



**Consumer Federation of America**



**STATEMENT OF  
DR. MARK N. COOPER  
DIRECTOR OF RESEARCH  
CONSUMER FEDERATION OF AMERICA**

**ON THE  
AVIATION COMPETITION RESTORATION ACT**

**ON BEHALF OF  
CONSUMER FEDERATION OF AMERICA  
CONSUMERS UNION**

**COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION  
UNITED STATES SENATE**

**MARCH 13, 2001**

Mr .Chairman and Members of the Committee,

On behalf of the Consumer Federation Of America<sup>1</sup> and Consumers Union,<sup>2</sup> I commend Senators Hollings and McCain for introducing the *Aviation Competition Restoration Act* and urge speedy enactment of this bill as a critical first step in bringing more competition to the airline industry. The legislation could help to crack open the dominance of major airlines at fortress hubs and expand consumer protection by restoring real competition in the industry, which is the form of competition we prefer.

A couple of years ago I published a paper entitled Freeing Public Policy From The Deregulation Debate: The Airline Industry Comes Of Age (And Should Be Held Accountable For Its Anticompetitive Behavior).<sup>3</sup> Since then this industry has experienced a dramatic decline in the quality of service, a dramatic increase in prices, and now stands on the verge of a merger wave that will make matters worse. Not only is it time for the industry to bear responsibility for its own actions, it is time for policymakers to confront the reality that this industry is not and will not be organized on a vigorously competitive basis.

## **CONGRESSIONAL ACTION IS NECESSARY TO PROTECT THE FLYING PUBLIC FROM THE ABUSE OF MARKET POWER IN THE AIRLINE INDUSTRY**

With the introduction of the *Aviation Competition Restoration Act*, the public policy debate over deregulation has entered a new phase. It is none too soon. From the consumer point of view, the intense, ideological debate over deregulation that has taken place in this country over

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<sup>1</sup> The Consumer Federation of America is the nation's largest consumer advocacy group, composed of over two hundred and forty state and local affiliates representing consumer, senior-citizen, low-income, labor, farm, public power and cooperative organizations, with more than fifty million individual members.

<sup>2</sup> Consumers Union is a nonprofit membership organization chartered in 1936 under the laws of the State of New York to provide consumers with information, education and counsel about goods, services, health, and personal finance; and to initiate and cooperate with individual and group efforts to maintain and enhance the quality of life for consumers. Consumers Union's income is solely derived from the sale of *Consumer Reports*, its other publications and from noncommercial contributions, grants and fees. In addition to reports on Consumers Union's own product testing, *Consumer Reports*, with approximately 4.5 million paid subscribers, regularly carries articles on health, product safety, marketplace economics and legislative, judicial and regulatory actions which affect consumer welfare. Consumers Union's publications carry no advertising and receive no commercial support.

<sup>3</sup>American Bar Association, *The Air and Space Lawyer*, January 1999.

the past three decades has had a major, negative impact. Instead of crafting careful public policies that promote competition while restricting the abuse of market power, regulators have been largely immobilized by a fruitless debate over what would have happened under continued regulation as compared to what did happen with deregulation.

At one end of the spectrum, advocates of deregulation refuse to accept the fact that problems arise, for fear that such an admission will be used to convince policymakers that reregulation should be tried. At the other end of the spectrum, the advocates of regulation refuse to acknowledge that efficiency improvements flow from deregulation, for fear that such an admission will be used to prevent policy makers from addressing the specific problems that arise. What gets lost in the middle is good public policy. The pure efficiency gains that have clearly been made as a result of deregulation have been polluted by rampant abuse of market power. The performance of the deregulated industries certainly improved, but not nearly as much as it could have from the consumer point of view or should have from the public policy point of view.

With the two pending major airline mergers and a third being widely talked about, there can be no more uncertainty about the structure of the industry. The airline industry is in the process of organizing itself into a private cartel. The three dominant firms will control the vast majority of traffic through monopoly airports in fortress regions embedded in national networks that rarely, if ever, compete with one another. A few end points will have vigorous competition, but the vast majority of passengers will be trapped on routes with far too few alternatives to create an effectively competitive market.

As travelers fall more and more under the control of one airline, the ability of new entrants to crack markets is reduced, as it become harder and harder to attract passengers to flight segments. The necessary scale of entry gets larger and larger. The inconvenience and, in many cases, the impossibility of inter-airline travel, give the originating airline enhanced market power over the traveler and makes it more and more difficult for smaller airlines to compete for the traffic.

Market power results in higher prices wherever it exists and miserable service. Since the major airlines do not face effective competition, they do not feel compelled to improve quality.

Thus the future debate should not be about whether to return to the old-school, price and quantity regulation of the middle of the century, but about how policy can increase public welfare by promoting competition and preventing anti-competitive actions.

The *Aviation Competition Restoration Act* embodies two of several essential steps necessary to rebuilding the competitive base of the airline industry and protecting the public from the abuse of market power by the airlines. The critical elements contained in the proposed legislation are (1) to empower an agency to take a hard look at the overall industry structure in reviewing merger activity and (2) to empower the Department of Transportation to crack open the fortress hubs where there is a demonstrated interest in entry or new airlines.

Ultimately, at least two other steps would be needed: (3) an anti-predation rule that prevents dominant incumbent airlines from snuffing out entrants with predatory practices and (4) a consumer bill of rights, since it will take significant time for the procompetitive measures to function and there are many markets in which too few airlines will exist to compete to meet consumers' travel needs. While we note the other things that must be done, CFA and CU believe that the measures in the *Airline Competition Restoration Act* would be an enormous step in the right direction. To appreciate why this is exactly the right place to start, we must review the nature of the failure of competition in the airline industry.

### **ANTICONSUMER EFFECTS OF A WEAK COMPETITION**

At the heart of the market power wielded so brutally by the major airlines is a system of fortress hubs and the anticompetitive, predatory practices that major airlines use to prevent new entrants from serving the fortress hubs. As these fortress hubs grow into fortress regions, the prospects for new entrants will shrink into non-existence, unless Congress takes action.

The empirical evidence that the creation of fortress hubs raises price is overwhelmingly clear. It should come as no surprise to you that dozens of studies show that competition among numerous airlines leads to lower prices and higher output. This is true no matter how competition is measured. The effect is observable at the micro level in the form of the entry of individual

airlines into specific markets and at the macro level in the form of generalized concentration ratios.<sup>4</sup> Econometric studies of market structure have consistently shown that concentration on routes, at airports, and in the industry at large are associated with higher fares (see Exhibit 1).

Flowing from this evidence, we find support for a number of traditional observations about public policy. Actual competition is vastly more important than the threat of competition.<sup>5</sup> Barriers to entry play a critical role in determining the level and nature of competition.<sup>6</sup> Analysis of specific events -- entry, exit and mergers -- confirms these findings. Mergers tend to reduce competition, increase prices and lower output.<sup>7</sup>

Estimates of the general impact of competition on price are on a similar order of magnitude. Several GAO and DOT studies have found that prices are 20 - 50 percent lower in competitive markets. Similarly, estimates of the elimination or addition of one competitor bolster these findings. The impact of a low cost competitor is particularly pronounced. When specific low cost carriers are identified, like People's or Southwest, fares often are 35 to 40 percent lower than in markets without such aggressive new entrants. Thus, having one additional competitor impacts prices by 20 to 50 percent.

The econometric and anecdotal evidence is supported by a general trend in prices (see Exhibit 2). Airfares, as measured by the consumer price index have increased dramatically, particularly when key components of airline costs are taken into account. Since the mid-1980s,

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<sup>4</sup> A broad range of studies includes the Herfindahl index as a measure of concentration. These invariably find that higher levels of concentration are associated with higher prices, all other things equal -- see, for example, Morrison and Winston (1986), Borenstein (1989), Dresner and Trethaway (1992), Dresner and Windle (1996).

<sup>5</sup> Graham, Kaplan and Sibley (1983), Call and Keeler (1985), Morrison and Winston (1986), Moore (1986), Strassman (1990), Petraf (1994), Petraf and Reed (1994), provide evidence on actual competition. Tests of potential competition have generally shown much smaller effects. The evidence suggests that one competitor in the hand is worth between three and six in the bush. The empirical evidence from the airline industry must be considered a thorough repudiation of contestability theory. On this point see Borenstein (1989), Butler and Houston (1989), Hurdle (1989), Abbott and Thompson (1991).

<sup>6</sup> The clearest examples of the importance of barriers to entry are the consistent finding that physical limitations on slots and gates result in less competition and higher prices. Virtually every econometric analysis includes a slot variable which supports this conclusion -- see, for example, Morrison and Winston (1986, 1990), Hurdle (1989), Whinston and Collins (1992), Windle and Dresner, 1995, and Dresner, Lin and Windle (1996). Analysis of legal barriers reaches similar results -- see Dresner and Trethaway (1992), Burton (1996).

<sup>7</sup> Borenstein (1990), Werden et al. (1991), and Morrison and Winston (1995).

fuel prices have dropped by almost 50 percent. The cost of capital (measured by AAA corporate bonds) has declined by 20 percent. These are two of the three largest costs for airlines. Yet, airfares have mounted steadily.

## **FORTRESS HUBS**

The centerpiece of industry structure in the deregulated environment -- the hub and spoke network -- is a constant source of public policy concern. Advocates of deregulation failed to anticipate the development of this form of industrial organization.<sup>8</sup>

While they may have recognized the possibility that competition would not develop on lightly traveled routes or at small airports,<sup>9</sup> the notion that single airlines would come to dominate and control huge airports as fortress hubs was unthinkable twenty years ago. As a result, there has been a vigorous effort to understand why the industry has organized itself in this way.

Part of the complexity of the analysis stems from the fact that the characteristics of hubs that appear to confer market power are both "positive" and negative. Just as competition can create efficiencies so too can hub and spoke networks. The key characteristics include economies of scale and operating efficiencies, as well as marketing advantages that make it extremely difficult for competitors to enter. The concentration of traffic at hubs allows incumbents to achieve lower costs.<sup>10</sup> The concentration of traffic and prominent position in the hub enables the incumbent to achieve both a greater reputation and to offer a broader range of options at the hub.<sup>11</sup> Advertising and promotion are facilitated.<sup>12</sup> Scheduling and baggage handling are better coordinated.<sup>13</sup>

Unfortunately, the story does not stop with these positive aspects of industry organization. In practice these "positive" economic advantages of hub and spoke networks have been immediately leveraged with anti-competitive actions to increase and exploit market power by

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<sup>8</sup> Rakowski and Bejou (1992), Oum Zhang and Zhang (1995).

<sup>9</sup> The unique problems of small airports and low density routes were recognized in the legislation ending the existence of the CAB -- see Meyer and Oster (1984) and Malloy (1985).

<sup>10</sup> Johnson (1985), McShane and Windle (1989), Oum and Trethaway (1990), Berry (1990), Morrison and Winston (1990), Oum (1991), Berry (1992), Boucher and Spiller (1994), Joskow, et al (1994).

<sup>11</sup> Levin (1987), Bornstein (1989, 1992), Zhang (1996).

<sup>12</sup> Evans and Kessides (1993).

<sup>13</sup> Oum and Taylor (1995).

incumbents dominating hubs. Incumbent airlines create barriers to entry by locking in customers and disadvantaging competitors in a variety of ways. Traffic is diverted to the dominant incumbent hubs through a number of marketing mechanisms that extends market power over travelers frequent flier programs,<sup>14</sup> deals with travel agents to divert traffic,<sup>15</sup> manipulation of computerized reservation systems,<sup>16</sup> and code sharing.<sup>17</sup> The ability of competitors to enter hubs is undermined in a number of ways. Access to facilities is impeded through a number of mechanisms that preclude or raise the cost of entry,<sup>18</sup> including denial of gate space,<sup>19</sup> extraction of excess profits on facilities,<sup>20</sup> and efforts to prevent entrants from attracting adequate passengers to establish a presence.<sup>21</sup>

As a result, consumers do not see any of the savings from hubs. Instead, they endure higher prices and are treated badly. This finding cannot be overemphasized, especially in light of recent efforts by airlines to demonstrate that, in theory,<sup>22</sup> larger networks provide consumer benefits. In practice, as the Department of Justice and a great deal of empirical analysis demonstrates, the theoretical benefits never materialize in reality because the major airlines abuse their market power. Cost savings are not passed through to consumers. When competitors enter

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<sup>14</sup> Levine (1987), Oum (1987), Borenstein (1989), Layer (1989), GAO (1996).

<sup>15</sup> Levine (1987), Borenstein (1989, 1991, 1992), Morrison and Winston (1995).

<sup>16</sup> Oster and Pickerell (1986), Borenstein (1989), Layer (1989), Brenner (1989), Evans and Kessides (1993).

<sup>17</sup> Oum (1995) identifies three positive advantages created by code sharing -- increased frequency of flights, concentration of traffic, marketing of single line travel -- and one negative -- CRS placement advantages due to frequency and single line service.

<sup>18</sup> Berry (1987), Levine (1987), Borenstein (1989), Butler and Houston (1989), Reiss and Spilber (1989), Oum, Zhang and Zhang (1995), and Hendricks (1995).

<sup>19</sup> Levine (1987), Borenstein (1989), Kahn (1993), GAO (1996).

<sup>20</sup> GAO (1996).

<sup>21</sup> Credible entry requires the entrant to move sufficiently up the S-curve to have a viable economic base (Russon (1992), Vakil and Russon (1995). GAO notes that entrant require at least six slots at prime times to establish a credible presence.

<sup>22</sup> DOT, 2001, identifies. A study by ESI.KPMG, *The Advent of National Aviation Networks* (October 2000), sought to justify the consolidation into three national networks on the basis of an analysis that is so fundamentally flawed it lacked any identified authors. The analysis ignores all price effects due to the loss of competitors. It uses an econometric estimate of gains from online traffic that assumes the price of a ticket has no effect on air travel. It excludes all large hubs all airports served by Southwest all Essential Air Service airports, all airport served within 50 miles of a hub and all airports in leisure markets to derive a coefficient for network effects that is not statistically significant by traditional standards (i.e. it fails the 95 percent confidence interval). It applies this statistic to all airports to derive its estimate of positive benefits.

concentrated hubs, prices go down and frequency goes up – both in the number of departures and in the number of seats available. This gain occurs not only because the new entrant provides new seats at lower prices, but also because incumbents do too.

When entrants do show up, the dominant airlines have engaged in blatantly predatory pricing to drive them out of the market.<sup>23</sup> The state Attorneys General and the Department of Justice have identified six specific airlines and at least fourteen routes (from major fortress hubs) in which predatory conduct drove competitors from the market. In each case, one of the airlines that is currently proposing to merge was involved in the anti-competitive behavior. The dominant airline cuts its fares and adds capacity when the new entrant shows up. Once the entrant is driven out of the market, capacity is reduced and fares are increased.

Having gained this advantage, the incumbents can raise price, without risking entry<sup>24</sup> and rely on excessive market segmentation to restrict price competition.<sup>25</sup> The strategy involves finding mechanisms to sort customers into categories with different price sensitivities and then offering higher prices in the less price sensitive category.<sup>26</sup> Prices<sup>27</sup> and profits at hubs are higher.<sup>28</sup> Since they do not face effective competition, they do not feel compelled to improve quality.

Examples of clearly abusive pricing are also too frequent and too blatant to ignore. The state Attorney's General give three types of examples where fares differ by \$700 or more: one airport originates flights to destination airports with dramatically different levels of competition; nearby airports with dramatically different levels of competition originate flights to the same

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<sup>23</sup> “Comment of the Attorneys General of the States of Arkansas, Connecticut, Florida, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New York, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming,” U.S. Department of Transportation, 1998, Docket No. OST 98-3713 (hereafter, Attorneys General).

<sup>24</sup> The fact that higher prices persist at hubs is evidence of the ability to sustain prices. Direct tests of the entry decision also support this notion (see, for example, Joskow et al (1994).

<sup>25</sup> Borenstein (1989) notes that by segmenting markets incumbents can diminish the impact of competition at hub airports. Evans and Kessides (1993), Oum and Zhang (1993), and Mallaiebiau and Hansen (1995) observe a generally low elasticity of demand across all markets.

<sup>26</sup> DOT, 2001, notes that while some price discrimination is to be expected, it appears to be excessive in concentrated airline markets.

<sup>27</sup> Bailey and Wilkins (1988), Huston and Butler (1988), Borenstein (1989), Evans and Kessides (1993), Joskow, et al. (1994), GAO (1996), DOT (1996).

<sup>28</sup> Toh and Higgins (1985), McShane and Windle (1989).

destination; prices charged before and after a competitor is driven from the market.<sup>29</sup> The Department of Transportation has recently identified 19 routes on which new entrants were successful in establishing a presence in short haul hub markets in the past three years.<sup>30</sup> The resulting price reductions were in the range of 33 and 55 percent, with increases in passengers of between 61 and 86 percent.

## **BUILDING BLOCKS OF A HIGHLY CONCENTRATED INDUSTRY**

The monopolized hubs are building blocks of potential national market power through concentration of the industry. The geographic extension that United and American are seeking (soon to be followed by some combination of Delta, Northwest and Continental) and the denser network that the mergers would create make it less and less likely that competitors will be able to attack these markets.

As all such airline networks do, these mergers would lock travelers in by concentrating their flow through fortress hubs, coordinating scheduling at those hubs, and binding them with frequent flier and other promotional programs. These mergers are likely to promote a movement from fortress hubs to fortress regions.

Industry structure has become sufficiently concentrated to raise a fundamental question about whether market forces are sufficient to prevent the abuse of market power. Both at individual hubs and in the industry as a whole, markets have become or are becoming highly concentrated. Attorney's General from 25 states filed comments in support of the Department of Transportation's anti-predation rule which identified 15 airports at which the dominant firm had a market share in excess of 70 percent. This is the standard generally applied to indicate monopoly status. Another half dozen airports have a dominant carrier (50 to 70 percent market share) close to the monopoly (see Exhibit 3).

This is not a small airport problem. Seven of the ten busiest airports in the country are on the list. One-half of all passenger enplanements take place at the twenty airports on the list.

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<sup>29</sup> Attorneys General.

<sup>30</sup> U.S. Department of Transportation (2001).

These fortress hubs are the cornerstone of a nationwide problem. The local monopolies are reinforced by an industry structure in which there is simply inadequate competition to discipline the abuse of market power. There are too few competitors in the industry as a whole and in most markets on a route-by-route basis.

Let us step back a moment on consider what constitutes “too few” competitors. Identification of exactly where a small number of firms can exercise market power is not a precise science, but it is widely recognized that when the number of significant firms falls into the single digits public policy concerns are triggered.<sup>31</sup> In fact, I like to use what I call the “Ed Meese tests of market power.” You will recall that based on the extensive theoretical and empirical record of decades of analysis, **Ronald Reagan’s Department of Justice headed by Ed Meese issued the *Merger Guidelines in 1984.***

The Reagan Administration DOJ established a fundamental threshold to separate an unconcentrated market from a moderately concentrated market at the level of a Hirschman-Herfindahl Index (HHI) of 1000. This level of concentration would be achieved in a market of 10 equal size competitors. In this market, the 4-Firm concentration ratio would be 40 percent. The DOJ established a second threshold at an HHI of 1800. Above this level, the market is considered highly concentrated. This is roughly equal to a market with fewer than six equal sized competitors. **A market with six, equal-sized firms would have a HHI of 1667. In a market with six, equal-sized firms, the 4-Firm concentration would be 67 percent.**

The reason the six and ten firm thresholds are important is that they constitute well-documented and understood levels of oligopoly. In a tight oligopoly with a small a number of firms

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<sup>31</sup> Friedman, 1983, pp. 8-9,

Where is the line to be drawn between oligopoly and competition? At what number do we draw the line between few and many? In principle, competition applies when the number of competing firms is infinite; at the same time, the textbooks usually say that a market is competitive if the cross effects between firms are negligible. Up to six firms one has oligopoly, and with fifty firms or more of roughly equal size one has competition; however, for sizes in between it may be difficult to say. The answer is not a matter of principle but rather an empirical matter.

controlling such a large market share, it is much easier to avoid competing with each other and harm the public through price increases or quality deterioration.

Shepherd describes this threshold as follows:<sup>32</sup>

**Tight Oligopoly:** The leading four firms combined have 60-100 percent of the market; collusion among them is relatively easy.

**Loose Oligopoly:** The leading four firms, combined, have 40 percent or less of the market; collusion among them to fix prices is virtually impossible.

By these definitions, airline markets are generally highly concentrated. Most routes have fewer than four carriers. National averages typically find HHIs in the range of 4000 on a city-pair basis.<sup>33</sup> One recent study found that, measured at airports, the HHI was just under 3300 -- the equivalent of three airlines per airport), but measured by city pairs the HHI was over 5000 -- the equivalent of two per route.<sup>34</sup> Given such a high level of concentration, we should not be surprised to find that anti-competitive behavior and changes in market structure have a significant impact on fares. Exercising market power is easy in such highly concentrated markets.

While market power is best analyzed on a market-by-market basis, since it is the monopoly at the point-of-sale that triggers the abuse, national markets are not irrelevant. As the industry becomes more and more concentrated, the pool of potential major entrants shrinks. The ability of the large dominant firms to avoid one another in the market and engage in conscious parallelism or strategic gaming increases. It is this level of analysis that is frequently lacking in the merger review process, which becomes trapped in the merger-by-merger scrutiny and loses sight of the forest for the trees.

Before the pending merger wave, the industry had become moderately concentrated, with an HHI of approximately 1400. The two pending mergers (United/US Airways and American/TWA) would push it above 1800. A Delta/Northwest or Delta/Continental merger, which is anticipated

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<sup>32</sup> Shepherd, 1985, p. 4, see also Bates, B. J. 1993, p. 6.

<sup>33</sup> See for example, Dresner, Lin and Windle (1996). City-pair markets generally include all flights between to points including direct and connecting (single airline) flights.

<sup>34</sup> Hayes and Ross.

as a defensive response, would drive it well above 2200. Each of the pending consolidations would violate the Merger Guidelines on a national scale, as well as in individual markets. Taken together, they drive the industry structure well above the highly concentrated level

## **THE PROPOSED REMEDIES ARE KEY ELEMENTS OF A SOLUTION**

With two decades of econometric evidence about competitive problems at the levels of structure, conduct and performance reinforced by detailed analysis of recent events, one can only hope that the public policy debate will not revert to the irrelevant question of whether deregulation served the consumer interest. The trigger for public policy concern is, as it always should have been, whether anticompetitive practices are hurting consumers. By every measure, the airlines are failing that test today.

The *Aviation Competition Restoration Act* attacks the problem at its core.

- The Act would provide a more focused set of criteria to assess the impact of mergers and would encourage the Department of Transportation to consider the impacts of mergers in a broader context.
- It also seeks to crack open hubs when one airline gains a majority position. It identifies several of the most important ways in which dominant incumbents have prevented entry into their fortress hubs and would require them to be made available to bona fide entrants.
- It identifies the withholding of facilities as an anticompetitive practice.
- It sets aside funding to expand facilities at dominated hubs and reorients passenger facilities charges in a procompetitive direction.

The logic of these measures is impeccable. Concentration of traffic through hub and spoke networks is clearly an efficient form of organization for the industry. Concentration of ownership and control of slots, gates, facilities and enplanements are clearly the source of abusive market power in the industry. It was never necessary to equate concentration of traffic with concentration of ownership. By opening up half the capacity at fortress hubs, competitors will have a chance to compete for the flow of travelers through these high density airports. The leading firms will continue to have an interest in serving this flows since a 50 percent share of the

nation's 35 largest airports is still a very substantial business that captures the efficiencies (economies of scale) in the industry.

This solution is akin to the open standard/platform solution that we observe in other network industry. We have learned in the computer and electronics industries that open standards are as good as, if not better than, closed standards in achieving efficiency gains (network effects), and infinitely better at preventing anticompetitive abuses. The competitive access provisions are a form of interconnection requirement to ensure fair access to choke points in the network. CFA and CU have vigorously supported these types of competitive access principles in a range of industries<sup>35</sup> and we applaud Senators Hollings and McCain for introducing them into the debate over the airline industry. CFA and CU believe that enactment of the *Aviation Competition Restoration Act* is an essential first step in preventing further consolidation in the airline industry that would undermine the already inadequate competition that exists in the industry. It opens the way to introducing competition in the fortress hubs that dominate the industry.

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<sup>35</sup> On telecommunications, see Cooper, 1997, 1998; on the Internet see Cooper, 2000a, b; on electricity, see Cooper, 2000b; on software see Cooper 2001 (forthcoming).

**EXHIBIT 1:**

**THE IMPACT OF ANTI-COMPETITIVE MARKET STRUCTURE ON FARES**

STUDY	PRACTICE	PERCENT INCREASE IN PRICE
<b>GENERAL MEASURES OF COMPETITION</b>		
Dressner and Trethaway	Competition	35
GAO (1993)	Hub Concentration	33
GAO (1996)	Hub Concentration	31
DOT (1996)	Hub Concentration, 1989	19
	1994	19.7
	1995	22.1
<b>CHANGE IN NUMBER OF COMPETITORS</b>		
Strassman	Add one (2.7 to 3.7)	44
Hurdle (et al.)	Loss of one	20
Windle and Dressner	Add one (2-3)	17
Oum, Zhang and Zhang	Add one (1-2)	17
Borenstein (1989)	Add one (1-2)	8
DOT (2001)	Low cost competitor in Hub	41
	Short Haul Hub	54
<b>ENTRY AND EXIT</b>		
Dressner and Windle	Low cost (Southwest)	35
Whinston and Collins	Low cost (Peoples)	34
DOT (1996)	Low Cost (all Hubs)	35
	Low Cost (Concentrated Hub)	40
DOT (2001)	Low Cost (Hubs)	42
Joskow et al.	Any	10
<b>GENERAL INDUSTRY PRACTICES</b>		
Morrison and Winston (1995)	Hubbing	5.4
	Frequent Flier	7.9
	CRS Manipulation	<u>9.4</u>
	(Subtotal)	22.7
	Fare restrictions	<u>23.8</u>
	Total	46.5
Stavins (1996)	Fare restrictions	20-40





SOURCE: Bureau of Labor Statistics, *Consumer Price Index*, *Consumer Price Index*, CPI, Air Fares, Jet Fuel; *Economic Report of the President*, January 2001, Corporate AAA Bond Rates; Department of Commerce, *Statistical Abstract of the United States*, Airline Cost Indices, various issues.

EXHIBIT 3

DOMINANT AIRLINES PROPOSING GREATER CONCENTRATION  
WITH FORTRESS HUBS THAT EXCEED MONOPOLY STANDARD

AIRPORT	AIRLINE	DOMINANT FIRM MARKET SHARE
MONOPLY (70+ PERCENT)		
ATLANTA	DELTA	80%
CHARLOTTE 91	US AIRWAYS/UNITED	
CINCINNATI	DELTA	90
DALLAS/FT. W 71	AMERICAN	
DENVER 73	UNITED/US AIRWAYS	
DETROIT	NORTHWEST	78
HOUSTON INTL 83	CONTINENTAL	
MEMPHIS	NORTHWEST	75
MINNEAPOLIS	NORTHWEST	80
PHILADELPHIA 73	US AIRWAYS/UNITED	
PITTSBURGH 89	US AIRWAYS/UNITED	
SALT LAKE	DELTA	72
ST. LOUIS	TWA/AMERICAN	76
WASH. DULLES 74	UNITED/US AIRWAYS	

DOMINANT FIRMS (50-70 PERCENT)

CHICAGO	UNITED/US AIR	50
CLEVELAND 50	CONTINENTAL	
MIAMI	AMERICAN/TWA	56
NEWARK 61	CONTINENTAL	
OAKLAND	SOUTHWEST	68
SAN FRANCISCO 53	UNITED/US AIRWAYS	

## BIBLIOGRAPHY

- Allvine, Fred C., "Predatory Pricing and 'Fortress Hubs': Monopolization in the Airline Industry," 1997, Antitrust Law and Economics
- Baker, S. H. and J. B. Pratt, 1989, "Experience as a Barrier to Contestability," Review of Economics and Statistics.
- Bates, B. J., 1993, "Concentration in Local Television Markets," Journal of Media Economics.
- Bennett, R.D. and J. M. Craun, 1993, The Airline Deregulation Evolution Continues: The Southwest Effect.
- Berechman, J. and O. Shy, 1996, "Airport Deregulation and the Choice of Networks," in P. Nijkamp (ed.), Advances in Spatial Equilibrium, Berlin: Springer Verlag.
- Berechman, J. and J. de Wit, 1996, "An Analysis of the Effects of European Aviation Deregulation on an Airline's Network Structure and Choice of a Primary European Airport Hub," Journal of Transport Economics and Policy.
- Berry, S. T., 1992, "Estimation of a Model of Entry in the Airline Industry," Econometrica.
- \_\_\_\_\_, 1990, "Airport Presence as Product Differentiation," AEA Papers and Proceedings.
- Borenstein, S., 1989, "Hubs and High Fares: Dominance and Market Power in the U.S. Airline Industry," Rand Journal of Economics.
- \_\_\_\_\_, 1990, "The Dominant Firm Advantage in Multi-Product Industries: Evidence of the U.S. Airlines," Quarterly Journal of Economics.
- \_\_\_\_\_, "Airline Mergers, Airport Dominance, and Market Power," AEA Papers and Proceedings.
- Brander, J.A. and A. Zhang, 1990, "Market Conduct in the Airline Industries: An Empirical Investigation," Rand Journal of Economics.
- \_\_\_\_\_, 1993, "Dynamic Oligopoly Behavior in the Airline Industry," International Journal of Industrial Economics.
- Brenner, M. A., 1989, "Action Needed to Correct Pricing and Service Distortions of Airline Deregulation," American Economic Review.
- Breyer, S., 1990, "Regulation and Deregulation in the United States: Airlines, Telecommunications and Antitrust," in G. Majone (ed), Deregulation or Re-Regulation: Regulatory Reform in Europe and the United States, St. Martins.
- Brooks, M. and K. J. Button, "Yield Management: A Phenomenon of the 1980s and 1990s?" International Journal of Transport Economics.
- Brueckner, J. K. and P. T. Spiller, 1991, "Competition and Mergers in Airline Networks," International Journal of Industrial Organization.
- Brueckner, J.K, N.J. Dyer and P.T. Spiller, 1992, "Fare Determination in Airline Hub-and-Spoke Networks," Rand Journal of Economics.
- Butler, R.V. and J. H. Huston, 1989, "How Contestable are Airline Markets?," Atlantic Economic Journal.
- Button, K. 1996, "Liberalizing European Aviation," Journal of Transportation Economics and Policy.
- Call, G. D. and T. E. Keeler, 1985, "Airline Deregulation, Fares, and Market Behavior: Some Empirical Evidence, in f. Daugherty, ed., Analytic Studies in Transport Economics (Cambridge University Press).
- Consumers' Association, 1996, Consumers' Association Comments on the Proposed Alliance Between British Airways and American Airlines.
- Cooper, Mark, 1987, The Downsides of Deregulation: A Consumer Perspective after a Decade of Regulatory Reform, Consumer Assembly.
- \_\_\_\_\_, 1989, "Testimony of Dr. Mark Cooper, Director of Research on Airline Competition," Subcommittee on Aviation, Commerce, Science and Transportation Committee, United States Senate.
- \_\_\_\_\_, 1991, "Testimony of Dr. Mark Cooper, Director of Research on Airline Competition and Consumer Protection," Subcommittee on Aviation, Committee on Public Works Transportation U.S. House of Representatives.
- \_\_\_\_\_, 1997a, Open Skies: Closed Airports: The Impact of the British Airways-American Airlines Merger on Trans-Atlantic Travel.
- \_\_\_\_\_, 1997b, Last Chance for Local Competition: Policies to Open Markets Before Baby Bells Begin to Sell In-Region Long Distance Service.
- \_\_\_\_\_, 1998, Affidavit of Mark N. Cooper on Behalf of the Consumer Federation of America, before the Public Utility Commission of California R.93-04003, I.93-04-002, R.95-04043, R.85-04044.
- \_\_\_\_\_, 2000a "Testimony Of Dr. Mark N. Cooper, On The Proposed United Airlines-Us Airways Merger," Antitrust Committee, United States Senate, June 14, 2000
- \_\_\_\_\_, 2000b, "Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed Proprietary Networks," University of Colorado Law Review.
- \_\_\_\_\_, 2000c, "The Role Of Technology And Public Policy In Preserving An Open Broadband Internet The Policy Implications Of End-To-End, Stanford Law School.

- \_\_\_\_\_, 2001, "Antitrust as Consumer Protection in the New Economy: Lessons from the Microsoft Case," Hastings Law Journal, forthcoming.
- Dresner, M. and M. W. Threthaway, 1992, Modeling and Testing the Effect of Market Structure on Price: The Case of International Air Transport, University of Maryland.
- Dresner, M. and R. Windle, The Liberalization of US International Air Policy: Impact on US Markets and Carriers, University of Maryland.
- Dresner, M., J. C. Lin and R. Windle, 1996, "The Impact of Low-Cost Carriers on Airport and Route Competition," Journal of Transport Economics and Policy.
- ESI, GKMG Consulting, The Advent of Aviation Networks, October 2000.
- Evans, W. N. and I. A. Kessides, 1993, "Localized Market Power in the Airline Industry," Review of Economics and Statistics.
- Friedman, J.W., 1983, Oligopoly Theory, Cambridge University Press.
- Good, D. H., L. Roller and R. C. Sickles, 1993, "US Airlines Deregulation: Implications For European Transport," The Economic Journal.
- Graham, D. R., D. P. Kaplan and D. S. Sibley, 1983, "Efficiency and Competition in the Airline Industry," Bell Journal of Economics.
- Hayes, Kathy J. and Leola B. Ross, "Is Airline Price Dispersion the Result of Careful Planning or Competitive Forces?," 1998, Review of Industrial Organization.
- Hendricks, K., M. Piccione and G. Tan, 1995, "The Economics of Hubs: The Case of Monopoly," Review of Economic Studies.
- Hurdle, et al., 1989, "Concentration, Potential Entry, and Performance in the Airline Industry," Journal of Industrial Organization.
- Jordan, W. A., 1989, "Problems Stemming from Airline Mergers and Acquisitions," Transportation Journal.
- Jorge-Calderon, J.D., 1996, "Evaluating the Effectiveness of Airline Operation Strategies in UK International Markets," International Journal of Transport Economics.
- Joskow, A. S., et al., 1994, "Entry, Exist and Performance in Airline Markets," International Journal of Industrial Organization.
- Kahn, A.E., 1992, "Airline Deregulation: A Mixed Bag but a Clear Success," Transportation Journal.
- Kahn, A. E., 1993, "The Competitive Consequences of Hub Dominance: A Case Study," Review of Industrial Organization.
- Kling, J. A. and K. A. Smith, 1995, "Identifying Strategic Groups in the U.S. Airline Industry: An Application of the Porter Model," Transportation Journal.
- Layer, C.R., 1989, "The Next Decade Belongs to the Airlines Unless...," Transportation Quarterly.
- Levine, M.E., 1987, "Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy," Yale Journal on Regulation.
- Malloy, J. F., 1985, The U.S. Commuter Airline Industry, Lexington Books.
- Meyer, J. R. And C. V. Oster, 1984, Deregulation and the New Airline Entrepreneurs, MIT Press.
- McShane, S. and C. Windle, 1989, "The Implications of Hub and Spoke Routing for Airline Costs and Competitiveness," Logistics and Transportation Review.
- Mallaiebiau E., and Mark Hansen, 1994, "Demand and Consumer Welfare Impacts of International Airline Liberalization," Journal of Transport Economics and Policy.
- McCartney, S., 1996, "Air Pressure: Start-Ups Still Suffer from ValuJet Crash and FAA's Missteps," Wall Street Journal, December 9.
- Moore, T. G., 1986, "U.S. Airline Deregulation: Its Effects on Passengers, Capital, and Labor," Journal of Law and Economics.
- Morrison, S. A. and C. Winston, 1986, The Economic Effects of Airline Deregulation, Brookings, Washington, D. C.
- \_\_\_\_\_, 1987, "Empirical Implications and Tests of the Contestability Hypothesis," Journal of Law and Economics.
- \_\_\_\_\_, 1989, "Enhancing the Performance of the Deregulated Air Transportation System," Brookings Papers on Microeconomics.
- \_\_\_\_\_, 1990, "Deregulated Airline Markets: The Dynamics of Airline Pricing and Competition," AEA Papers and Proceedings.
- \_\_\_\_\_, 1995, The Evolution of the Airline Industry, Brookings, Washington, D.C.
- Morrison, S. A., 1996, "Airline Mergers: A Longer View," Journal of Transport Economics and Policy.
- Nero, Giovanni, 1999, "A Note on the Competitive Advantage of Large Hub-and-Spoke Networks," Transportation Research, Part E.
- Oster, Clinton V. and John S. Strong, 2001, Predatory Practices in the U.S. Airline Industry, January 15.

Ott, J. and R. E. Neidl, 1995, Airline Odyssey, McGraw Hill.

Oum, T. H., D. W. Gillen, and S. E. Nebble, 1986, "Demand for Fareclass and Pricing in Airline Markets," Logistics and Transportation Review.

Oum, T. H., W. G. Waters and J. Yong, 1992, "Concepts of Price Elasticity of Transport Demand and Recent Empirical Estimates," Journal of Transport Economics.

Oum, T. H., A. Zhang and Y. Zhang, 1993, "Inter-Firm Rivalry and Firm-Specific Price Elasticities in Deregulated Airline Markets," Journal of Transport Economics and Policy.

\_\_\_\_\_, 1995, "Airline Network Rivalry," Canadian Journal of Economics.

Oum, T. H. and A. J. Taylor, 1995, "Emerging Patterns in Intercontinental Air Linkages and Implications for International Route Allocation Policy," Transportation Journal.

Oum, T. H., J. Park and A. Zhang, 1996, "The Effects of Airline Codesharing Agreements on Firm Conduct and International Airfares," Journal of Transport Economics and Policy.

Petraf, M. A. and R. Reed, 1994, "Pricing and Performance in Monopoly Airline Markets," Journal of Law and Economics.

Petraf, M. A., 1995, "Sunk Costs, Contestability and Airline Monopoly Power," Review of Industrial Organization.

Rakowski, J.P. and David Bejou, 1992, "Birth, Marriage, Life and Death: A Life-Cycle Approach for Examining the Deregulated U.S. Airline Industry," Transportation Journal.

Reiss, P. and P. Spiller, 1989, "Competition and Entry in Small Airline markets," Journal of Law and Economics.

Shepherd, W.G. 1985, The Economics of Industrial Organization, Prentice Hall.

Strassman, D.L., 1990, "Potential Competition in the Deregulated Airlines," Review of Economics and Statistics.

The National Commission to Ensure A Strong Competitive Airline Industry, 1993, A Report to the President: Change, Challenge, and Competition, Washington, D.C.

Town, R. and S. Milliman, 1989, "Competition in Deregulated Airline Fares," in L. W. Weiss (ed.), Concentration and Price, Cambridge, MIT Press.

Transport Committee, House of Commons, 1996, The Proposed Alliance Between British Airways and American Airlines, Sixth Report: Report and Minutes of Proceedings, Session 1995-1996.

Transportation Research Board, 1991, National Research Council, Winds of Change, Special Report 230.

\_\_\_\_\_, 1999, Entry and Competition in the U.S. Airline Industry: Issues and Opportunities: Special Report, 255.

Transworld Airlines, Inc., 1996, Market Effects of the Proposed American Airlines/British Airways Alliance, GRA, Incorporated.

U.S. Department of Justice, Merger Guideline, revised, 1984.

U.S. Department of Transportation, 1993, The Airline Deregulation Evolution Continues: The Southwest Effect, Washington, D. C.

\_\_\_\_\_, 1996, The Low Cost Airline Service Revolution, Washington, D.C.

\_\_\_\_\_, 1998, Docket No. OST 98-3713.

\_\_\_\_\_, 2001, Dominated Hub Fares, January,

\_\_\_\_\_, 2001, Enforcement Policy Regarding Unfair Exclusionary Conduct in the Air Transportation Industry, Docket OST-98-3713, January 17.

U.S. General Accounting Office, 1990, Airline Competition: Industry Operating and marketing Practices Limit Market Entry, Washington, D.C.

\_\_\_\_\_, 1991, Airline Competition: Effects of Airline Market Concentration and Barriers to Entry On Airfares, Washington, D.C.

\_\_\_\_\_, 1996, Airline Deregulation: Barriers to Entry Continue to Limit Competition in Several Key Domestic Markets, Washington, D.C.

Vakil, F. And M. G. Russon, 1996, "Enplaned Passenger Flight Frequency Functions for Short Hauls Air Transport Passenger Flows," Logistics and Transportation Review.

Virgin Atlantic Airways Limited, 1996, Presentation to the House of Commons Transport Select Committee in Opposition to the Proposed Alliance Between British Airways and American Airlines.

Werden, G.J., A.S. Joskow and R. L. Johnson, 1989, "The Effects of Mergers on Economic Performance: Two Case Studies from the Airline Industry," U. S. Department of Justice Discussion Paper, No. EAG 89-15.

Whinston, M. D. and S. C. Collins, 1992, "Entry and Competitive Structure in Deregulated Airline Markets: An Events Study Analysis of People Express," Rand Journal of Economics.

Windle, R. and M. Dresner, 1995, "Airport Choice in Multiple Airport Regions," Journal of Transportation Engineering.

\_\_\_\_\_, 1995b, "The Short and Long Run Effects of Entry on US Domestic Air Routes," Transportation Journal.

Williams, G., 1995, The Airline Industry and the Impact of Deregulation, Aldershot: Avebury Aviation.

Zhang, A., 1996, "An Analysis of Fortress Hubs in Airline Markets," Journal of Transport Economics

