

Quality Competition in the U.S. Airline Industry: Are Passengers Willing to Pay More for Additional Legroom?*

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Abstract

This note investigates whether or not the efforts by two of the largest U.S. airlines to increase seat pitch (i.e. legroom) across their aircraft fleet during 2000 resulted in fare premia relative to the other “full service” carriers. That is, are passengers willing to pay more for additional legroom?

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1 Introduction

1 The rapid expansion of low cost carriers and recent bankruptcy filings by both United and US Airways has
2 focussed most of the recent attention regarding airline costs and service quality on the differences between the
3 low cost (i.e., Southwest and JetBlue) and “full service” (i.e., American and Delta) carriers.¹ In contrast,
4 relatively little attention has been paid to the differences in service quality among carriers within either
5 of these two groups. One area of service quality competition that has received some recent attention is
6 flight cancellations and delays (i.e. Mazzeo 2003, Rupp, Owens, and Plumly 2003).² Rather than explicitly
7 attempting to link prices and service quality, this literature has focussed primarily on the relationship
8 between service quality and market concentration.³ With regards to in-flight service quality, the literature
9 has typically assumed that full service carriers are, for the most part, fairly homogeneous.

10 In any given city or airport-pair market, there are number of factors that may account for differences
11 in average fares across full service airlines. Numerous studies (i.e. Borenstein 1989, Berry 1992, Brueckner,
12 Dyer, and Spiller 1992, Evans and Kessides 1993) have attempted to identify and assess the degree to which
13 factors such as market share (both in the market and at the endpoint airports), network size, and the
14 number of destinations served by a carrier from the endpoint airports impact a carrier’s costs, potential
15 market power and/or service quality—and hence its relative fares—in a given market. In this note, we examine
16 a unique change in relative service quality that occurred during 2000 among the “full service” carriers in the
17 U.S. airline industry. In particular, two of the largest U.S. carriers—United and American—reconfigured their
18 aircraft fleet to provide additional seat pitch (i.e., legroom) in their coach class cabins.⁴ By literally removing
19 seats from their aircraft, these two carriers reduced the seating capacity of their aircraft, improving in-flight
20 service quality, but at the same time, increasing unit operating costs. Therefore, an implicit assumption
21 made by both American and United was that passengers would be willing to pay a premium for what was
22 deemed to be a higher quality service offering. The purpose of this short note is to test the assumption that
23 passengers are willing to pay more for one particular aspect of service quality – additional seat pitch.

24 2 Service Quality Competition In the Airline Industry

25 Since the deregulation of the U.S. airline industry in 1978, service quality competition, broadly defined,
26 has evolved along two main lines: low cost carriers (LCCs) such as Southwest and JetBlue, and “full
27 service” carriers such as American, Delta, and United. Low cost carriers primarily serve the most heavily

¹See, for example, “The Airlines’ New Deal; Its Not Enough,” *Fortune*, April 28, 2003, and “How to Fix the Airlines,” *BusinessWeek*, April 14, 2003.

²Papers studying service quality in the pre-deregulatory U.S. airline industry include DeVany (1974), Douglas and Miller (1974), Ippolito (1981), and Anderson and Kraus (1981).

³Rupp, Holmes, and DeSimone (2003) provide a closer link between pricing and delay/cancellation probability (their measure of service quality) in their examination of schedule recoveries following airport closures due to security breaches following September 11th.

⁴TWA experimented briefly with expanded coach class seating in 1993 after it re-emerged from bankruptcy, but quickly discontinued its “Comfort Class” after it failed to generate price premiums. Source: “New Coach Seating Configurations—Comfort Class Deja Vu All Over Again?”, *Plane Business*, February 12, 2000.

1 travelled routes and are known for their simple, “no frills” in-flight service and lower average fares (i.e.
2 Morrison 2001, Dresner, Lin, and Windle 1996). Full service carriers, on the other hand, differentiate
3 themselves from LCCs by offering a number of service characteristics typically unavailable from LCCs such
4 as extensive national and international route networks, pre-assigned seats, some degree of in-flight meal
5 service on longer flights, multiple service/cabin classes, and comprehensive frequent flyer programs that
6 permit passengers to earn and redeem miles on a wide range of domestic and international partners (both
7 airline and non-airline). While most passengers can readily distinguish between the service quality of low
8 cost versus full service carriers, many travellers would be hard-pressed to identify significant differences in
9 service quality on comparable flights *among* the competing full service carriers. Thus, competition among
10 the full service carriers in markets where their networks overlap has typically been in the form of price, flight
11 frequency and schedule competition (Borenstein and Netz 1999, Ross 1997, Morrison and Winston 1996).⁵

12 **2.1 “More Room Throughout Coach” vs. “Economy Plus”**

13 During 2000, two of the largest full service carriers in the U.S., American and United, engaged in an overt
14 (and heavily advertised) form of in-flight service-quality competition by reconfiguring their aircraft fleets to
15 increase the “seat pitch” in their coach class cabins. Seat pitch refers to the horizontal distance between
16 the same part (i.e., front) of two seats in consecutive rows of an aircraft, and thus, greater seat pitch should
17 be weakly preferred by passengers (all other things equal) to less seat pitch. Prior to these changes, each
18 of the large network carriers offered industry standard seat pitches of thirty-one to thirty-two inches. While
19 American and United were the only two full service carriers to increase seat pitch in their coach class cabins,
20 they adopted very different approaches.⁶ American’s program, referred to as “More Room Throughout
21 Coach” increased the seat pitch for *all* coach class seats across its entire aircraft fleet to between 33 and 35
22 inches. In contrast, United’s “Economy Plus” class increased seat pitch to an industry-leading 36 inches, but
23 the increased pitch was limited to the first 6 to 11 rows of the coach class cabin depending on aircraft type.
24 Thus, while all coach class passengers on American experienced “More Room Throughout Coach” starting
25 in 2001, only a subset of coach class passengers (in general, high yielding business passengers) received extra
26 legroom on United. In particular, United’s Economy Plus seats are typically reserved for their top tier
27 frequent flyers or passengers purchasing full fare or only moderately discounted (Y, B or M class) coach
28 tickets.⁷

29 While increased seat pitch—all things equal—would likely please most passengers, it is both costly and risky
30 for an airline to provide given the competitive nature of the industry. Since increased seat pitch necessarily
31 reduces the number of seats per flight and most operating costs remain constant regardless of the number of

⁵Full service carriers have also attempted to differentiate themselves by comparing their on-time performance or even their amount of overhead luggage space. Carriers can also compete along less quantifiable service quality dimensions such as crew friendliness.

⁶JetBlue recently announced it too would increase seat pitch in roughly two-thirds of its seats to 34 inches. See “JetBlue Adds More Legroom Across Fleet,” company press release, November 13, 2003.

⁷Source: www.ual.com.

1 seats, a carrier that increases its seat pitch also increases its unit operating costs.⁸ These higher unit costs
2 can potentially be overcome if passengers value extra seat pitch enough to pay a premium for it.⁹ There is
3 no guarantee, however, that passengers—even if they are aware of the difference in seat pitch—are willing to
4 pay a fare premium relative to other carriers for this added element of in-flight service quality. Whether or
5 not this is the case is the question we address in the remainder of this note.

6 **3 Empirical Model and Data**

7 Our analytical approach is to estimate fixed-effects price equations using a cross section of airport-pair
8 markets prior to and following the changes in seat pitch. Controlling for factors that are known to impact
9 relative fares and assuming that no other changes in relative service quality occurred over the same period,
10 comparing the difference between coefficients on carrier dummy variables prior to and following the changes
11 should allow us to determine what impact—if any—the change in seat pitch had.

12 Since our goal is to identify the impact of changing one particular element of service quality, it is important
13 that we control for other service quality factors as much as possible. We attempt to do this in two main ways.
14 First, we build our data set using a sample of passengers purchasing as close substitutes as possible. Second,
15 we include a number of independent variables that are generally regarded to impact a carrier’s relative service
16 quality and hence, its relative fares in a particular airline market. We outline the construction of our data
17 set in detail below.

18 **3.1 The Data**

19 The data for our analysis is from the U.S. Department of Transportation’s OD1B database, a 10% sample
20 of all domestic Origin and Destination (O&D) passengers travelling on U.S. scheduled carriers.¹⁰ For the
21 purposes of this analysis, we only consider passengers travelling on the full service airlines commonly referred
22 to as the “Big Six” carriers: American, United, Delta, Northwest, Continental, and US Airways. Many
23 studies of the airline industry (i.e. Brueckner and Whalen 2000) have shown that passengers are typically
24 willing to pay more for non-stop versus connecting service. Likewise, it has been well documented (i.e.
25 Evans and Kessides 1993, Morrison and Winston 1995) that one-way tickets are priced higher than round-
26 trip tickets and that fares on routes to and from hubs differ from those which neither originate nor terminate
27 at a major carrier’s hub. To control for any potential price premia associated with these factors, we begin
28 by restricting our data set to passengers who: (i) purchased a roundtrip coach class ticket, (ii) neither

⁸Fewer seats would result in less weight, which in turn would reduce fuel costs, however, this impact is likely to be negligible.

⁹We recognize that it is also possible that the higher unit costs could be overcome by selling more seats (i.e. increasing load factors). However, since both carriers’ programs reduced seating capacity at a time when load factors were high by historical standards (for example, American’s domestic load factor in 2000 was 70.4% versus an average of 62.6% during 1990-1999), it is likely that the carriers’ primary goal was to attract higher paying passengers.

¹⁰O&D passengers are those which are recorded based on their starting point and endpoint point of their journey, regardless of whether or not they make an connection.

1 originated nor terminated at any of the “Big Six” carriers’ hub airports¹¹ and (iii) travelled on a one-stop
2 itinerary. Moreover, to control for any price differences that may result from either cost or willingness to pay
3 differences associated with “mainline” versus regional/commuter aircraft, we further restrict our data set to
4 include only those itineraries in which passengers flew exclusively on large jet (i.e. mainline) aircraft. Both
5 American and United implemented changes in their seating configuration throughout 2000 and our data is
6 constructed as a five year panel using annual data for the years 1998 through 2002.¹² We elect to use annual
7 rather than quarterly data to avoid fluctuations in the data caused by short-term labor disruptions or price
8 wars. Based on this sub-sample of the raw data, we construct directional airport-pair markets and consider
9 only those markets where either American or United and at least one other “big six” carrier (i.e., Delta) each
10 served 500 or more passengers during each of the five years of our sample.¹³ Note that in the example above,
11 we would require that Delta served the market in each of the five years of our panel. We construct separate
12 samples of markets for American and United—the main carriers of interest—so that we may see how changes in
13 their respective seat pitch impacted relative fares in markets where they had overlapping connecting service
14 with other carriers. Our American sample consists of 994 unique markets and our United sample consists
15 of 771 unique markets. Within our data set, American has the most overlapping markets with Delta (712)
16 and the fewest with US Airways (228). Similarly, United has the most overlapping markets with American
17 (542) and the fewest with US Airways (220). For both sets of markets, the combined revenues of the Big Six
18 carriers for connecting passengers during each year is between \$1.25 and \$2 billion.

19 Finally, it is important to note that during the period of time covered by our analysis—1998 to 2002—the
20 use of Internet channels such as Orbitz, Expedia or Travelocity to instantly compare airfares across different
21 carriers became a widespread phenomena. Consequently, the increased price transparency afforded by the
22 emergence of Internet travel sites would lead one to expect any fare premia that existed at the beginning of
23 our data set to diminish as time passed.

24 3.2 The Model

25 Using both samples, we estimate market fixed effects fare equations. Fixed effects estimation allows us to
26 control for unobservable effects correlated with the observed explanatory variables, lessening possible omitted
27 variable biases. The market fixed effects control for demand and cost differences that are common for all
28 airlines serving the same market (such as distance, total market size or competition from low cost carriers)
29 yet vary across markets. Note that this approach does not permit identifying the effects of variables that do

¹¹The hubs we include for each carrier are: American (DFW, ORD, MIA and STL), Continental (CLE, EWR and IAH), Delta (ATL, CVG and SLC), Northwest (DTW, MEM, MSP), United (DEN, IAD, ORD, and SFO) and US Airways (CLT, PHL and PIT).

¹²While United’s conversion of its Boeing 777 fleet is still ongoing, this aircraft is used primarily for international service. Moreover, to account for American’s acquisition of TWA in 2001—and the subsequent conversion of TWA’s fleet to include “More Room Throughout Coach”—we excluded American’s itineraries that connected via St. Louis.

¹³We elected to use airport-pair rather than city-pair markets since we wanted to control for differences in willingness-to-pay based on different airports within a metropolitan area. Likewise, we chose to use directional rather than non-directional markets to better control for differences in marketing or frequent flyer loyalty at the different endpoints of a market.

1 not vary within a market. The equation we estimate is:

$$F_{ij} = X'_{ij}\beta + u_j + \varepsilon_{ij},$$

2 where F_{ij} is carrier i 's passenger-weighted average roundtrip fare (net of all taxes and fees) in dollars in
3 market j , X_{ij} is a vector of regressors that varies with the airline's identity within a market and u_j are the
4 market fixed effects. The random error ε_{ij} is assumed to be i.i.d. with zero mean and variance σ_ε^2 . The
5 vector X includes independent variables that control for carrier identity and time, as well as other elements
6 of service quality and/or potential market power:

7 *share_{ij}*, (market share). The carrier's share (in percentage points) of all O&D passengers (connecting and
8 non-stop) in market j . In order to deal with possible endogeneity in the determination of fares and
9 market shares in a given airport-pair market, we instrument for *share_{ij}* using the previous year's market
10 share.

11 *dist_{ij}*, (itinerary distance). The average distance (in hundreds of miles) travelled by passengers on carrier
12 i in market j , passenger weighted by specific routing. We also include the squared distance. Longer
13 distances resulting from more circuitous routings may be considered less desirable, lowering fares. On
14 the other hand, more circuitous routings also cost more to provide, which could result in higher fares.

15 *orgshare_{ij}*, (originating share). Carrier i 's share (in percentage points) of passengers across all markets at
16 the originating airport in market j , among the Big Six carriers. Numerous researches have noted that
17 high market shares at endpoint airports may provide carriers with a pricing advantage on markets
18 served from that airport due to frequent flyer program loyalty or other marketing advantages.

19 *frequency_{ij}*, (schedule frequency). Higher flight frequency in a market represents higher quality service for
20 most passengers. We construct our schedule frequency variable in the following way. Travel between
21 the origin and destination of market j on carrier i can involve routings over a number of potential hubs.
22 The schedule frequency for each of these hub routings is computed as the minimum of the average daily
23 flights from the origin to the hub and the average daily flights from the hub to the destination. For
24 each market and carrier, *frequency_{ij}* is then computed as the sum of these minimum daily routing
25 values across all of the possible hubs for that carrier.¹⁴

26 *business_{ij}*, (business passengers). It has been well documented that passenger mix can have a significant
27 impact on average fares (i.e. Transportation Research Board 1999, Lee and Luengo Prado 2002).

28 *business_{ij}* is the proportion of carrier i 's passengers in market j purchasing tickets with fares of 60%

¹⁴We should note that there are two elements of scheduling that we are unable to fully account for, which are the precise timing of flights throughout the day and elapsed travel time. Passengers may prefer flights that depart during one part of the day more than others. Likewise, routings with longer distances may still have shorter elapsed travel times depending on the layover time at the connecting hub. Since the DOT's data does not permit us to know what time of day a passenger travelled nor the elapsed travel time, we proxy for these using our *frequency* variable.

1 or more of the market's 95th percentile fare. We proxy for business passengers using this method since
2 the fare coding definitions in the DOT's OD1B database may not be comparable across carriers or may
3 have changed over time.

4 $nsdum_{ij}$, (nonstop dummy). If a carrier offers non-stop service in market j , it may impact its pricing
5 strategies for its connecting service in this market. For example, a carrier may price its non-stop
6 service less aggressively than it otherwise would if it also offered non-stop service in that market, for
7 fear of cannibalizing its higher quality (i.e., non-stop) service. $nsdum_{ij}$ is a dummy variable that takes
8 the value 1 if carrier i served market j with non-stop service and takes the value 0 otherwise.

9 $ontime_i$, (ontime performance). Carriers with superior on-time performance may be able to charge higher
10 prices on competitive routes if passengers are aware of such performance. On the other hand, higher
11 on-time performance lowers costs, which in turn may be passed along to consumers in the form of
12 lower fares. $ontime_i$ measures the percentage of carrier i 's system-wide flights that arrived on-time, as
13 measured by the Department of Transportation's *Air Travel Consumer Reports*.¹⁵

14 $leverage_i$, (firm financial condition). Recent research by Busse (2002) indicates that a carrier's financial
15 condition may impact its proclivity to price more aggressively in order to meet its debt payment
16 obligations. We include a carrier's leverage ratio (defined as Total Assets/Total Stock Equity) as
17 an indicator of its financial condition using data from the Department of Transportation's Form 41
18 database.¹⁶

19 $trend$, (time trend). Since average airfares have been declining steadily since 1990 (Lee 2003), we include a
20 time trend.

21 $D(carrier)_{pre}$ & $D(carrier)_{post}$ (carrier dummies). Since our primary interest is to determine what impact,
22 if any, American and United's increased seat pitch programs had on their fares relative to other full
23 service carriers, we include a number of carrier dummy variables. For each carrier, we include two
24 dummies, one which takes the value one (zero otherwise) if the year is prior to the change in seat pitch
25 (1998, 1999 or 2000) and one that takes the value one (zero otherwise) if the year is after the change
26 occurred (2001 and 2002).

27 Readers familiar with the airline literature will notice that we have excluded load factor (the percentage of
28 seats filled) from our list of independent variables. Fares and load factor are highly endogenous since carriers
29 use their yield management systems to achieve a target load factor. Since there is no obvious instrument for
30 load factor and it was found to be insignificant when we included it in our model, we exclude it from our
31 list of independent variables. Summary statistics for our data sets are presented in Table 1 below.

¹⁵We chose system-wide rather route specific on-time performance since on-time performance tends to be reported in the media on a system-wide, rather than route specific basis. Moreover passengers who experience poor on-time performance on a given carrier are likely to associate this element of service quality to the carrier as a whole, rather than the carrier on a specific route.

¹⁶Since US Airways' leverage becomes negative in 2002, we substitute its 2001 level for 2002.

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INSERT TABLE 1 HERE

3.3 Estimation Results

For both data sets, we estimate fixed effects two-stage least squares using two model specifications. Model 1 pools all of carriers—other than the base carrier of interest—while Model 2 uses carrier specific dummy variables. Estimation results are reported in Table 2. The overall fit for both sets of regressions are quite strong and the estimated coefficients tend to have the expected sign and are typically significant at the 1% or 5% level. The estimated coefficients on *share*, *orgshare*, *frequency* and *business* are positive and significant at the 1% level in all four regressions, consistent with the previous literature. Likewise, the estimated coefficients on *leverage* and *trend* are negative when significant, consistent with our a priori beliefs.

Interestingly, the estimated coefficient on *ontime* is negative, indicating that as a carrier’s on-time performance improves—all other things equal—the carrier’s average fares decline. This suggests that superior on-time performance does not provide a carrier with a pricing advantage. Rather, the negative estimated coefficient for *ontime* suggests that there may be cost savings that are being partially passed along to consumers when carriers experience relatively fewer delays. Also interesting is the fact that the estimated coefficient on *distance* is consistently positive and significant at the 1% level, indicating that all things equal, longer routings are relatively more expensive. This indicates—not surprisingly—that cost considerations prompt carriers to price circuitous routings higher than more direct routings.

3.3.1 Impact of “More Room Throughout Coach”

Turning our attention to the carrier dummy variables, we find compelling evidence that American’s “More Room Throughout Coach” program failed to yield any price premia. To the contrary, Model 1 indicates that prior to implementing the program, American typically received a \$10.47 premium per ticket relative to all other carriers. After implementing “More Room Throughout Coach” however, its overall premium relative to the other full service carriers fell to \$2.10, a net drop of \$8.37 per ticket.¹⁷ Model 2 confirms that on a head-to-head basis with other carriers, American’s premium declined versus every carrier except US Airways. Prior to the change, for example, American had price premia versus Continental and Delta of \$25.70 and \$16.45 respectively. Following the change, American’s premium versus Continental was reduced to \$.62 while its premium versus Delta became a small deficit(-\$2.06). American maintained a positive premium versus Northwest, but it declined from \$22.23 before the change to \$14.96 after the change. Finally, prior to the change, American already had a price deficit versus United of -\$17.13 and following the change, this deficit increased to -\$24.03 per ticket.

¹⁷Likewise, relative to its own service before the change, American’s fares fell by \$16.88 after the change, all other things equal, as indicated by the estimated coefficient on $D(itself)_{post}$.

1 3.3.2 Impact of “Economy Plus”

2 Turning our attention to United’s “Economy Plus” program, Model 1 indicates that prior to the change,
3 United generated a significant fare premium of \$24.95 per ticket versus the other full service carriers as a
4 whole. Following the change, United’s fare premium expanded to \$36.33, an increase of \$11.38 per ticket.
5 The positive and significant estimated coefficient on $D(itself)_{post}$ confirms that United’s Premium Economy
6 program helped it boost its average fare, all other things equal. Looking at the results from Model 2, we
7 see that United had fare premia versus all of its full service competitors (with the exception of American,
8 which was not significant) prior to the change in seat pitch.¹⁸ Following the change, United—unlike American—
9 maintained fare premia versus all five of its full service competitors. United’s fare premium increased following
10 the change versus American and US Airways, declined modestly versus Northwest (\$24.62 to \$23.74) and
11 Delta (\$15.58 to \$12.82), and fell more significantly (from \$38.11 to \$18.10 per ticket) versus Continental.

12 **INSERT TABLE 2 HERE**

13 4 Conclusions

14 What does our analysis tell us about service-quality competition among the full service carriers in the U.S.
15 airline industry? We find no evidence that passengers were willing to pay a premium for the extra legroom
16 offered by American’s More Room Throughout Coach program. To the contrary, our analysis suggests that
17 overall, the program resulted in *lower* average fares for American. In contrast, we find evidence that United’s
18 Premium Economy program was effective in attracting passengers willing to pay higher fares for greater seat
19 pitch when offered a choice of otherwise comparable service among competing full service carriers. Thus, our
20 results indicate that United’s *Economy Plus* program has been far more effective—at least in the sample of
21 markets and passengers we studied—at generating or maintaining fare premia than American’s *More Room*
22 *Throughout Coach* program. Indeed, the relative success of United’s program compared to American’s sheds
23 some insight as to why American recently announced it would discontinue its “More Room Throughout
24 Coach” program in roughly one-quarter of its fleet, literally re-installing seats into aircraft it had previously
25 removed only three years earlier.¹⁹

26 That fact that United’s increased seat pitch program aimed squarely at the “business” traveller segment
27 of the market appears to have performed better may be a reflection of the importance of business travellers
28 to the full service carriers. Since leisure travellers tend to be more price-elastic than business travellers, they
29 are more likely to choose the lowest-priced carrier, regardless of service quality. Many business travellers on
30 the other hand, tend to be less price-elastic, and since United’s Economy Plus seats offer the greatest coach

¹⁸The reason why the estimated coefficient for $D(United)_{pre}$ in American Model 2 differs from the estimated coefficient on $D(American)_{pre}$ in United Model 2 is because the two samples include different sets of markets where American and United do not compete against each other.

¹⁹See “American Airlines Charts Course for Brighter Future: CEO Arpey Unveils ‘Turnaround Plan’ at Annual Meeting,” company press release, May 21, 2003.

1 class seat pitch of all major carriers, those passengers who value the extra space the most may be willing
2 to pay a fare premium for United's service. In this sense, our analysis provides some empirical evidence to
3 support well-known theoretical models of spatial competition (i.e. Hotelling 1929).

1

TABLE 1: SUMMARY STATISTICS

Variable	American Airlines Overlap Markets		United Airlines Overlap Markets	
	Mean	Std. Dev	Mean	Std. Dev
Variable	Mean	Std. Dev	Mean	Std. Dev
<i>fare</i>	345.89	123.53	347.76	127.89
<i>share</i>	14.97	14.79	14.56	14.50
<i>dist</i>	19.92	6.97	20.32	6.68
<i>orgshare</i>	21.10	13.95	20.96	13.92
<i>frequency</i>	6.12	3.94	6.41	4.23
<i>business</i>	21.90	12.90	21.04	12.35
<i>nsdum</i>	0.10	0.30	0.12	0.32
<i>ontime</i>	77.88	4.83	77.18	5.44
<i>leverage</i>	4.46	2.11	4.73	2.28
<i>N</i>		16,760		13,275
Markets		994		771

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TABLE 2: ESTIMATION RESULTS

	American		United	
	Model 1	Model 2	Model 1	Model 2
<i>share</i>	0.898 [†] (0.076)	0.996 [†] (0.076)	1.245 [†] (0.089)	1.160 [†] (0.090)
<i>business</i>	2.380 [†] (0.048)	2.075 [†] (0.048)	2.407 [†] (0.056)	2.240 [†] (0.056)
<i>distance</i>	6.856 [†] (1.206)	7.599 [†] (1.185)	8.295 [†] (1.307)	7.093 [†] (1.301)
<i>orgshare</i>	0.420 [†] (0.044)	0.337 [†] (0.046)	0.386 [†] (0.051)	0.380 [†] (0.052)
<i>frequency</i>	2.456 [†] (0.198)	2.071 [†] (0.195)	2.670 [†] (0.208)	2.540 [†] (0.207)
<i>nsdum</i>	4.148* (1.789)	4.743 [†] (1.759)	2.224 (1.963)	1.766 (1.947)
<i>ontime</i>	-1.631 [†] (0.135)	-0.283 (0.178)	-0.390 [†] (0.138)	-1.368 [†] (0.168)
<i>leverage</i>	-1.058 [†] (0.274)	-0.05 (0.654)	-4.308 [†] (0.324)	1.277 (0.659)
<i>trend</i>	-10.547 [†] (0.733)	-8.069 [†] (0.742)	-13.109 [†] (1.086)	-16.885 [†] (1.068)
<i>D(all others)_{pre}</i>	-10.468 [†] (1.305)		-24.946 [†] (1.906)	
<i>D(itself)_{post}</i>	-16.877 [†] (2.754)		9.290 [†] (3.055)	
<i>D(all others)_{post}</i>	-18.975 [†] (2.448)		-27.039 [†] (2.830)	
<i>D(American)_{pre}</i>		dropped		1.863 (2.677)
<i>D(Continental)_{pre}</i>		-25.700 [†] (2.126)		-38.109 [†] (3.178)
<i>D(Delta)_{pre}</i>		-16.451 [†] (1.765)		-15.579 [†] (3.136)
<i>D(Northwest)_{pre}</i>		-22.229 [†] (2.142)		-24.623 [†] (2.925)
<i>D(United)_{pre}</i>		17.127 [†] (2.362)		dropped
<i>D(US Airways)_{pre}</i>		-27.453 [†] (3.042)		-24.789 [†] (3.262)
<i>D(American)_{post}</i>		-35.122 [†] (2.944)		-3.266 (3.131)
<i>D(Continental)_{post}</i>		-35.737 [†] (3.309)		-10.182 [†] (3.799)
<i>D(Delta)_{post}</i>		-33.062 [†] (2.961)		-4.901 (3.732)
<i>D(Northwest)_{post}</i>		-50.081 [†] (3.120)		-15.818 [†] (3.669)
<i>D(United)_{post}</i>		-11.092 [†] (3.529)		7.916 [†] (3.059)
<i>D(US Airways)_{post}</i>		-84.114 [†] (5.933)		-63.495 [†] (4.342)
Observations	16,760	16,760	13,275	13,275
Number of markets	994	994	771	771
\bar{R}^2	0.7902	0.8008	0.7985	0.8024

*Significant at the 5% level. †Significant at the 1% level

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