

# Impact of International Presence on Service Supply Chain Quality

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**Abstract** — In this paper, we study the implications of international operations on the quality of airline service supply chain at the regional level. As a first study, we take an operations viewpoint of “how well the work is done” and explore multiple quality dimensions of the service supply chain at both international and regional level. In particular, we study the service quality of supplier (ground) services, in-flight products, in-flight entertainment systems, and flight attendants’ efficiencies. We use a global airlines dataset and quality assessments provided by a renowned quality-audit organization to test our hypotheses. We find that when an airline serves international market segment in addition to its regional operations, the quality of the service supply chain also gets better in the regional market. When managers design and manage service quality expectations in multiple market segments, service quality expectations in higher market segment influences the service quality in lower market segment.

**Keywords**—service quality, supply chain management (SCM), international operations, airlines, in-flight entertainment, service efficiency.

## 1. Introduction

It has been embedded in service operations literature that specific target markets require different approaches to the design and management of services [11]. Customers from different markets have varying quality expectations and perceptions [19]. Being aware of these differences, managers design and deliver services focused on meeting the specific service quality gap for customers in that segment. With globalization and rapid technological advances, the world has shrunk into one global village. In this global village, the presence of a service firm in international or domestic (local) market creates both opportunities as well as challenges in meeting customers’ expectations and maintaining quality [4].

Operating in international markets seems to be a natural extension for firms in the airline industry as faster transportation is necessary when distances are farther.

Farther distances usually indicate cross-borders. However, there also exist many firms which choose to focus more on domestic, regional, and shorter haul flights. Hence, we observe a variation in the airline industry when we talk about international presence. On one hand, there are airline corporations that fly transatlantic and transpacific flights and meet the needs of inter-continental trade; on the other hand, there exists airlines that cater extensively to local needs. Both types of airlines irrespective of their target market have service supply chain operations during the flight and in every airport they land to help passengers with check-in, transfer, and baggage delivery.

In manufacturing industries, international presence means having manufacturing plants abroad or acquiring foreign affiliates. Increasingly, more manufacturing firms use specific transnational strategies and leverage efficiencies in the global system. [25] says “an important driver of the global engagement of the U.S. multinationals is their success at configuring the location and scale of their worldwide operations. Thanks to declining trade and investment barriers, the U.S. multinationals can increasingly deploy different firm-wide functions in different countries more efficiently, with linkages across these functions that create opportunities for lower-cost, higher-quality, and faster-response production capabilities.” The implications of such an international presence have been widely discussed for manufacturing and marketing-intensive industries. Their international presence creates global competition which is mutually beneficial for all constituents. Such a global competition results in high-quality lower priced products. Multinational firms create new demand and set new standards of quality [6].

Similarly, service firms that are internationalizing are creating strategies that enhance quality of service delivery to the international market [9]. “As corporations increasingly are attracted to international markets to overcome stagnant domestic market growth and stimulate revenues in various industries, enlightened appreciation of the needs and wants of consumers of other countries are increasingly important for those companies espousing the marketing concept” [26]. Major airline industry

competitors seeking to gain or expand market share globally provide an opportunity to explore the service expectations and perceptions of customers of different nationalities and markets [26].

One may think that airlines in international markets served by long-haul flights will have better service and higher service quality compared to regional short-haul flights. However, due to increasing fuel and operational costs, more and more airlines are managing the trade-off between service quality and prices (airfares). There are increasing numbers of low-cost carriers (LCC) across the globe, which targets both global and regional market segments that search for reduced-price. In these market segments, firms can do away with limited frills. On the other hand, full-service carriers also called legacy carriers target both regional and global market segments that are willing to pay higher price for greater comfort. Both LCCs and full-service airlines are seen in both regional, short-haul routes and international, long-haul routes [18]. [17] studies two LCCs who operate long-haul routes: AirAsia X and Jetstar Airways. They found that airfare and reliability are important factors in perceiving higher quality for such a market segment.

On the other hand, we also observe full-service amenities in some regional, small airlines [18]. Virgin America offers full-service, with meals and high-end in-flight entertainment but predominantly flies within the U.S. "Virgin America is the highest-quality major airline in the United States, according to the 2013 Airline Quality Rating report, an annual study of airline performance" [10]. Ryan Air is a low cost European airline where customers have to pay for any service. "Budget airline Ryan Air has made their name charging for everything from using a plane's toilet to the privilege of sitting down first. But this new charge really takes the cake. The airline is charging passengers an \$11 excess baggage fee for taking pastries out of Mallorca" [12].

Similarly, we find variations in service quality among the international long-haul market segments. Emirates take the top honor as the World Airline Awards and are named the World's best airline in 2013, while Air-Koyo is not ranked well in Skytrax 2013 ranking. Therefore, there is increasing variability in service quality among all airlines, even those that target short-hauls and regional routes. On one hand we see a growing supply of reduced prices at a cost of lower service quality. On the other hand, we see customers' mandate luxurious service at a cost of higher price. Hence, we proceed to study whether managers truly deliver different service quality experiences when target market is predominantly regional and short-haul vs. predominantly international and long-haul.

While the service product for an airline is the transportation of passengers and cargo from an origin to a destination, there are a number of supporting functions that comprise the service supply chain. These functions include flight attendants' activities, food and beverages, in-flight entertainment, and ground services. [24] emphasize the importance of studying the service supply chain when the economy evolves from manufacturing to services.

In this paper, we investigate whether such an international presence vs. regional presence have any implications on the quality of airline service supply chain. We are primarily interested in "how work is done" with an operations management viewpoint. We look for the answer to the questions: Do expanding to international operations lead to better firm performance in the regional market in terms of quality by creating pressure and/or opportunities? Do regional routes provide good quality as international routes since both routes fly a combination of low-cost and full-service carriers? Does international presence and target market of the airlines have different impact on the quality of different product and service delivery departments within the service supply chain?

This paper is part of airline service quality literature. In this literature, some papers focus on customer perceptions of quality [3], [16]; some take a more analytical approach [7], [21]; some look at capacity allocation issues [28]; and some study performance efficiencies [23]. The common attribute of all these papers is the way they define quality. Viewing through a marketing lens, authors define quality as the perception in the minds of the customers, while viewing through an operations lens, they evaluate quality as how "badly" the work is done [22], [14]. In particular, the quality measures used in the operations field are always about the number of complaints, lost baggage, and late arrivals [22], [20]. We contribute to this literature by looking at the implications of globalization on the regional airline operations, and by focusing on "how well the work is done". Our measures of quality are focused on increased customer satisfaction instead of customer "dissatisfaction". To our knowledge, this is the first study looking at implications of the international presence on service supply chain quality measured by "how well the work is done".

The rest of the paper is organized as follows. In Section 2, we build the theory and propose our hypotheses. Then, we present the model and the variables in Section 3. The results are discussed in Section 4. Finally, we conclude the paper in Section 5.

## 2. Theory Building

In this section, we build theory to substantiate our model and hypotheses. While the service product for an airline is the transportation of passengers and cargo from an origin to a destination, there are a number of supply chain functions including flight attendants' activities, food and beverages, in-flight entertainment, and ground services. We will attack the problem from these functional directions and test the impact of international presence on service supply chain quality on multiple dimensions.

### 2.1 Service Suppliers (Ground Services)

As the prominence of the service sector increases, attention is being directed to help understand the issues and complexities within "service" supply chains [8]. We will first look at such supporting functions of the service supply chain and identify them as "service suppliers". This dimension will include how passengers are assisted before and after the actual flight experience. In particular, we look at ground services such as check-in, transfer, arrival, and baggage delivery services of the airlines.

In this dimension, we expect airlines that have international operations to better serve their customers in both international and regional routes. Airlines with international operations have to deal with a larger number of different cultures. Different culture employees may have different perceptions of the work [13] and may deliver inconsistent services. In order to make sure that the work is done appropriately by such a different body of employees, an internationally diverse airline has to develop rigid sets of rules and regulations. This is the only way to streamline multicultural operations. In the existence of firm-wide rules and regulations, not only the long distance international offices but also the regional departments benefit from them. Hence, the multicultural variation would lead to better management of the supplier operations due to increased formalization of the procedures.

*Hypothesis 1: Airlines with international presence provide better quality supplier services in regional routes.*

### 2.2 In-flight Products and In-flight Entertainment

Next, we will look at how the in-flight experiences of passengers are different in different firms with varying levels of international presence. In particular, we consider comfort of the seats, quality and quantity of food and beverages, blankets and pillows, and in-flight entertainment provided to passengers. These are the products that improve the overall flight experience for the passengers.

Imagine flying long distances sitting in a malfunctioning, tiny economy class seat, with no food, beverage, or movie/music service on board. Apparently this would be a very bad example in terms of service quality. Customers would be very upset and never come back for a repeat-purchase. Looking at this example, we could expect that a firm with long distance international flights provide better maintained surroundings which include comfortable seats, enjoyable in-flight entertainment, and better foods and beverages on board. When the firm gets better at providing good quality services in long distance flights, indeed it gets better in all its flights including short-haul flights. For example, when they sign contracts for good quality food and beverage service for long-haul flights, it is cheaper to include the short-haul food service within the same contract due to economies of scale and buyer-power relationship. Thanks to better quality food suppliers contracted by the firm, short-haul flights may also benefit from it. Moreover, firms use same aircrafts for different routes. Comfortable seats and high-technology in-flight entertainment systems of a long distance aircraft may be serving regional and short haul flights the next day. Hence, all passengers benefit from the international presence of the airline. We can observe the impact of airlines having international presence and its effect on regional routes using the example of Virgin Australia and Virgin America. We see that the higher service quality in Virgin Australia's target market (international routes from/to Australian region) has significantly influenced Virgin America, which mostly flies regional within the U.S.

On the other hand, passengers of a regional airline may not need extra comfortable seats or abundance of food and beverages or movie/music services. These customers will arrive to their destinations within a couple of hours and may not care much about the comfort goods. As customers are less concerned with product quality in shorter-flights, firms with no long-haul international flights may not emphasize the product quality needs in their regional flights. Hence, we expect that an airline with long-haul international presence would provide better in-flight products and in-flight entertainment even in the short-haul flights due to its product variety and economies of scale.

*Hypothesis 2: Airlines with international presence provide better quality in-flight products in regional routes.*

*Hypothesis 3: Airlines with international presence provide better quality in-flight entertainment in regional routes.*

### 2.3 Service Efficiency

At the core of the service supply chain is the customer's experience with the flight-attendants during the flight. Flight attendants are responsible from announcing the safety procedures [13]; answer passengers' questions about the flight such as duration and weather conditions; help passengers to place their carry-on into appropriate locations inside the aircraft; help passengers finding their seats; and make sure that the in-flight products are in adequate supply and in good condition (<http://job-descriptions.careerplanner.com/Flight-Attendants.cfm>). All these duties are critically important for all the passengers. Especially for the elderly and young children, help of the flight crew is a necessity. When well-performed, it makes a substantial impression on the passengers' perception of the overall service experience. Not only it increases repeat-purchases, but also it increases the demand through word-of-mouth. Hence, the quality of the flight crew operations is one of the most important dimensions within the airline service supply chain.

Because of increased training for flight crew in firms with international long-haul presence, the high-quality training may improve the service provided by the flight crew in regional routes. Without doubt, the requests and questions of customers flying long-haul are much more in quantity as well as in more detail than those that fly short-haul. More hours of flight duration increases the variation in requests. In such long flights, flight attendants need to be more patient, more responsive, and more energetic. All these qualities are gained by training and experience. These firms may even choose to hire only the employees that have a potential to possess such qualities. Hence, we expect the flight attendants of airlines with long-haul international flights to be better chosen, better trained, and better experienced than those of airlines with only short-haul and regional flights.

*Hypothesis 4: Airlines with international presence have better service efficiency in regional routes.*

## 3. Methodology and Data Analysis

### 3.1 Sample

We use the airline industry for this study since the service standards are very well established around the globe. Skytrax Research is a globally recognized, independent professional audit organization that provides detailed quality analysis for over 800 different areas of product and service delivery in the airline industry including service supply chain components and service products (Skytrax website: <http://www.skytraxresearch.com/>). They employ professional auditors to assess the quality of the work

done in an airline, both onboard and in the airport terminals. They recognize airlines and airports through yearly awards based on Airline Quality Audit and World Airport Audit. It is very important to note that these ranking are not based on customer feedback or reviews. Hence, culture of the customers has no impact/bias on the evaluation of service providers' assessment. Every year, airlines' assessments are revised and publicly announced through the website. Annual quality ranking assigned to different service delivery areas range from 0 to 5 stars. For airlines, gaining a "Skytrax star-ranking" or advancing to a higher ranking is a matter of reputation. Quality assessments for the dependent variables in our model are obtained from Skytrax Research.

In this study, detailed quality assessments are derived for economy class, short-haul category during the year 2011. These rankings have been studied in prior research [27], [16]. All quality measurements that are relevant to service supply chains and also publicly available for each firm are included in our study. In our final sample, 76 airlines from across 49 different countries are included. Table 1 includes the list of firms and their origin countries.

### 3.2 Variables

#### 3.2.1 Independent variable

In our study we are interested to evaluate the effect of international, long-distance routes' existence on the quality of the service supply chain in regional routes. Therefore, we define international presence as the extent to which airlines fly international, long-haul routes. We measure the international presence of an airline using a dichotomous measure. A value of 1 indicates that the airline operates in international long-haul routes including intercontinental flights. A value of 0 indicates that the airline operates only in regional routes closer to the home country.

#### 3.2.2 Dependent variable

Our dependent variables include supplier services (ground services), in-flight products, in-flight entertainment, and service efficiency. Each of these variables is explained below.

##### (a) Supplier (Ground) Services

All airlines provide ground services for their passengers in both international and regional routes. Typically, ground services are of higher quality in international routes than regional routes. In order to determine the effect of airlines operating in higher market segment on lower segment, we use Skytrax rating for each of the four ground services pertaining to economy, short-haul flights. The supplier services (ground services) include check-in services,

transfer services, arrival assistance and baggage delivery. Skytrax provides a five point quality audit on each of

these variables, which we aggregated to form supplier (ground) services independent variable.

**Table 1.** List of Airlines and their Home Countries

| Airline Name             | Origin           | Airline Name                    | Origin         |
|--------------------------|------------------|---------------------------------|----------------|
| Virgin Australia         | Australia        | Air Baltic                      | Latvia         |
| Austrian Airlines        | Austria          | Malaysia Airlines               | Malaysia       |
| Gulf Air                 | Bahrain          | Air Namibia                     | Namibia        |
| Brussels Airlines        | Belgium          | Martinair                       | Netherlands    |
| Royal Brunei Airlines    | Brunei           | Air New Zealand                 | New Zealand    |
| Air Canada               | Canada           | Oman Air                        | Oman           |
| Air China                | China            | Philippine Airlines             | Philippines    |
| Cathay Pacific Airways   | China            | Qatar Airways                   | Qatar          |
| China Airlines           | China            | Aeroflot Russian Airlines       | Russia         |
| China Southern Airlines  | China            | Transaero Airlines              | Russia         |
| Dragon Air               | China            | Sky Express                     | Russia         |
| Hainan Airlines          | China            | S7 Airlines (Siberian Airlines) | Russia         |
| Shandong Airlines        | China            | Saudi Arabian Airlines          | Saudi Arabia   |
| Shanghai Airlines        | China            | Singapore Airlines              | Singapore      |
| Shenzhen Airlines        | China            | South African Airways           | South Africa   |
| Avianca                  | Colombia         | Air Europa                      | Spain          |
| Egyptair                 | Egypt            | Air Nostrum                     | Spain          |
| Estonian Air             | Estonia          | Iberia Lineas                   | Spain          |
| Air Pacific              | Fiji             | Spanair                         | Spain          |
| Finnair                  | Finland          | SAS Scandinavia Airlines        | Sweden         |
| Air Austral              | France           | EVA Air                         | Taiwan         |
| Air France               | France           | Thai Airways                    | Thailand       |
| Air Caraibes             | French Caribbean | Tunisair                        | Tunisia        |
| Air Tahiti Nui           | French Polynesia | Turkish Airlines                | Turkey         |
| Air Berlin               | Germany          | Onur Air                        | Turkey         |
| Lufthansa                | Germany          | Emirates                        | UAE            |
| Hong Kong Airlines       | Hong Kong        | Etihad Airways                  | UAE            |
| Air India                | India            | British Airways                 | United Kingdom |
| Jet Airways              | India            | Monarch Airlines                | United Kingdom |
| Garuda Indonesia         | Indonesia        | Thomas Cook Airlines            | United Kingdom |
| Aer Lingus               | Ireland          | Thomson Airways                 | United Kingdom |
| El Al Israel Airlines    | Israel           | Virgin Atlantic Airways         | United Kingdom |
| Air Dolomiti             | Italy            | Hawaiian Airlines               | United States  |
| Meridiana                | Italy            | US Airways                      | United States  |
| Royal Jordanian Airlines | Jordan           | JetBlue Airways                 | United States  |
| Air Astana               | Kazakhstan       | Southwest Airlines              | United States  |
| Kenya Airways            | Kenya            | PLUNA Lineas Aereas             | Uruguay        |
| Kuwait Airways           | Kuwait           | Air Zimbabwe                    | Zimbabwe       |

(b) *In-flight products*

In addition to the supplier services in the ground, airline supply chain includes the delivery of in-flight products to maintain higher comfort and quality for their passengers. To determine relative difference in quality of in-flight products delivered by airlines that has international presence and that does not, we use Skytrax quality ratings of products provided in economy, short-haul flights.

In-flight product quality is measured by four variables, namely the seat comfort (including dimensions of seat and legroom); quality and variety of snacks, meals and beverages; their quantity; and the quality of blankets and pillows. Recently, most airlines in regional routes offer 'buy-on-board' meals and beverages. So, we included both quality and choice of snacks, meals and beverages to cover scenarios where meals have to be bought or where meals are included in the ticket purchase. Each of the four variables has five-point Skytrax quality assessment for

economy, short-haul flights. We aggregated these assessments to measure the overall quality of the in-flight products.

### (c) *In-flight entertainment*

Quality of in-flight entertainment is defined as “the extent to which passengers’ expectation of audio systems (music options) and video systems (video-on-demand, computer games, destination information, financial services, shopping catalogues, exterior-view cameras) is delivered to them in regional and international flights”. [1] found that quality of in-flight entertainment significantly affects customers’ overall level of satisfaction. [2] showed that in-flight entertainment in short-haul flights particularly film and broadcasts, music, call options, etc. is a distinctive service attribute. [5] also found that service quality is impacted by in-flight entertainment materials and programs.

In-flight entertainment is measured by the assessment of Skytrax auditors. They provide a five point quality audit on this dimension. Note that zero value is acceptable in this category, because some firms do not offer any in-flight entertainment in their regional, short haul routes at all.

### (d) *Service efficiency*

This variable is one of the most important variables as it relates highly to psychological aspects of the customer perceptions. This variable measures the responsiveness, flexibility, and behavior of the flight attendants during the flight. It relates to how fast the solutions are found when passengers request help or asks questions, and how efficiently tasks are handled inside the cabin.

Similar to the in-flight entertainment variable, we use the assessment of Skytrax auditors directly. This variable has a five-point Skytrax quality assessment for economy, short-haul flights.

### 3.2.3 *Control variable*

Other characteristics such as size of the airlines and the GDP of the originating country may affect the quality offered by the firm. Larger the airlines, the firm has higher resources to design and develop better service delivery systems. We use the total assets data to control for the effect of airline size on the quality of service supply chains. We only include the airlines that have their assets data publicly available. We also collect the GDP data from World Bank database. We use a natural logarithmic transformation to maintain normality assumptions for both of our control variables.

## 3.3 Model

In order to evaluate the effect of international presence on service supply chain quality, we ran a series of OLS regressions. We tested our hypotheses through four regressions, one for each dependent variable that measures the quality of service in different stages of service supply chain.

We checked the assumptions related to the regression analysis prior to conducting the analyses. We found that the residuals satisfy the distributional assumptions and variation inflation factors indicated that there is no multicollinearity problem [15]. We present the descriptive statistics in Table 2. The descriptive statistics includes the sample size for each variable, minimum, maximum, mean and standard deviation values.

All four regressions included control variables, natural logarithm of airline assets and natural logarithm of countries’ GDP. We found that all four regressions are statistically significant and the results are tabulated in Table 3.

**Table 2.** Descriptive Statistics

|                         | N  | Minimum | Maximum | Mean   | Std. Deviation |
|-------------------------|----|---------|---------|--------|----------------|
| Service Suppliers       | 73 | 6.40    | 16.50   | 12.107 | 2.321          |
| In-flight products      | 75 | 5.00    | 16.00   | 12.295 | 2.433          |
| In-flight entertainment | 76 | 0.00    | 4.50    | 2.513  | 1.152          |
| Service efficiency      | 75 | 3.00    | 5.00    | 3.620  | 0.592          |
| International presence  | 73 | 0       | 1       | 0.670  | 0.473          |
| Assets                  | 73 | 12.00   | 24.5    | 21.027 | 2.261          |
| GDP                     | 76 | 8.17    | 16.57   | 13.409 | 2.049          |

**Table 3.** Regression Results

|                        | Supplier Services | In-flight products | In-flight entertainment | Service efficiency |
|------------------------|-------------------|--------------------|-------------------------|--------------------|
| Constant               | 5.076             | 8.298              | 0.549                   | 1.521              |
| International presence | 1.934***          | 1.508**            | 0.551*                  | 0.460***           |
| Assets                 | 0.179             | 0.144              | 0.111*                  | 0.062*             |
| GDP                    | 0.139             | -0.004             | -0.051                  | 0.037              |
| R <sup>2</sup>         | 0.248             | 0.135              | 0.164                   | 0.285              |
| Adj. R <sup>2</sup>    | 0.214             | 0.097              | 0.127                   | 0.254              |
| F                      | 7.248             | 3.536              | 4.496                   | 9.047              |
| N                      | 69                | 71                 | 72                      | 71                 |

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 4. Results and Discussion

### 4.1 Results

The first regression tests the extent to which international presence of airlines affects the quality of supplier services in the ground in regional routes. The second and third regression evaluates the impact of international presence of an airline on the quality of in-flight products, and quality of in-flight entertainment in regional routes respectively. The last regression determines the effect of international presence on the service efficiency inside the cabin when a regional flight is en route. We find that in all the regressions international presence has a significant positive impact on the quality of services in different stages of the supply chain. We will discuss the implications of each hypothesis in the next sub-section.

### 4.2 Discussion

We find that airlines that have international presence have statistically significant positive influence on the quality of supplier services, specifically ground services that include arrival services, check-in services, transfer services, and baggage delivery in the regional routes. Airlines that have international presence know that there are higher expectations of quality from passengers in international routes. However, we find that when those airlines serve economy, regional route market segment, the same level of service is provided to this market segment as well. Even after considering the asset of the airline and the GDP of the home country, we still find that there is a positive impact on the quality of the supplier services for flights in regional routes when airlines also operate in international market segment. Therefore, we find support for our Hypothesis 1.

Similarly, we find that the airlines that have international presence provide higher quality in-flight products in their regional routes, even after controlling for asset of the airline and GDP of the airlines' home country. Airlines operating in international routes have higher

quality suppliers providing better quality products for international routes. Based on our results, we find that those airlines may have used the same supplier for purpose of economies of scale and centralization, and offer better quality products in regional routes as well. In-flight products include food and beverages, comfortable seats, blankets, and pillows. The result of second regression provides support for our Hypothesis 2.

Quality of in-flight entertainment measures the quality of video and audio systems for flights in regional routes. We find that there is a significant positive impact on the quality of in-flight entertainment on regional routes when airlines also operate in international routes. We also find that larger airlines (with larger assets) have better resources to provide higher quality in-flight entertainment systems in the regional route. Therefore, large and wealthy airlines operating in international, long-haul routes are likely to provide the best quality of in-flight entertainment systems in their regional routes. This finding supports our third hypothesis.

Finally, service efficiency within the cabin is higher in regional routes for those airlines that operate in international long-haul routes. Flight-crew with advanced training in safety procedures and in-cabin service to serve passengers in international routes, we find that the flight crews provide higher level of service in the regional flights as well. Larger airlines with larger assets have better resources and capability to provide better training. Therefore, airlines expanding to international routes provide higher quality of services inside the cabin for regional flights. This shows support for hypothesis 4.

## 5. Conclusion

Traditionally, the world had only seen low cost carriers for regional, short-haul flights and full-service, legacy carriers for international, long-haul routes. However, in recent years, we observe an increase in the other direction: low-cost carriers in international routes and full-service, legacy carriers in regional routes contrary to traditional

norms. This has led to variations in quality of service among international airlines and regional airlines. Therefore, in this study, we investigate if an airline which typically operates in long-haul, international routes has higher quality levels in the service supply chain of its regional routes.

We use a global airlines dataset and quality assessments provided by a renowned quality-audit organization to test our hypotheses. We measure quality assessments on supplier services in ground, in-flight products, in-flight entertainment, and service efficiency in the cabin for economy, regional flights. We find that airlines that have international presence, have set higher internal expectations and deliver high quality services to their regional flights, even after accounting for the airlines' size and home country's economic development. When managers design and manage service quality expectations in multiple market segments, service quality expectations in higher market segment influences the service quality in lower market segment.

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