



# ANALYST VIEWPOINT

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## DOES THE S-CURVE STILL EXIST?

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The so-called "S-Curve effect" has been well known since the early 1970s. The S-Curve is the phenomenon by which airlines that achieve a frequency-share advantage attain disproportionately high market shares (e.g. W. Fruhan, "The Fight for Competitive Advantage: A Study of the United States Domestic Trunk Air Carriers", 1972). The effect applies both at airport level (revenues in a catchment area) and at route level (revenues on a city-pair). The S-Curve can be measured by using frequency share (the driver of preference for the time-sensitive traveler) or capacity share (the driver of the total revenue potential in price-sensitive markets) on the x-axis.

With the S-Curve in mind, network managers around the world have been building dominant positions at airports and on routes to capture the revenue premium that goes with such dominance. Additionally, managers have tried to limit the damage in those markets in which they are disadvantaged. They do this either by matching competitors' frequencies (often triggering unnecessary overcapacity), and/or by focusing on connecting traffic or by withdrawing altogether.

Three trends are affecting the S-Curve and the premises on which it is based:

1. The growth of low-cost carriers (LCCs) has created disparity in airlines' value propositions. The S-Curve works best if all actors in a market play by the same rules, which is no longer a given in many markets.
2. The leisure segment has been growing faster than the business segment throughout the last decades and even business travelers have become significantly more price sensitive. This has transformed the overall customer base from being primarily business-heavy and schedule-sensitive into one that is increasingly leisure-heavy and fare-sensitive.
3. Changes in distribution (like zero-commission models for travel agents and increased penetration of the internet channel) have reduced the weight of schedule quality in favor of price in the decision process. It is well known that online booking engines sort flights by fare. However, even in the traditionally schedule-driven GDS channel, just 15% of GDS requests are done by schedule and 50% or so by fare (as observed in a sample of travel agency bookings in Western Europe).

So, does the S-Curve still work in this new environment? To find out, we analyzed point-to-point data in the US domestic market from DOT (2004). Although these data may have some limitations, this is the most comprehensive database that includes revenue data at route level. We segmented all competitive US domestic routes along two dimensions: nature of competition (number and types of carriers) and size of markets (as expressed by the number of daily frequencies) (Figure 1).

The analysis of the S-Curves at route level – using frequency share and taking the reported point-to-point revenues (Figure 2) – reveals a number of interesting insights:

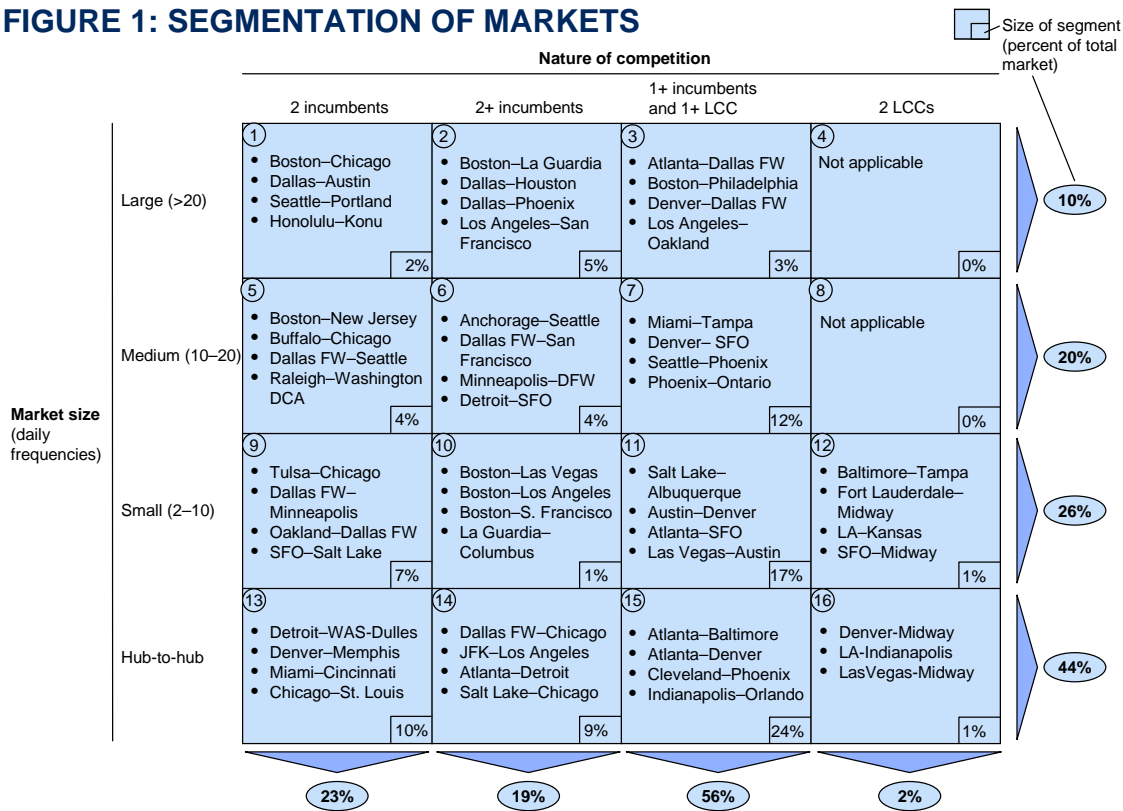
- The S-Curve is still alive and “in good shape” in markets where there is no LCC competition (42% of the revenues in competitive markets).
- The S-Curve is particularly pronounced in markets with two legacy carriers
- The S-Curve effect “collapses” in markets where legacy carriers compete against LCCs (the largest segment, with 56% of the revenues in competitive markets).
- There is no measurable S-Curve effect in markets where LCCs compete against each other, although the sample is quite small (just 2% of the revenues in competitive markets).

While the analysis is not fully conclusive, we can derive a number of implications for airlines:

- The S-Curve principle must be applied in a more tailored and specific way than in the past, especially in markets where there is LCC competition.
- In the trade-off between efficiency (e.g. higher aircraft utilization, larger aircraft) and schedule quality, the balance is moving towards more efficiency, as the “S-premium” will be further eroded through the continued growth of LCCs.
- Lastly, frequency matching and escalation, which has often led to overcapacity and price wars, is becoming obsolete in many markets, potentially paving the way for a better balance of supply and demand.

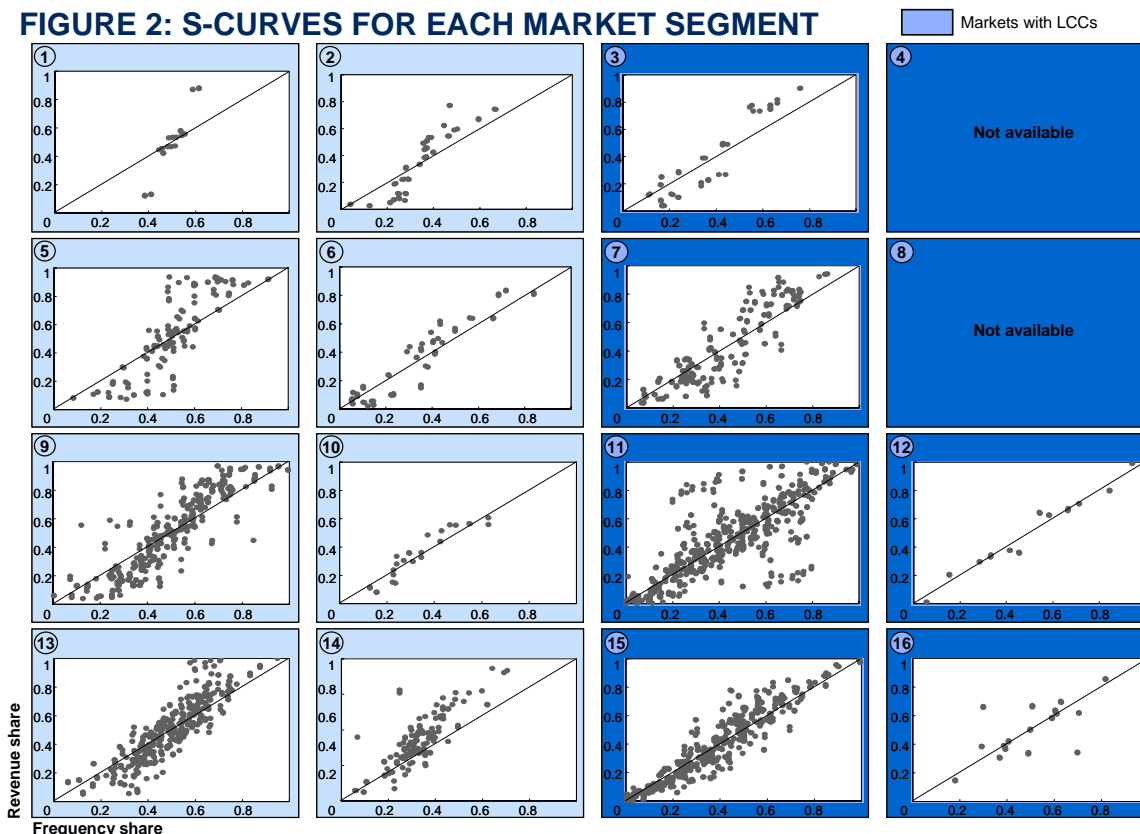
The S-Curve principle has been “hard-wired” in the heads of many network planners for decades. Nevertheless, times are changing and airlines need to take stock of what does and doesn’t work. This applies also to other aspects of network design and management, like the role of connectivity in customer selection, the optimal level of connecting traffic, or the best trade-off between aircraft and crew utilization, to name just a few. These changes in the “rules of the game” are having a significant impact on network tools and processes, and carriers will need to make a major effort to embark on a change-of-mindset journey. Our experience suggests that this change management aspect is of utmost importance and rather challenging; however, it can be done and eventually lead to more efficient and effective networks.

**FIGURE 1: SEGMENTATION OF MARKETS**



Source: OD1A and OAG via BACK Aviation Solutions, McKinsey analysis

**FIGURE 2: S-CURVES FOR EACH MARKET SEGMENT**



Source: OD1A and OAG via BACK Aviation Solutions, McKinsey analysis