INVERSE PRICE/QUALITY TRADEOFFS IN THE REGULATED AIRLINE INDUSTRY

By Randall W. Bennett and Kenneth D. Boyer*

1. INTRODUCTION

It is a popular view that it is impossible for elevated prices to produce above-normal profitability in regulated competitive industries. To gain competitive advantage, sellers offer higher quality services, and in the process they dissipate the profits associated with higher prices. The resulting regulated competitive equilibrium has higher prices and higher service quality, but identical profit levels to those in a competitive industry.

This view was especially influential in making the political case for US airline deregulation. Keeler (1972), White (1972), Douglas and Miller (1974), Eads (1975), De Vany (1975), Schmalensee (1977), Panzar (1979), Vander Weide and Zalkind (1981) and others held that Civil Aeronautics Board (CAB) pricing policies caused airline service quality—the basic measurement of which has been taken to be flight frequency—to be higher in high-price markets than it would have been in an unregulated equilibrium. Deregulation was expected to lower prices and, with it, service frequency.

There is growing evidence that the reduction in flight frequency that was predicted to follow US airline deregulation did not occur. Morrison and Winston (1986) and Bailey, Graham and Kaplan (1985) found the increase or constancy of overall flight frequency after deregulation to be “surprising”. Does this “surprising result” invalidate the assumed direct relationship between regulated prices and service quality, or was airline deregulation not a fair test of the theory? We believe that changes in aggregate flight frequencies after airline deregulation do not provide a fair test of the theory: regulation did not hold all fares above an equilibrium level, and aggregate statistics are affected by the replacement of large aircraft with smaller ones and the replacement of non-stop service with multiple-stop services. In this paper we argue that an increase in flight frequency could have been expected in markets where prices fell and in which the confounding factors were absent.

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In section 2 of this paper we adapt to the conditions of the airline industry a model developed by Beesley and Glaister (1983). These conditions make it reasonable to expect to find inverse price-quality tradeoffs in the airline industry. Briefly, our explanation for the "surprising result" is that lower prices increase the number of passengers, and that service frequencies may increase to accommodate them. Subject to the relative size of demand elasticities and the response of consumers to various quality elements, higher fares can produce a lower equilibrium level of service quality.

In section 3 we test the theory of an inverse price/quality relationship in the airline industry by comparing flight frequencies in large airline markets before and after US airline deregulation. By limiting the analysis to the largest airline markets, we reduce the influence of two factors that have hitherto confounded the tests of price/quality relationships: (1) the development of single-line hub and spoke systems to serve medium-size markets, and (2) in small markets, the replacement of large aircraft by smaller ones. In accordance with our expectations, we find that markets which could be presumed to have had the largest positive price distortions under regulation show an increase in flight frequency after deregulation. We also provide limited evidence that frequency restrictions in concentrated markets were more prevalent in the previous regulated environment. Section 4 summarises and concludes the paper.

2. A MODEL OF SERVICE QUALITY WITH LOAD FACTOR LIMITATIONS

In a recent paper, Beesley and Glaister (1983) noted that conditions of demand and production in the taxicab industry make it possible for higher service quality (measured as lower waiting times) to be the result of lower per-hour charges for cab rides. We argue that similar conditions hold for the regulated airline industry: production cannot be made to order, customers are sensitive to the speed with which they receive service, and there is a technical cap (the size of the vehicle) on the number of customers that can be served by each unit of production.

In our model of industry equilibrium we abstract from the multiple prices and service attributes offered by airlines:

\[ Q = Q(P, N, X) \]  \hspace{1cm} (1)

\[ C = C(N, Q) \]  \hspace{1cm} (2)

Production identity \[ NX = Q(P, N, X) \]  \hspace{1cm} (3)

where:

- \( Q \) is the number of seats willingly purchased per week;
- \( P \) is the price of the service;
- \( N \) is the number of flights per week;
- \( X \) is the average number of seats that are filled on an airplane. (This is the product of the size of the plane and the percentage of seats that are filled. In this paper, we will assume that aircraft size is 100 seats, and so \( X \) will be identical to the load factor.)
Industry demand (equation 1) depends on price, service frequency, and load factor. Associating service quality with low delay time is one way of understanding the variables in equation (1). Higher frequencies should mean less schedule delay and thus a higher quality service, which more passengers wish to use. Load factor is logically bounded between 0 and 100. As load factor increases, it becomes less likely that a customer will find a seat on his or her preferred flight and more likely that an extended wait will be required. As load factor approaches 100 per cent, the implied delay will increase without bound. This implies that:

$$\lim_{X \to 100} Q = 0$$

(4)

Equation (4) states that it is impossible to operate a scheduled service in which the average load factor is guaranteed to be 100 per cent. A service which flies so infrequently as to guarantee a 100 per cent load factor will attract vanishingly few passengers.

The cost curve (2) states that total cost depends on the number of passengers carried and the number of flights offered. Equation (3) is an identity that links supply and demand for airline service. In simplest terms, it states that load factor times flight frequency must be equal to total demand.

Assuming that $P$ is exogenously varied, taking total differentials of the system of equations (1) to (3), we find that:

$$\frac{dN}{dP} = \frac{(\partial Q/\partial P)}{[X - (\partial Q/\partial X)]} + \frac{[(\partial Q/\partial X) - N]}{[X - (\partial Q/\partial N)]} (\partial X/dP)$$

(5)

According to equation (5), the rise or fall of flight frequency will depend on two separate factors: (1) the responsiveness of demand to price, $\partial Q/\partial P$, and (2) a term containing $dX/dP$, which describes how load factor changes with price. We call the first factor the “demand effect” and the second the “load factor effect”. The denominator, the difference between the average and marginal load factors, will be positive in normal operating ranges.

The demand effect will be negative, corresponding to a negative quantity response to higher prices. In general, the load factor effect will be positive: by equation (4) the partial response of consumer demand to higher load factors, $\partial Q/\partial X$, will be negative. Similarly, one would expect an inverse relationship between prices and load factors, thus making $dX/dP < 0$. As noted by Beesley and Glaister (1983) for the taxicab market, the overall effect on service frequency can be either positive or negative. In highly price-sensitive markets where load factors do not vary significantly with price, quality and price should move inversely. If load factor is highly flexible and responsive to price, the standard tradeoff between price and service quality will be found.

The derivative $dX/dP$ in equation (5) is not defined within the model described so far. We follow the classical literature by choosing the simplest mechanism, and assume that the market is characterised by capacity competition and homogeneous suppliers, so that all carriers have the minimum profitable load factor.

Zero profit: $C(N, Q) = P Q(P, N, X)$

(6)

Taking total differentials of the system of equations defined by equations (1),
(2), (3), and (6) yields the following relationship between price and flight frequency, holding profit constant at zero:

\[
\frac{dN}{dP} = \frac{N(\frac{\partial Q}{\partial P})[P - (\frac{\partial C}{\partial Q})] + Q[N - (\frac{\partial Q}{\partial X})]}{\left[X(\frac{\partial Q}{\partial X}) - N(\frac{\partial Q}{\partial N})\right] \left[P - (\frac{\partial C}{\partial Q})\right] - (\frac{\partial C}{\partial N})[(\frac{\partial Q}{\partial X}) - N]} \tag{7}
\]

The introduction of the zero profit condition — which implies an inability to cross-subsidise money-losing services successfully by controlling the fare structure (average cost will rise to price on each route) — is insufficient to sign the derivative \(dN/dP\). The first term in equation (7) corresponds to the demand effect and has a negative sign. The second term, the load factor effect, has a positive sign. The sign of \(dN/dP\) is determined by the relative sizes of the load factor and the demand effects.

It is worth noting that, at the opposite extreme, a regulated monopoly provider would wish to restrict flight frequency to the point where the marginal net revenue from an additional flight was equal to the marginal cost:

\[
[P - (\frac{\partial C}{\partial Q})] \frac{dQ}{dN} = (\frac{\partial C}{\partial N}) \tag{8}
\]

Price regulation is insufficient to achieve a competitive result in this case; even if a monopoly and a competitively organised industry were regulated to have the same price, the monopoly industry would have a lower flight frequency. It is reasonable to presume that actual markets would reach an equilibrium at some point between the two equilibria defined in equations (7) and (8).

An illustrative simulation

While the relationship between price and airline flight frequency is formally indeterminate, there are areas within which the relationship is direct and others in which it is indirect. These areas are discrete and can be described for particular functional forms. In this section we provide a simulation based on the following three equations to illustrate the areas of direct and indirect relationships between price and flight frequency.

Demand: \[ Q = 1000000(1 - L^2)^{0.5}/\exp\{0.03P + (3/N)\} \] \tag{9}

Cost: \[ C = 10000N + 10Q \] \tag{10}

Production identity: \[ N100L = Q \] \tag{11}

where \( L \) = percentage of the 100-seat capacity of the airplane that is occupied.

Price and flight frequency enter the demand curve in the manner typical of transport demand equations. Load factor enters the demand equation with a functional form which has the property defined in equation (4) and which guarantees an interior solution. Parameters of the demand curve were chosen to place the solution in a reasonable operating area.

Figure 1 displays iso-cost curves from equation (10), which treat costs as equal to $10,000 per flight and $10 per passenger; iso-revenue curves are from equations (9) and (11). Points below a ray with a slope corresponding to 1 flight/100 passengers are technologically infeasible — that is, they would require that load factors be greater than 100 per cent. The particular form of the demand curve
chosen enforces this condition, while providing interior solutions. This produces iso-revenue curves with a smoothed wedge shape defined between a zero load factor (a vertical ray) and a 100 per cent load factor (a ray with slope determined by size of plane).

The vertical distance between revenue and costs is profits. Figure 2 shows a zero-profit quasi-ellipse generated by the iso-revenue and iso-cost curves in Figure 1. Since the iso-revenue curves all lie above a ray corresponding to a 100 per cent load factor, all points on the ellipse displayed in Figure 2 must lie above the same ray. The profit-maximising combination of flights, passengers, price and load factor was calculated to be at point A, at which the industry would charge a price of $155 and offer 49.1 flights per week. This would result in a load factor of 0.875, a passenger count of 4296, and a profit of $134,000. The upward-sloping curve through point A shows the combinations of flights and passengers that are consistent with a fixed price of $155. The upward-sloping lines through points C and D are similar curves drawn for different prices. For a fixed price of $155, a price-taking industry would add flights up to point B, on the zero profit ellipse,
where both frequency and passengers would be higher than at point A. If the price falls and the zero profit condition is maintained, the industry will move along the arc BC, increasing flights to accommodate the increase in passengers attracted by lower prices. In this price range, the demand effect is stronger than the load factor effect. Point C, corresponding to a price of $127, represents the highest number of flights consistent with zero profits. If prices continue to fall beyond $127, passengers will increase but flight frequency will decrease, as airlines increase load factors to maintain zero profits. Only between points C and D, the area in which the load factor effect outweighs the demand effect, is there an inverse relationship between price and quality. Point D, with price = $123, corresponds to the largest number of passengers consistent with zero profits. If prices continued to fall below this point, the zero profit condition would require such high load factors that passenger counts and flight frequency would both fall.

The approximately elliptical shaped iso-profit locus in Figure 2 is determined by the relative size of the responsiveness of demand to flight frequency, to price,
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and particularly to load factor. The stronger the response to load factor, the
narrower the upward-sloping ellipse and the more likely it will be that a drop in
price will increase flight frequency. If there is little effect of load factor on
demand, the ellipse will be wider, points C and D will be further apart, and there
will be a broader range of prices in which the load factor effect dominates and in
which the classic price/quality tradeoff is found (see DeVany, 1975).

In addition to the price effects portrayed as moving the equilibrium around the
zero-profit ellipse, the entry restrictions of economic regulation may have the
effect of moving the industry inside the ellipse. At every price level, a monopoly
will wish to restrict flight frequency to produce a higher and more profitable load
factor, and a reduction in monopoly power should cause an increase in output,
represented by a movement along an iso-price line in Figure 2 from a point inside
the ellipse to one closer to the zero-profit locus. If the easier entry of deregulation
makes collusion more difficult, an increase in flight frequency will result, even if
prices do not change.

3. THE PATTERN OF SERVICE QUALITY CHANGES
AFTER DeregULATION

The theory of quality determination outlined in section 2 of this paper derives its
results from the assumption that an uncontrolled element of behaviour will adjust
to dissipate excess profits if a regulated price on a route is set above a competitive
level. In the model outlined above, changing capacity on a route is the only means
of dissipating profits. But at the network level there are many possible ways for firms to dissipate potential excess profits resulting from prices held higher than
the competitive level. For example, workers may demand a portion as increased
salaries and wages; profits may be dissipated by competition in advertising and
other sales promotions, or by expenditure on baggage handling and other aspects
of customer service. Capacity competition is not the only logical explanation for
the observed unprofitability of airlines under regulation.

In view of the large number of factors that can be used to adjust revenue and
cost at the aggregate level, it is inappropriate to test the theory of an inverse
relationship between regulated price and service quality by using aggregate or
system-level data. Rather, if there is a service quality response to regulation, it
should be apparent in a change in the pattern (as opposed to level) of service
frequencies as competition forces prices closer to the costs of serving individual
routes. Flight frequency is determined in single markets and, together with the
jointly determined load factor, is the only element of quality that is varied from
market to market. On the basis of the simulation in section 2 above, we believe
that the higher the margin between \( P \) and \( (\partial C/\partial N)/100 \) (the per-seat cost of
operating a flight), the more likely it is that the regulated price will intersect the
zero-profit locus at a lower frequency than that consistent with the competitive
price. The higher the price/seat cost margin before deregulation, the greater the
increase in flight frequency after deregulation.

Both before and after deregulation, various discounts were available in the large
markets used in this study; there were more discounts after deregulation than
before. There is no publicly accessible information on the pattern of discounts across markets; since we believe that such information would be required for meaningful price measurements, we have not attempted to gather any data on prices. Instead we use two indirect indicators of the degree to which the pre-deregulation price was raised above the competitive level in our sample of large, predominantly long-distance markets. Our first measure is the distance between the city pairs in the market. There is ample evidence that, before deregulation, price-cost margins were held high on long-distance routes and relatively low on shorter routes (Bailey, Graham and Kaplan, 1985). A second measure is the amount of entry into the market after deregulation; we assume that the markets with the greatest post-deregulation entry were those that had the highest prices in the regulated price structure.

To test the theory that regulated air transport had an inverse price/quality tradeoff, we investigated the pattern of flight frequency changes in the 100 largest US air travel markets over the period 1974 to 1981. Intrastate routes are excluded because the CAB did not collect data on intrastate carriers and their rates were differently regulated. Routes that did not appear in all years are also excluded. The final sample consists of 80 routes. By limiting the data to the largest markets, we have eliminated the effect on frequencies of replacing larger aircraft with several smaller ones; in these large markets, the size of aircraft remained approximately constant after deregulation. Our estimating equation is:

\[
\Delta FLTS = f(\text{Ln POP, DIST, VAC, H74, HUB, RESTRICT, QTYENTRY})
\]  \hspace{1cm} (12)

where:

\[
\Delta FLTS = \text{change in the number of flights on a route during second quarters, 1974–76 to 1979–81;}
\]

\[
\text{LnPOP} = \text{natural logarithm of the sum of the populations of the two cities on a route in 1977;}
\]

\[
\text{DIST} = \text{the air mileage between the two cities on a route;}
\]

\[
\text{VAC} = 1 \text{ if a city is a vacation destination, 0 otherwise;}
\]

\[
\text{H74} = \text{Herfindahl index of market structure calculated with the market shares of non-stop flights between the two cities in 1974;}
\]

\[
\text{HUB} = 1 \text{ if cities are major hubs, 0 otherwise;}
\]

\[
\text{RESTRICT} = 1 \text{ if landing restrictions are in force at an airport and 0 otherwise;}
\]

\[
\text{QTYENTRY} = \text{the net number of firms entering the market between 1974 and 1981.}
\]

Since equation (12) is designed to find changes in the pattern, rather than changes in level of frequency, factor prices are not appropriate variables. \text{LnPOP} and \text{HUB} are intended to control for the extensive restructuring of airline networks as hub-and-spoke systems. While these large routes should not have been seriously affected by the replacement of non-stop with one-stop and two-stop service associated with hubbing, many of the cities in the sample are the airline hubs which were strengthened by deregulation. \text{HUB} and \text{LnPOP} are intended to control for the effects of hubbing and spoking, and coefficients on the variables
are interpreted as reflecting the non-price-induced effects of deregulation. VAC is intended to control for the differential changes in charges to business and vacation travellers that resulted from deregulation. RESTRICT controls for non-market limitations on flight frequency. The 1974 concentration is included to test for the possibility that regulatory entry restraints allowed airlines to reduce regulated flight frequencies in markets of high concentration.

Changes in flight frequency before and after deregulation are estimated by taking the average non-stop flight frequency on a route in the second quarter 1979–81 less the average non-stop flight frequency in the second quarter 1974–76. By taking averages, we should account for any short-term disturbances in the markets. The three years after deregulation are used because the period is short enough to be comparable to the earlier years, but long enough to detect some non-transitory changes. The strike of air traffic controllers late in 1981 and the recession of the early 1980s are other reasons why 1981 is an often-used stopping point for studies of US airline deregulation.

Table 1 contains descriptive statistics of the data set and more precise descriptions of the construction of the variables. Table 1 shows that there has been a very modest increase in the total number of flights between the pre- and post-deregulation periods, though there is apparently a wide variation across markets. The average length of flights in our data set is 986 miles. Approximately 24 per cent of the markets had a vacation destination as one endpoint, 50 per cent of the routes had major hubs as endpoints, and 65 per cent had as one endpoint an airport with flight restrictions. On average, the typical market experienced net entry of 0.76 airline companies.

The regressions in Table 2 explain approximately one third of the variance in the data series. As expected, the existence of a hub did not affect the flight frequency in these very busy, predominantly long-distance routes. The existence of flight restrictions at an endpoint airport did not have a statistically significant effect on flight frequencies in these profitable markets. The finding by Morrison and Winston (1985) that deregulation decreased flight frequencies between large population centres and increased them for flights between smaller cities is confirmed, even for these large non-stop markets, as seen in the negative coefficients on population in Table 2. We believe that the negative coefficient on InPOP is accounted for by the larger number of non-stop flights between large cities that were converted to one- and two-stop services.

The results in Table 2 show that the degree of pre-deregulation concentration (which we assume is related to the degree to which markets move along an iso-price line inside the zero-profit ellipse) is positive but statistically significant at traditional levels in only one of the functional forms. This gives weak support for the hypothesis that tacit restrictions on flight frequencies in concentrated markets were made more difficult by deregulation.

The strongest determinants of routes with increased frequencies are length and the quantity of entry. Both these variables are related to high prices before deregulation. The markets in which prices after deregulation are believed to have fallen most are those which showed the greatest increases in frequencies. This is in accord with our expectation that higher prices reduce service frequencies in airline markets. In this industry there is an inverse price-quality tradeoff.
TABLE 1

Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnPOP</td>
<td>16.240</td>
<td>0.784</td>
<td>14.608</td>
<td>18.032</td>
</tr>
<tr>
<td>DIST</td>
<td>986.187</td>
<td>684.125</td>
<td>215.000</td>
<td>2703.000</td>
</tr>
<tr>
<td>VAC</td>
<td>0.237</td>
<td>0.428</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>H74</td>
<td>453.212</td>
<td>104.543</td>
<td>198.000</td>
<td>707.000</td>
</tr>
<tr>
<td>HUB</td>
<td>0.500</td>
<td>0.503</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>RESTRICT</td>
<td>0.650</td>
<td>0.479</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>QTYENTRY</td>
<td>0.762</td>
<td>1.150</td>
<td>-2.000</td>
<td>4.000</td>
</tr>
<tr>
<td>ΔFLTS</td>
<td>18.208</td>
<td>433.961</td>
<td>-1207.666</td>
<td>965.333</td>
</tr>
</tbody>
</table>

Sources:


LnPOP = Natural logarithm of the sum of the populations of the two cities on a route. From Sales and Marketing Management, various issues.

DIST = the air mileage between the two cities on a route. From CAB official table of distance.

VAC = 1 if a city is in Florida, Nevada, or Hawaii, and 0 otherwise.

H74 = Herfindahl index of market structure, calculated with the market shares of non-stop flights between the two cities in 1974. From Schedule Arrival Performance in the Top 100 Markets by Carrier. Civil Aeronautics Board, various issues.

HUB = 1 if cities are major hubs for an airline as identified in Bailey, Graham and Kaplan (1985), and 0 otherwise.

RESTRICT = 1 if landing restrictions are in force at either airport as identified in Bailey, Graham, and Kaplan (1985), and 0 otherwise.

QTYENTRY = the net number of firms entering the market between 1974 and 1981, measured as a change in the number of firms providing non-stop service. From Schedule Arrival Performance in the Top 100 Markets by Carrier. Civil Aeronautics Board, various issues.

4. CONCLUSION

This paper confirms for the regulated airline industry the conjecture by Beesley and Glaister (1983) that in public transport it is possible for there to be inverse tradeoffs between price and service quality (measured as service frequency). The reason is simply that a transport company may have to run more frequent service to accommodate the larger passenger counts generated by lower prices. This factor, which we call the “demand effect”, is the result of the technical relationship between vehicle size, load factor, and passenger counts that prevails in public transport. Higher prices may lead to lower load factors, however, according to
TABLE 2

Least Squares Regressions

<table>
<thead>
<tr>
<th></th>
<th>1979–81</th>
<th>1974–76</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONSTANT</strong></td>
<td>1751.106</td>
<td>1780.971</td>
</tr>
<tr>
<td></td>
<td>(1235.369)</td>
<td>(1233.674)</td>
</tr>
<tr>
<td><strong>LnPOP</strong></td>
<td>-150.548*</td>
<td>-147.887*</td>
</tr>
<tr>
<td></td>
<td>(74.476)</td>
<td>(74.343)</td>
</tr>
<tr>
<td><strong>DIST</strong></td>
<td>0.188†</td>
<td>0.177†</td>
</tr>
<tr>
<td></td>
<td>(0.069)</td>
<td>(0.067)</td>
</tr>
<tr>
<td><strong>VAC</strong></td>
<td>-54.270</td>
<td>-67.954</td>
</tr>
<tr>
<td></td>
<td>(126.430)</td>
<td>(125.426)</td>
</tr>
<tr>
<td><strong>H74</strong></td>
<td>0.817</td>
<td>0.764</td>
</tr>
<tr>
<td></td>
<td>(0.430)</td>
<td>(0.426)</td>
</tr>
<tr>
<td><strong>MHUB</strong></td>
<td>81.922</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(88.859)</td>
<td></td>
</tr>
<tr>
<td><strong>RESTRICT</strong></td>
<td>-10.447</td>
<td>3.996</td>
</tr>
<tr>
<td></td>
<td>(104.737)</td>
<td>(103.452)</td>
</tr>
<tr>
<td><strong>QTYENTRY</strong></td>
<td>176.193†</td>
<td>171.284†</td>
</tr>
<tr>
<td></td>
<td>(40.046)</td>
<td>(39.650)</td>
</tr>
<tr>
<td><strong>R^2</strong></td>
<td>.340</td>
<td>.332</td>
</tr>
<tr>
<td><strong>R^2</strong></td>
<td>.276</td>
<td>.277</td>
</tr>
<tr>
<td>No. obs</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>

See Table 1 for variable definitions.
* indicates significance at 0.05 level.
† indicates significance at 0.01 level.

what we call the “load factor effect”. The sign of the relationship between price and service frequency depends on the sum of these two opposite effects.

In section 3 we demonstrated that after US airline deregulation, the largest increases in flight frequencies occurred in long distance markets and those with the largest amount of net entry. Both are associated with larger price drops after deregulation. The result is consistent with a demand effect larger than the load
factor effect after deregulation. The inverse price/quality tradeoff in public transport is the likely reason for the “surprising” increase in total flight frequencies, which previous authors regard as having provided most of the benefits of airline deregulation. Other forms of public transport may not have the same pattern of high demand elasticities and low effect on load factor, but public policy towards public transport should not be made on the assumption that higher prices necessarily induce suppliers to offer higher service quality; in the US airline industry after deregulation, the result was the opposite.

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REFERENCES


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