after the bankruptcy of Freddie Laker's Skytrain on February 5th, 1982, low-cost carriers (LCC) have become key players in the short-haul to medium-haul air transport systems of a large number of countries on all continents. As for Europe, during the winter 2016/2017 timetable period, low-cost carriers operated 24.4 per cent of all scheduled commercial flights (35 percent before the bankruptcy of Air Berlin in late 2017) (Deutsches Zentrum für Luft- und Raumfahrt e.V. 2017, 17) In terms of passenger numbers carried, the leading LCC now rank among the largest airlines in their respective traffic regions (e.g. Ryanair and easyJet in Europe, Southwest Airlines in the USA, and the Air Asia Group and the Lion Air Group in Asia).

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The first serious attempt, from 2007, by Air Asia X – the long-haul division of the Air Asia Group – to expand the LCC business model to long-haul flying proved, in large part, to be commercially unsustainable after only three years due to the massive rise of kerosene prices at that time; services were substantially scaled back as a result. However, in recent years a clear trend towards long-haul low-cost flying has emerged, in particular in Australasia – with the renewed expansion of Air Asia X, of Singapore Airlines' long-haul low-cost subsidiary scoot and of Qantas' growing Jetstar operation - and on the North Atlantic market with the large-scale entry of Norwegian Long Haul, the subsidiary of Norwegian Air Shuttle (Europe's third largest LCC), with flights from/to several EU airports; on May 31st, 2017, Norwegian Air Shuttle announced three new nonstop services between Rome Fiumicino and Newark, Oakland and Los Angeles in the USA. The airline also offers long-haul services from London Gatwick to Singapore and Buenos Aires.

In this paper we attempt to analyze the long-term viability of the low-cost long-haul concept with the following methodology. First, the key components, and their dynamics, of the principal LCC business models and LCC operations - as opposed to the 'traditional' scheduled carriers' operations - are identified. In the second step, we assess the transferability of the current short- to medium-haul LCC business model (on the cost and on revenue side) to long-haul flying; in particular, we discuss whether the LCCs' distinctive features can be rolled out in similar manner on long-haul operations, as these are characterized by important operational, legal, and economic differences vis-à-vis 'normal' short- and medium-haul airline operations. In this context, we will also take a closer look at the more recent technological developments with respect to aircraft performance and their potential to open up commercially sustainable new long-haul low cost services. Third, and last, we analyze the potential viability of the three alternative long-haul LCC business models which are currently emerging. These include a) in-house solutions by established legacy carriers, who have begun to set up dedicated long-haul subsidiaries to tap this unfolding market also (e.g. Singapore Airline's scoot, Lufthansa Group's Eurowings, Air Canada's Rouge and the International Airlines Group's recently established Level subsidiary), the expansion of established LCC's into long-haul flying (e.g. Norwegian Air Shuttle and Air Asia X) and, finally, new forms of alliances which link up short- to medium-haul LCC operations with long-haul services operated by legacies (e.g. Ryanair's link-up with Air Europa) or other LCC which are already active in the long-haul segment.

2. Literature Review

Apart from some consultancy reports (e.g. Aviation Economics 2010; Binggeli/Weber 2013; Leigh Fischer 2015; KiM Netherlands Institute for Transport Policy Analysis 2017), academic analyses of the viability of long-laul LCC services remain few in number and, most of all, inconclusive in their findings. Last not least this is due to the still very small number of LCC operators in this market segment.

In his seminal paper on the topic, Morrell (2008) expressed substantial skepticism as regards the long-term commercial feasibility of the long-haul LCC business model apart from some niche markets such as low yielding, low-frequency holiday destinations which have traditionally been served by package tour/charter operators. His main arguments were that the cost advantages of LCC over legacies will wither away on long-haul operations and that the growth in demand generated by lower fares will not be nearly as meaningful as it was for short- to medium-haul services. Wensveen/Leick (2009) argued that three new business models – network specialists (focusing on corporate shuttles and high-yielding city pairs under contract for large legacy carriers), products specialists (focusing on premium cabins) and price specialists (focusing on the lowest possible price) – would emerge for long-haul LCC services, with price specialists being the most promising type of newcomer. However, most of the airlines Wensveen/Leick named as examples for the respective business models have meanwhile folded operations. More recent research (Soy/Ringbeck/Spinler 2017) claims a sustainable 24 per cent average cost ad-vantage for long-haul LCC over traditional legacy carriers on relatively uncomplex point-to-point services while Gudmundsson (2015) makes the case for a radical rethink of the traditional short- to medium-haul LCC business model to adapt it to the different economics of long-haul flying in order to make it work in some long-distance markets (both in terms of stage length and clientèle).

We conclude that the topical literature reviewed is partly outdated with respect to fundamentally important supply side conditions such as aircraft technology although most of the technology trends were already perceptible ten years

ago. We hold that new aircraft technology will allow airlines to tap a substantial growth potential as it does not only increase the commercially viable stage length of flights. It also allows airlines to much better match supply and demand on existing and future city pairs due to the smaller size of aircraft compared to the currently predominant wide-body fleets of legacy carriers. Moreover, the importance of – volatile – macroeconomic conditions was essentially ignored as an important determinant of long-haul supply and demand patterns. So, when Morrell's (2008) work was published, the unfolding global financial and economic crisis reduced demand for (long-haul) business and leisure travel substantially. On the supply side, it coincided with a massive external macroeconomic shock with some of the highest oil prices so far on record, ranging from US$100-US$140 per barrel in 2008 and during the mid-2010 to mid-2014 period (macrotrends 2018). Due to the widespread use of fracking in shale oil production most mid- to long-term oil price forecast now assume an extended period of substantially lower oil prices in the range of US$60-US$90 (unless extreme political events – such as the closure of the Strait of Hormuz were to occur). We therefore take these forecasts as a given for the foreseeable future in our assessment of alternative long-haul LCC business models.

3. Market Penetration and impact of LCC on Airline Competition

3.1 LCC on short- to medium-haul services

In most parts of the world, the emergence of LCC radically changed the economics of short-haul and medium haul air travel, although their respective market penetration varies substantially by region and also within regions. Recent IATA data show an average global market share of 27 per cent (of total seats flown) in 2016, an increase of eight percentage point since 2006. While the LCC' median market share is highest in Europe at 32 per cent (highest in Latvia at 81 per cent, around fifty per cent UK, Spain and Italy, some 25 per cent in Germany and France, lowest in most Post-Soviet countries with the exception of the Baltics), followed by North America at 29 percent (highest in Mexico at 51 per cent, lowest in Canada at 245 per cent), it is lowest in Africa at less than one per cent (highest in Morocco at thirty per cent while slightly more than half the African countries had no LCC service at all). The middle ground is made up of the Middle East (eleven per cent, highest in Kuwait at 26 per cent)), Asia-Pacific (ten per cent, highest in the Philippines at 56 per cent, lowest in China at 3.4 per cent) and Latin America (seven per cent, highest in Brazil at 53 per cent) (IATA 2017). LCC's current growth rates is approximately twice the legacies' and regional airlines' respective figures.

Facing increasing LCC competition, legacy carriers' reactions have varied but may be summed up under four principal strategies, which were frequently used in some form of combination and which were not always met with commercial success:

- Partial retrenchment from short-haul and medium-haul services and focus on improving the main hub(s)' long-haul connectivity (e.g. British Airways);
- Price and non-price predation to attempt to deter LCC competitors from their home markets (e.g. Lufthansa vs. Aero Lloyd in 1988 until 1990, Lufthansa vs. Germania from 2001 to 2002; also, Lufthansa's former unprofitable subsidiary Germanwings (now Eurowings) may be partly considered a predation vehicle for this very purpose);
- Establishment of in-house LCC subsidiaries/platforms. Examples include Lufthansa's Lufthansa Express, Germanwings and, now, Eurowings brands, British Airways' GO Fly (sold to EasyJet in 2002); IAG's Vueling, Delta Airline's Delta Express and Song, United Airline's TED, Qantas' Jetstar Group, Singapore Airline's Scoot (including Tiger Airways), Air Canada's Zip and Tango, Thai Airways' Nok Air and AF/KLM's Transavia and Joon;
- Imitating LCC price and service innovations such as unbundled fares, higher seating density, higher aircraft and crew utilization, direct selling etc.

3.2 Early long-haul LCC operations

Although a small niche, long-haul LCC services already existed in the pre-deregulation era, both for select scheduled services and in the charter market. As for scheduled long-haul LCC services, contrary to common belief, the pioneer was not Sir Freddy Laker's Laker Airways which began operating its 'Skytrain' service from London Gatwick to select US and Canadian airports from 1977 until its bankruptcy in 1982 and which, at its peak, had grown into the fifth largest carrier on the North Atlantic by seat capacity. Instead, Loftleiðir from Iceland - renamed Icelandair in 1979 - initiated Transatlantic flights from Luxemburg's Findel Airport to points in the USA via its hub airport in Reykjavik in the early 1960ies. Not an IATA member at that time, the airline was not bound by IATA tariff conferences and was therefore able to substantially undercut competing IATA carriers from North America and Western Europe. On the US side, short-lived LCC PEOPLExpress added two Transatlantic routes from its Newark base (to Brussels and London Gatwick) to its US domestic LCC service in 1983 until it was acquired by and merged into Continental Airlines in 1987.

In addition, (often seasonal) charter services for package tour operators on select long and thin intercontinental leisure routes were (and remain) another long-haul LCC niche which grew when air transport market deregulation permitted charter airlines to also offer customers seat-only bookings as well. Examples included services from Western Europe to the Caribbean, Southeast Asia, East Africa and North America (e.g. by Condor from Germany, Wardair, Air Transat and Canada 3000 from Canada, Britannia Airways from the UK – which even offered a service from Britain to Australia and New Zealand – and Martinair from the Netherlands).

Some long-haul LCC even ventured into the business class only segment on select Transatlantic city pairs. Operating very small fleets of two to six aircraft and service between two and four destinations only, all three pioneers - US-based Eos Airlines (2004 until 2008) and MAXJet Airlines (2003 until 2007), as well as UK-based Silverjet (2006 until 2008) - went out of business after a few years. The most recent entrant - French-based airline La Compagnie – continues to operate its fleet of two Boeing 757-200 aircraft between Paris Orly and Newark.

3.3 The changing market environment for long-haul flying

Some three decades after domestic and international air traffic were substantially liberalized in most industrialized countries, traditional legacy ('network') carriers, especially in Europe, South and Southeast Asia, Australia/New Zealand and the USA, are increasingly exposed to up to three variants of intra-modal competition in different parts of their networks:

- Substantial LCC competition on their short-and medium-haul networks;
- massive full-service at low(er) cost competition on their long-haul networks from the Gulf-based carriers, in particular Emirates Airline, Qatar Airways, Etihad Airways and Oman Air, Turkish Airlines and, increasingly, the large Chinese carriers (China Southern Airlines, China Eastern Airlines and Air China);
- a new breed of long-haul LCC such as Air Asia X, Cebu Pacific, WOW air, Norwegian Air Shuttle on select intercontinental routes (e.g. Europe to/from North America, Southeast Asia and Latin America).

However, the large three alliance of network carriers (Star Alliance, Skyteam and oneworld) which partly enjoy legal exemptions from antitrust laws continue to dominate most of the world's major long-haul markets. Nevertheless, the legacies' reactions to the (relatively) new competitive threats to their long-haul business closely resembled their strategies against short- to medium-term LCC although, in comparison, their reactions occurred more quickly. Again, their countermeasures frequently were, and continue to be, implemented in combination:

- Partial retrenchment and focus on the most profitable medium- to long-haul routes and hub connections. Prime examples include Lufthansa, Malaysian Airlines and Qantas;
- Predation attempts through price and capacity matching on select city pairs (e.g. by IAG group airline British Airways against Norwegian Air Shuttle on the London Gatwick-Oakland Transatlantic route);
- Establishment of in-house LCC subsidiaries ("platforms") (e.g. IAG'S Level, Qantas' Jetstar, Singapore Airlines' Scoot, Air Canada's Rouge, Lufthansa's Eurowings and Air France's Joon);
- Imitating LCC price and service innovations such as unbundled fares and the introduction of low base fares which typically do not include any checked baggage allowance and advance seat reservations.

4. Are Long Haul LCC the "next big thing" in the airline industry?

4.1 Basic features of the traditional LCC model and its evolution over time

LCC have, on short- to medium-haul operations, achieved a substantial – and sustainable - cost advantage over legacy carriers. It typically results from single-type fleets which produces savings with respect to maintenance and crew training and due to lower operational complexity, point-to-point services without scheduled flight connections – which increase daily aircraft utilization and maximizes crew productivity -, the use of secondary airports and the employment of younger and non-/less unionized staff at lower pay scales. Moreover, as greenfield investments, LCC have enjoyed substantially less organizational slack and, hence, lower administrative costs than legacies, and embraced early on internet technology instead of costly global *distribution* systems for bookings. On the revenue side, LCC unbundled fares in the sense that only the basic transportation was included in the ticket price while all extras ('ancillary services') had to be paid for separately by the customers.
As was also described above, legacies reacted to the competitive onslaught of LCC in a number of ways. As a result, increasing hybridization can be observed in the market place. In particular, LCC strongly expanded into the legacies' hub airport and now provide face-to-face competition. Also, LCC have come up with enhanced service bundles (at higher prices) to become more attractive for price-conscious business travelers. Some LCC now also offer limited scheduled connecting services, which somewhat emulate the legacies' traditional hub-and-spoke operations.

4.2 Are the LCC's cost advantages replicable on long-haul services?

4.2.1 Segments of the long-haul market

No precise definition of long-haul market exists. However, flight time and distance are typical supply-side dimensions. So, 'short- to medium' long-haul nonstop services would cover a distance of up to 7,000km and/or a flight time of 6-8 hours. Examples include Western Europe to/from the North American Northeast coast, East Asia and Australia to/from Hawaii and South East Asia, Europe to East and West Africa and European Russia to /from the Russian Far East. 'Regular' long-haul services cover a distance of up to 10,000km and/or a flight time of up to 12 hours. Examples include Europe to/from the North American West Coast, Central America, the Northern part of Latin America, South Africa, East Asia and Southeast Asia. Finally 'ultra long-haul' services currently comprise distance up to 14,000km and/or flight duration of up to 18 hours. Examples include the Gulf region to/from Australia, New Zealand, the North American West Coast and Brazil, Singapore to North America, and West Australia to London. This notwithstanding, from a passengers perspectives, connecting services often are a reasonable substitute for non-stop flights. While the total trip time is higher, fares for connecting services are typically lower priced than nonstop services.

4.2.2 Macroeconomic and technological enablers of LCC long-haul services

The currently favorable commercial environment for long-haul LCC operation is the result of both the macroeconomic conditions and technological advances in aircraft and engine technology. As for the macroeconomic situation, central banks worldwide have reacted to the global financial and economic crisis with historically low interest rates. This, in turn, has given a big boost to the debt-financed acquisition of aircraft and the establishment and/or rapid expansion of airlines. Moreover, the sharp decline of the oil price since 2014 – which currently stands at around US$70 – has strongly improved the economics of long-haul flying for all airlines.

As for technological advances, the latest generation of mid-sized wide-body aircraft – Boeing's 787 'Dreamliner' and Airbus 330neo and 350 – boast costs per available seat mile which are up to 25 per cent over lower than their predecessors' but also offer operating airlines up to 13,000km in range. As regards smaller narrow-body aircraft such as the Airbus 320 family and the Boeing 737 family, advances in aeronautics and engine technology have

reduced operating costs on a similar scale but also increased range to allow, i.a., Transatlantic services between Northwestern Europe and the North American East Coast. As these aircraft only over around 50 per cent of the capacity of wide-bodies at substantial lower operating costs per seat, they may allow airlines to open a plethora of new long thin routes, most of all point-to-point-services to/from secondary cities, at much lower commercial risk compared to the deployment of much larger wide-body aircraft.

4.2.3 Less scope for sustainable LCC cost advantages in long-haul flying

Generally speaking, the cost advantages of LCC over legacies are substantially lower for long-haul operations in comparison with short- to medium-haul services, for a variety of reasons. First, long-haul aircraft achieve a much higher daily utilization than aircraft used for short- to medium-haul flight. Accordingly, cockpit and cabin crew productivity differences are substantially less, also due to mandatory minimum crew rest periods. Second, the comparatively higher complexity of long-haul operations also contributes to further erode away LCC's potential cost advantages. While LCC rely on a single aircraft type for short- to medium-haul operations, long-haul flying requires the addition of a second aircraft type if the payload/range profiles of individual mission differ strongly (e.g. missions from Europe to the North American East Coast may be served with both narrow-body and wide-body aircraft, while missions to the West coast can only be operated nonstop with wide-body aircraft). Moreover, the seating capacity of aircraft cannot be increased in any meaningful manner as high-density seating in economy class is already common on all airlines. In addition, product differentiation – by also offering business class or at least premium economy - may be needed to offset the seasonality of many long-haul routes and to attract price-conscious business travelers as well. Finally, in contrast to short- to medium-haul flying, a large number of long-haul services also rely on cargo revenues to become and remain commercially viable.

4.2.4 Long-haul specific demand-side limitations

Compared to short- to medium-haul services, demand for long-haul services displays some important distinct characteristics. To begin with, fares for long-haul services are substantially higher in absolute terms (although they are lower per kilometer flown). Moreover, demand for long-haul services is further compressed by the fact that administrative hurdles such as visa regulations are more prevalent and therefore increase customers' total trips costs. Also, due to the much longer distances covered, the average duration of long-haul trips (flight time plus time at destination) and the physical stress (jet lag, dehydration) they may impose on passengers, are substantially higher. In addition, the potential for long-haul leisure travel is more strictly limited by the amount of vacation days and public holidays so that 'spontaneous' weekend breaks or short business trips are much less common on long-haul services. Finally, legacy carriers have long offered reasonably cheap long-haul fares in economy class, and increasingly also for premium economy and business class travel, to help fill seats on their traditional wide-body fleets, especially during off-peak and shoulder seasons.

4.3 Adding up: Emerging long-haul LCC business models

All emerging long-haul LCC business models can be described as modified versions of the legacy carriers' traditional hub-and-spoke systems, but from a lower overall cost base. Legacy carriers have historically concentrated all their operations at one or more hub-and-spoke airports. Moreover, all of the world's largest airlines are members to one of the three global airline alliances which have created highly complex interconnected networks: Star Alliance, oneworld and Skyteam. In the logic of the alliance system, most long-haul itineraries connect the spokes in their respective networks via one or two hub airports so as to exploit economies of density and scale of their operations to the fullest extent possible; typically, nonstop services are only offered to/from hub airports. A variation of this traditional model can, on the one hand, be fund among the Gulf carriers which are the only airlines worldwide to offer nonstop long-haul services at all stage lengths (i.e. 'short- to medium', 'regular' and 'ultra long-haul', see above) from their hubs.

4.3.1. 'Equidistant hubbing': Icelandair and WOW air

The operational approach of Icelandic LCC Icelandair and WOW air for their transatlantic services may be described as a (roughly) equidistant hub-and-spoke system. From a passenger point of view these carriers' main competitive advantage is their offering of one-stop connecting services between essentially any city pairs throughout their networks while legacies often require even two connections from spoke to spoke if passengers are funneled through two hubs on two continents (e.g. on an itinerary such as Tulsa-Chicago-Frankfurt-Budapest). Provided the hub airport benefits from a favorable geographical location – i.e. near great circle routes and roughly equidistant from the commercially most important spokes –, the complexity and higher costs of hub operations are partly offset by the opportunity to use a streamlined fleet of aircraft of only one or two types. The economic viability of such a hub location is very likely to be further enhanced by the recent arrival of next generation narrow-body aircraft.

4.3.2. 'Decentralized multi-hubbing' with in-house feed: Air Asia and Norwegian Air Shuttle

All other larges LCC which are currently operating long-haul services – in particular Norwegian Air Shuttle and Air Asia X – have gradually expanded their operations from short-to medium haul flying to/from a number of bases into select long-haul destinations. Accordingly, their support their long-haul network through their own feeder flights – i.e. without alliance or codeshare partners -, having established their own variety of hub-and-spoke operations. As both airlines have established a number of subsidiaries in other countries to bypass the legal restrictions of bilateral air service agreements on market access and capacity, a decentralized multi-hub network is gradually emerging (Norwegian has set up a subsidiary in Argentina, to support their Europe to/from Buenos Aires services with local feed; Air Asia – a Malaysian Airline – has established Air Asia India, Air Asia Japan, Indonesia Air Asia, Thai Air Asia, while efforts are ongoing to establish also Air Asia China and Air Asia Vietnam. Alongside the original Malaysian Air Asia X long-haul subsidiary, the airline has also set up Thai Air Asia X and Indonesia Air Asia X for LCC long-haul operations from these countries). The principal commercial advantage of this business model is its lower complexity compared with the operation of hub-and-spoke networks of legacies and alliances as services are operated from a common intra-company platform (IT and otherwise). Moreover, the operational requirements for connections from short- to medium-haul services to in-house long-haul services are less sophisticated because minimum connecting time are typically much longer in comparison to legacies' arrival and departure waves at their respective hubs.

4.3.3. 'Hybrid hubbing': Ryanair and Air Europa, Lufthansa and Eurowings etc.

The number of interlining agreements between short- to medium-haul LCC and legacy carriers to offer passengers through services has grown strongly in recent years (Grimme 2011). Interlining is a traditional form of cooperation among airlines which mutually recognize tickets issued by their interlining partners; for passengers this means that baggage will be checked through to the final destination on connecting services and all boarding passes will be issues at the check-in at the departure airport. Example include the respective agreements between Lufthansa and its in-house LCC platform Eurowings and, most recently, between Ryanair and Air Europa for flights between Europa and 19 destinations in North and South America via Madrid. Tickets may be booked via either airline's website, and Ryanair operates optimized schedules into Air Europa's Madrid hub to better accommodate connecting passengers alongside its own OD passengers. Another example is easyJet's 'worldwide service' which allows for guaranteed connections with an increasing number of partner airlines at select connection airports. Given that many LCC now also serve the main hubs of legacy carriers and boast substantial cost advantages over the legacies own short- to medium-haul feeder services, this trend is very likely to usher in a new form of cooperation and specialization among legacies – which will focus on long-haul services – and LCC – which will provide most of the short- to medium-haul feed.

5. Conclusions and Outlook

As this paper has shown, long-haul LCC operations are no new phenomenon although they remain for the time being a market niche – and are unlikely to become the dominant paradigm of scheduled long-distance air travel. However, the combination of beneficial – for now – macroeconomic conditions and - permanent - substantial performance improvements in aircraft and engine technology both with respect to narrow-body and wide-body aircraft is opening up numerous opportunities for commercially sustainable growth in some segments of the long-haul market. The largest market potential is likely to be in the 'short- to medium' long-haul segment identified above in chapter 4.2.1. (up to 7,000 km or 6-8 hours of flight time), either nonstop or via an intermediate hub. It is in this very segment where LCC carriers will continue to enjoy sufficient cost advantages over legacies, especially with the entry into service of the most recent generation of narrow-body aircraft. By contrast, the market potential is likely to be much smaller for 'regular' long-haul services (up to 10,000km or up to 12 hours of flight time) and smallest for 'ultra long-haul operations' where LCC remain unable to achieve meaningful cost advantages over legacy carriers. However, even in the latter two market segments, emerging new variants of the traditional hub-and-spoke system – i.e. the 'decentralized multi-hubbing' model and the 'hybrid hubbing' may open up commercial opportunities which cannot be exploited by traditional legacy carriers and their current alliance partners alone.

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