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BENEFICENT BIAS: THE CASE AGAINST REGULATING AIRLINE COMPUTERIZED RESERVATION SYSTEMS

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WHEN AMERICAN AIRLINES introduced its SABRE computerized reservation system (CRS) in 1976, it began a technological revolution that would allow nearly every travel agent to make airline reservations almost instantaneously. CRS's slashed agent and airline costs while making it much more convenient for consumers to book airline, hotel, and rental-car reservations. The Airline Deregulation Act of 1978¹ made such a service particularly important since the Act prompted airlines to offer an ever-changing proliferation of fares accompanied by a variety of restrictions.

American and the other major airlines that developed CRS systems received a less than enthusiastic response from regulators. Because their innovation became such

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¹ Pub. L. No. 95-504, 92 Stat. 1705 (1978) (codified as amended in scattered sections of 49 U.S.C.).

an indispensable marketing tool, the Civil Aeronautics Board (CAB) in 1984 effectively labeled the five airline-owned CRS's "barriers to entry" and promulgated a plethora of rules designed to ensure that all airlines would have fair access to each CRS.² In March of 1991, the Department of Transportation proposed additional restrictions in the name of consumer protection (DOT proposed rules).³ Some analysts and policymakers would go even further by forcing airlines to divest their ownership interests in CRS's.⁴ Thus, the message to airlines seems to be that innovation does not pay.

This new type of airline regulation flourished in the Reagan and early Bush administrations, even as Department of Transportation officials and antitrust authorities staunchly defended airline route and rate deregulation. While special interest group pressures no doubt explain this policy paradox, there remains an intellectual paradox that deserves an intellectual explanation. Simply put, how can policymakers and economists square intense regulation of a major innovation with an overall deregulatory airline policy?

The answer lies in the economic research and theories underlying the original airline deregulation movement. As the Harvard Business School's Thomas McCraw notes in his biographical chapter on economist Alfred Kahn, the airline deregulation movement contained "a number of strange bedfellows," including "the National Association of Manufacturers, Common Cause, Sears Roebuck, the American Association of Retired Persons, the Aviation Consumer Action Project, the National Taxpayers Union," and other diverse interests.⁵ A glance at some of the relevant personalities underscores McCraw's point.

Kahn, the CAB chairman who spearheaded the Carter

² 14 C.F.R. §§ 255-256 (1991).

³ 56 Fed. Reg. 12,586 (1991) (to be codified at 14 C.F.R. pt. 255) (proposed Mar. 26, 1991) [hereinafter DOT Proposed Rules].

⁴ Michael E. Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. ON REG. 393, 482 (1987).

⁵ THOMAS MCCRAW, *PROPHETS OF REGULATION* 268 (1984).

administration's deregulation efforts, possessed strong liberal Democratic credentials, as did the Senate's deregulation champion, Sen. Edward Kennedy (D-MA). Yet strong support for deregulation also came from Elizabeth Bailey,⁶ another economist and a Republican member of the CAB, and two major academic critics of airline regulation, James C. Miller III and George Douglas,⁷ both of whom were later appointed to the Federal Trade Commission by President Reagan. Airline deregulation clearly cut across political and ideological lines.

The one point on which all of the pro-deregulation economists, policymakers, and interest groups agreed was that a government-enforced airline cartel was bad for the airlines' customers and bad for the national economy. Later confusion would arise because this view is compatible with nearly all schools of thought in industrial organization. "Structure-conduct-performance" economists tend to believe that private markets are rife with barriers to entry, strategic behavior, and other imperfections that government can and should correct, but these economists would hardly recommend a government-enforced airline cartel as the cure.⁸ Nor is such a cartel desirable from a "Chicago" antitrust perspective, because in the absence of collusion and barriers to entry, the private marketplace can usually be counted on to approximate maximum economic efficiency.⁹ Contestable market theory, meanwhile, suggested that even if only one or two airlines competed on a route, potential competition would exercise a powerful discipline.¹⁰ Public choice economists questioned the

⁶ *Id.* at 273.

⁷ See, e.g., George W. Douglas & James C. Miller III, *Quality Competition, Industry Equilibrium, and Efficiency in the Price-Constrained Airline Market*, 64 AM. ECON. REV. 657 (1974); George W. Douglas & James C. Miller III, *ECONOMIC REGULATION OF DOMESTIC AIR TRANSPORT: THEORY, EVIDENCE, AND PUBLIC POLICY* (1974).

⁸ F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* (2d ed. 1980); MICHAEL WATERSON, *ECONOMIC THEORY OF THE INDUSTRY* (1984).

⁹ ROBERT BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978); POSNER, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925 (1977).

¹⁰ Elizabeth E. Bailey, *Contestability and the Design of Regulatory and Antitrust Policy*,

CAB's ability to do anything except serve politically powerful constituencies, to the detriment of consumers.¹¹ "Market process" economists see most all regulatory agencies as principal barriers to entrepreneurial innovation.¹² About the only intellectual defenders of pre-1978 regulation would be believers in theories of "destructive competition," but such notions have not been fashionable in economics since the Great Depression.¹³

Despite this rich variety of viewpoints on competition and regulation, most policymakers continue to view government regulation of the CRS industry as necessary to prevent anticompetitive behavior though the use of CRS's — especially those that are owned by airlines. The principal argument for regulation is that lack of competition permits CRS-owning airlines to bias screen displays in ways that disadvantage competitors; hence, government regulation is needed to prevent display bias and other forms of discrimination. This article seeks to show that continued government regulation of the CRS industry is not only unnecessary, but quite likely to harm consumers.

71 AM. ECON. REV. 178 (1981). For evaluations of this hypothesis under deregulation, see STEVEN A. MORRISON AND CLIFFORD WINSTON, *THE ECONOMIC EFFECTS OF AIRLINE DEREGULATION* (1986); ELIZABETH E. BAILEY, DANIEL R. GRAHAM, AND DANIEL P. KAPLAN, *DEREGULATING THE AIRLINES* (1985); Ayers, *Determinants of Airline Carrier Conduct*, 8 INT'L. J.L. & ECON. 187 (1988); Steven A. Morrison and Clifford Winston, *Empirical Implications and Tests of the Contestability Hypothesis*, 30 J.L. & ECON. 53-54 (1987); Thomas Gabe Moore, *U.S. Airline Deregulation: Its Effects on Passengers, Capital, and Labor*, 29 J.L. & ECON. 1-22 (1986); David R. Graham, Daniel P. Kaplan, and David S. Sibley, *Efficiency and Competition in the Airline Industry*, 14 BELL J. ECON. & MGMT. SCI. 118-37 (1983).

¹¹ George S. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 5 (1971); Richard A. Posner, *Taxation by Regulation*, 2 BELL J. ECON. & MGMT. SCI. 22, 23 (1971).

¹² On the ways in which regulation diminishes entrepreneurial innovation, see ISRAEL KIRZNER, *DISCOVERY AND THE CAPITALIST PROCESS* 114-49 (1985) (providing a detailed analysis of the capitalist system and how certain systems, such as regulation, affect it).

¹³ In legal literature, Paul Steven Dempsey has spent his career warning about destructive competition under deregulation. See PAUL S. DEMPSEY, *FLYING BLIND: THE FAILURE OF AIRLINE DEREGULATION* (1990) [hereinafter DEMPSEY, *FLYING BLIND*]; Paul S. Dempsey, *The Empirical Results of Airline Deregulation: A Decade Later and the Band Played On*, 17 TRANSP. L.J. 31 (1988) [hereinafter Dempsey, *Empirical Results*].

THE CRS INDUSTRY

Ironically, the current structure of the computerized reservation system (CRS) market stems in part from previous government policies. In 1967, twenty-one airlines agreed jointly to develop a CRS system that would be shared by the entire industry. Antitrust officials, however, hinted that such a system might violate the antitrust laws, and the Civil Aeronautics Board (CAB) refused to grant antitrust immunity.¹⁴ In 1976, American Airlines and United Air Lines announced that they would each market their own systems, SABRE and APOLLO, respectively. They were followed by Delta (DATAS II), Eastern (SODA), Northwest and TWA (PARS), and, reluctantly, Texas Air (System One).¹⁵ Texas Air merged SODA into System One when it bought Eastern. APOLLO is now owned by Covia Partnership, a joint venture of United and six other airlines.

The three leading CRS's have been quite profitable. The Department of Transportation estimated that the three largest systems earn economic rates of return exceeding 100 percent.¹⁶ Critics charge that such returns represent monopoly profits, relying on several facts as evidence of monopolization:¹⁷

- There are only five systems, and two — Apollo and Sabre — dominate many local markets.

¹⁴ McSHANE, *COMPUTER RESERVATION SYSTEMS: A STUDY OF THEIR IMPACT ON COMPETITION IN THE UNITED STATES AIRLINE INDUSTRY* 5-6 (1987).

¹⁵ Pam Fair, Comment, *Anti-Competitive Aspects of Airline Ownership of Computerized Reservation Systems*, 17 *TRANSP. L.J.* 321, 328 (1989).

¹⁶ U.S. DEP'T OF TRANSP. DOT-P-37-88-2, *STUDY OF AIRLINE COMPUTER RESERVATION SYSTEMS* (1988) [hereinafter DOT STUDY]. See also *Hearings before the Subcomm. on Aviation of the House Comm. on Public Works and Transp.*, 100th Cong., 2d Sess. 397 (1988) [hereinafter *House Aviation Subcomm. Hearings*].

¹⁷ See generally U.S. DEPT. OF TRANSP., *AIRLINE MARKETING PRACTICES: TRAVEL AGENCIES, FREQUENT-FLYER PROGRAMS, AND COMPUTER RESERVATION SYSTEMS* 99 (1990); Fair, *supra* note 15, at 327-36 (discussing the CRS market since deregulation); Dempsey, *Empirical Results*, *supra* note 13, at 53; Levine, *supra* note 4, at 423-25, 458-64 (discussing unanticipated economic effects of deregulation); Robert L. Thornton, *Airlines and Agents: Conflict and the Public Welfare*, 52 *J. AIR L. & COM.* 371, 383 (1986); Derek Saunders, Comment, *The Antitrust Implications of Computer Reservation Systems (CRS)*, 51 *J. AIR L. & COM.* 157, 172, 180-83 (1985).

- The costs of developing computer systems and software pose a barrier to entry because they are probably sunk costs.¹⁸
- Travel agents and CRS owners sign long-term contracts that include minimum-use and liquidated-damages provisions.
- Most travel agents subscribe to only one CRS.
- CRS technology allows the owning airline to overtly or covertly bias displays and other features so that travel agents will choose its flights over those of competitors.¹⁹

At the same time, CRS's have dramatically lowered airline and travel agent costs. One travel agent estimated that making airline reservations on a CRS takes only one-third the time it takes to make reservations by looking up fares in the Official Airline Guide.²⁰ A 1981 Harris survey indicates that CRS raised travel agents' productivity by an average of forty-one percent.²¹ Although travel agents retain the option of returning to pre-automation technology, ninety-five percent subscribe to at least one CRS.²²

In 1984, the CAB acceded to the critics and published a number of rules for airline-owned CRS's.²³ In addition to other regulations, the rules prohibit display bias, which is the practice of listing the CRS-owning airline's flights first, or otherwise giving them greater prominence on the computer screen.²⁴ The CAB also limited to five years the length of contracts between CRS providers and travel

¹⁸ Sunk costs are costs that a firm cannot recover if it leaves the industry. These costs are "the difference between the ex ante opportunity cost and the value that could be recovered ex post after a commitment to a given project has been made." WILLIAM W. SHARKEY, *THE THEORY OF NATURAL MONOPOLY* 37 (1982).

¹⁹ See Severin Borenstein, *Hubs and High Fares: Dominance and Market Power in the U.S. Airline Industry*, 20 RAND J. ECON. 344, 346-47 (1989).

²⁰ *Note on Airline Reservation Systems*, 8 HARV. BUS. SCHOOL CASE STUDY No. 9-184-009 (1985).

²¹ Martindale, *New Reservations About Airline Computers*, FREQUENT FLYER, Dec. 1982, at 45-50.

²² DOT STUDY, *supra* note 16, at 10. See also House Aviation Subcomm. Hearings, *supra* note 16, at 1.

²³ 14 C.F.R. §§ 255, 256 (1991).

²⁴ 14 C.F.R. §§ 255-4, 256.4(b) (1991).

agents, and it prohibited discriminatory booking fees, tie-ins, and exclusive-use contracts.²⁵

In March 1991, DOT proposed to renew these rules and add several others.²⁶ As with previous rules, this most recent Department of Transportation proposal seeks to stamp out display bias and derivative "unfair" practices that allegedly prompt travel agents to mislead consumers into choosing higher-priced flights on CRS-owning airlines.

WHAT IS CRS DISPLAY BIAS?

The academic and legislative literature on computerized reservation system (CRS) regulation contains several references to CRS "bias,"²⁷ "prejudice,"²⁸ and similar terms implying that CRS owners treat some airlines with favoritism at the expense of other airlines and, ultimately, at the expense of consumers. According to the Department of Transportation (DOT), display bias was rampant in the CRS industry before regulation began in 1984.²⁹

Understanding display bias requires a rudimentary understanding of how a travel agent views and utilizes information displayed on a CRS screen. Suppose a customer requests that a travel agent book a May 31 flight from New York to Los Angeles leaving at 10:00 a.m. The agent feeds this information into a CRS system, which displays all New York-to-Los Angeles flights leaving New York between 9:30 a.m. and 10:30 a.m. offered by all airlines that list on this CRS. Since there will likely be more than one New York-to-Los Angeles flight offered during this time period, it is unavoidable that one flight will be listed first, another second, and so on. If the customer requests that

²⁵ 14 C.F.R. § 255.6 (1991).

²⁶ DOT Proposed Rules, *supra* note 3, at 12,586.

²⁷ Levine, *supra* note 4; DEMPSEY, *FLYING BLIND*, *supra* note 13; Dempsey, *Empirical Results*, *supra* note 13; Fair, *supra* note 15; Saunders, *supra* note 17; Thornton, *supra* note 17; Borenstein, *supra* note 19; DOT Proposed Rules, *supra* note 3, at 12,589.

²⁸ DOT Proposed Rules, *supra* note 3, at 12,589.

²⁹ *Id.*

the travel agent find not only a flight leaving New York for Los Angeles at 10:00 a.m. but one that is non-stop, the search will be narrower. The CRS will then display only non-stop New York-to-Los Angeles flights leaving between 9:30 a.m. and 10:30 a.m. Either way, except in the unlikely event of there being only a single flight generally satisfying the customer's request, travel agents will find some flights listed ahead of other flights on a CRS screen. Thus, nearly all CRS listings inevitably bias some flights at the expense of others. This unavoidable type of bias is not what government regulators formally attack as display bias.

Display bias, in the words of a United States District Court, "is the practice of displaying flight information in a way that favors the vendor airline."³⁰ Regulators and CRS critics believe that CRS owners have an incentive to list their own flights first, thus generating an unfair competitive advantage at the expense of other airlines.³¹

In our example, display bias occurs if the vendor airline programs its CRS to list its 10:25 a.m. New York-to-Los Angeles flight ahead of other airlines' otherwise identical flights scheduled to leave at times nearer to the customer's requested time of 10:00 a.m. Airline-owned vendors have innumerable options for biasing CRS displays in their favor. In addition to the above example, the vendor may program its CRS to list only those flights of other airlines that are scheduled to depart within, say, one hour of the customer's requested departure time, while it lists

³⁰ *In re Air Passenger Computer Reservation Sys. Antitrust Litig.*, 694 F. Supp. 1443, 1450 (C.D. Cal. 1988). DOT defines display bias somewhat more broadly. According to DOT, display bias occurs when CRS vendors use factors "directly or indirectly related to carrier identity in ordering the flights" displayed on CRS screens summoned by travel agents. DOT Proposed Rules, *supra* note 3, at 12,609. Strictly speaking, according to this definition, display bias occurs even if the algorithms that determine the order of a CRS display favor a carrier that does not own the CRS. However, the DOT and other writers on this subject insist that display bias inevitably favors the carriers that own CRS's. See DOT Proposed Rules, *supra* note 3, at 12,589; Fair, *supra* note 15; Borenstein, *supra* note 19; Levine, *supra* note 4; Thornton, *supra* note 17; Saunders, *supra* note 17; Dempsey, *Empirical Results*, *supra* note 13; DEMPSEY, FLYING BLIND, *supra* note 13.

³¹ *In re Air Passenger*, 694 F. Supp. at 1450.

all of its own flights scheduled to depart within two hours. The reader can no doubt imagine other methods available to create display bias. This is an example of display bias because the only reason the vendor-airline's flight is listed first is because it owns the CRS.³² The DOT believes this bias harms air passengers.³³ However, as we argue presently in this article, no good reason exists to suppose that consumer-welfare-reducing display bias of any kind will in fact occur.

Contrary to this prevailing opinion, however, the so-called "display bias" that emerges in an unregulated market can promote, rather than interfere with, the goal of maximizing consumer welfare.³⁴ Indeed, there are strong reasons to believe that display bias will occur in an unregulated CRS market only if it promotes consumer welfare. We argue below that display bias that promotes consumer welfare will occur in a free market. However, if other, non-biased methods of ordering a CRS display better promote consumer welfare, these other methods will be used. For example, if consumers are largely indifferent to carrier identity and are extremely price conscious, unregulated CRS vendors have strong incentives to arrange displays according to price.

Regulators and CRS critics assume without warrant that biased displays are always and necessarily harmful in comparison with other seemingly more neutral displays — i.e.,

³² *Id.* See also Margaret E. Guerin-Calvert, *Vertical Integration as a Threat to Competition: Airline Computer Reservation Systems*, in *THE ANTITRUST REVOLUTION* 338-70 (John E. Kwoka & Lawrence White eds., 1989). Guerin-Calvert argues that display bias occurs when displays are "ordered by using carrier-specific factors as the means for ranking flights, rather than, say, the best elapsed time or the most convenient departure time." *Id.* at 350.

³³ For a more complete statement of the DOT's position, see *infra* notes 37-38 and accompanying text.

³⁴ "Bias" is a word loaded with negative connotations. If we could, we would change the name of the type of display ordering likely to emerge on a free market from "display bias" to something less pejorative. However, "display bias" is now ensconced as the descriptive name for CRS displays that are ordered according to carrier identity. Wishing to avoid a debate over semantics, we here stick with the term "display bias" to describe all CRS orderings that are arranged according to carrier identity.

displays not based on carrier identity. The lack of horizontal collusion among CRS vendors, along with low barriers to entry into the travel-agency business, help ensure that the order of CRS displays — whether biased or not — will promote rather than diminish consumer welfare.

DO CRS-OWNING AIRLINES HAVE AN UNFAIR ADVANTAGE?

Complaints about display bias usually assume that bias must benefit the airline owning the computerized reservation system (CRS). The Department of Transportation (DOT) recently expressed the prevailing fear of display bias:

Before the [now-defunct] Civil Aeronautics Board adopted the CRS rules . . . each vendor biased its displays of airline services to improve the display position of its own flights and to worsen (and sometimes eliminate) the display of its competitors' flights. This shifted traffic away from their competitors to the vendors, thereby reducing or eliminating the profitability of competing flights operated by non-vendors. The bias thus handicapped airlines in competing on the basis of service and fares, for consumers and their agents often would not learn which airline provided the best service for them.³⁵

DOT here describes a case of market failure; it argues, in effect, that market forces are insufficient to keep the profit-maximizing efforts of airline-owned CRS vendors confined to those activities that promote consumer welfare. DOT believes the CRS market failed prior to regulation:

Because travel agents are busy, they usually booked a flight from the first screen of the display and often booked the first flight displayed. The vendors used display bias to improve the position of their flights in the display, whether or not their flights best met the traveller's schedule and fare requirements.

As a result, travel agents often booked consumers on

³⁵ DOT Proposed Rules, *supra* note 3, at 12,589.

less suitable flights because the best flight was in a lower position on the first screen or on a later screen.³⁶

However, DOT's argument collapses under scrutiny.

First, it is at least questionable that travel agents who, according to DOT, operate in a "highly competitive" industry³⁷ will not glance to the bottom of their screens or scroll to a second, third, or fourth screen in order to find the flights that their customers most desire. Customers of firms operating in a competitive industry can easily switch from one firm to another until they find the firm charging the lowest possible price and offering the best available package of services. If flights with lower air fares are listed later in the CRS display, travel agents who consistently take the few seconds required to find these more desirable flights will take business away from agents who fail to check for more suitable flights. The only reason such searches by travel agents will not occur is if the typical customer values the thirty seconds or so of his time more than the amount of money he could save through a more extensive search.³⁸ This will occur if the fare differences between listed flights are typically small which suggests that the airline industry is competitive, or if the amount of time required to search the entire CRS display is relatively large. The first of these possibilities seems likely; the second does not. It may, however, be too costly for travel agents to search CRS displays for flights more suited to their customers' demands. No detailed data exists to refute this possibility. Therefore, this paper concedes the assumption made in virtually all the literature on CRS regulation, namely, that the costs of display searches by travel agents are significant.

Nevertheless, even if flights listed first in a CRS display always enjoy an advantage over flights listed further down

³⁶ *Id.* at 12,608.

³⁷ *Id.* at 12,609.

³⁸ Only uncovering lower air fares is discussed here; however, the point is more general. A travel agent who looks past the first listed flight may not find only lower fares, but better flight times or other non-price amenities that are valued by the customer.

on the display, airline-owned vendors will not have sufficient incentives to give their own flights priority listing unless such a listing maximizes the value of the CRS to travel agencies and their customers.³⁹ To the extent that being listed first conveys any advantages, it promotes whatever airline that happens to be listed first. However, it is likely that the premier listing on a display for any given route is more valuable to some airlines than to others, because such a listing may raise some airlines' revenues more than others'. For example, United's profits per booking for flights to and from Atlanta may increase by two dollars if its flights move up in the display to premier listing, whereas Delta's profits per booking may increase by three dollars for a similar move. Delta will likely outbid United for the premier display listing for these flights.⁴⁰

Thus, the CRS vendor can charge a premium for these advantageous slots. If a CRS-owning airline biases its CRS to favor itself, any extra revenues that result are not free. A vendor that lists its own flights in the advantaged slots forgoes the premium other airlines would have paid for these slots. As long as airlines and CRS systems are permitted to bargain with each other, the airlines that value these positions most highly will get them regardless of who owns the CRS.

In other words, the Coase Theorem⁴¹ should work in the CRS industry. The Coase Theorem implies that the legal right to take an action does not necessarily translate into an economic motivation to take that action. Legally recognized and enforced rights are distinct from econom-

³⁹ For reasons why a travel agency might demand that its CRS vendor list the flights of a certain airline ahead of others, see *infra* notes 47-49 and accompanying text.

⁴⁰ It is unlikely that a single airline will attach the highest value to being listed first in all displays for all routes in a CRS's data base. It is much more likely, for example, that Delta, with a hub in Atlanta, is willing to pay more than any other airline to be listed first on displays showing flights to Atlanta, while United is willing to offer top dollar for premier listing on displays showing flights to Washington's Dulles airport, where United has a hub.

⁴¹ See Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

ically rational exercises of these rights. If the owner of a right is free to sell it, whoever values the right most highly will buy it.

Consider an example. Suppose a listing airline that does not own a CRS has a hub in New Orleans and being listed first on a CRS display of flights to and from New Orleans is worth five dollars per passenger more to this airline than to any other airlines. This New Orleans-based airline will find it rational to offer up to five dollars more per booking to be listed first on displays showing flights to and from New Orleans. If an airline owner of a CRS insists on listing its own New Orleans flights first rather than those of the carrier with a hub in New Orleans, the vendor airline forgoes the extra five dollars per booking it could receive if it sells the premier list position to the New Orleans-based carrier. No profit-maximizing airline will continue to list itself first even on its own CRS if another carrier is willing and able to pay more for the premier listing than it is worth to the CRS owner. In short, display bias will occur only when the airline that owns a CRS happens to value the premier slot in a display more than does any other airline serving the route indicated by this display. In an unregulated market, CRS listing slots are not allocated arbitrarily according to the whims of CRS owners. They are allocated according to their market values regardless of who owns the CRS's.⁴²

Note that no one has presented strong evidence to show that the CRS industry is monopolized or that its members collude with each other. As a matter of fact, advantageous display slots in a CRS will be allocated to their most highly valued users even if the CRS industry is mo-

⁴² See, e.g., *Airline Reservation Systems: Curse of the Mummy's Tomb*, REGULATION, Jan.-Feb. 1985, at 8, 8-9, 55-56: "The most obvious way for a carrier to bid for better screen position, of course, is to offer a higher fee to the system operator." *Id.* at 55. In addition, some real-world evidence exists to support our claim that CRS vendors will voluntarily sell privileged slots in displays to airlines. Prior to the 1984 C.A.B. regulation of CRS's, "some airlines paid additional fees for enhancements, such as boarding passes and preferential listings in the display." Guerin-Calvert, *supra* note 32, at 342.

nopolized. A monopoly CRS vendor, no less than a competitive vendor, maximizes its profits by selling advantageous slots to airlines that value these slots most highly. If the airline owner of a monopoly CRS vendor values the first listing slot more than any other airline, it will keep the first listing for itself. If another airline values this listing more highly, a profit-maximizing monopoly vendor will grab the higher revenues available by selling the listing to that airline. Consequently, display bias is no more likely if the CRS industry is monopolized than if it is competitive.

THE MONOPOLY LEVERAGING ARGUMENT

One prominent response to the above argument is that a CRS-owning airline can use the CRS as a lever to secure monopoly power over certain routes. As the Department of Transportation (DOT) argues, the "concept of monopoly leveraging is applicable to the CRS's, since each vendor has the power and incentive to use its control of a system to unfairly prejudice the competitive position of its airline rivals."⁴³ For example, suppose American Airlines (a CRS owner) faces vigorous competition from America West (which does not own a CRS) on its Wichita-to-Phoenix flights. Assume additionally that America West would earn six dollars of additional revenue per booking if it were listed first in American's Sabre CRS displays showing flights from Wichita to Phoenix while American would earn only an additional two dollars per booking. America West would be willing to pay up to six dollars per booking for the premier listing and American would be willing to sell this privilege to America West. In a freely functioning market, America West would get prime listing before American.

But, according to the theory of monopoly leveraging, American might deny America West the premier display

⁴³ DOT Proposed Rules, *supra* note 3, at 12,602; *cf. id.* at 12,589 (noting that vendors control the flow of information between the airline and their primary distributor channel, travel agencies).

slot in an effort to gain for itself a monopoly over the Wichita-to-Phoenix route. As long as the current competitive situation persists, the additional revenues available to American from being listed first in the display are less than those available to America West. However, the prospect of earning monopoly profits on this route may make it worthwhile for American to refuse the six dollars per booking offered by America West. Suppose that by listing itself in the premier slot, American eventually secures a monopoly on the Wichita-to-Phoenix route. American will list itself first if the net present value of the monopoly profits it expects to gain exceeds the extra amount it would earn by selling the premier listing position to America West. In this way, American's CRS ownership could theoretically be used to harm competition in the airline industry.

It would be a mistake, though, to leap from this theoretical possibility to practical policy conclusions. The leveraging argument overlooks a simple but significant fact: the expected monopoly profits may not exceed the value of the revenues earned by selling the premier listing to another airline. In addition, several more subtle weaknesses plague the leveraging theory. First, the theory too cavalierly assumes that airlines have no effective alternatives to listing on CRS's. Second, it ignores the fact that CRS vendors compete amongst themselves for the patronage of travel agencies. Finally, it overlooks the airlines' ability to purchase preferential listings from the CRS owner. Consider each weakness in turn.

Alternatives to CRS

Listing on, and booking through, a CRS is only one of the means available to an airline to market its tickets. An airline can offer to sell tickets directly to the public by conducting advertising campaigns which reach consumers directly and prompt consumers to contact the airline, rather than a travel agent, for flight information and booking services. If a vendor tries to promote the flights

of one airline at the expense of other listed airlines, those airlines disadvantaged by these actions can withdraw from this vendor's system and begin marketing their own tickets more extensively. Note also that the attractiveness of this CRS to travel agencies will decrease as airlines pull out, making it less important for any airline to list on that particular CRS. Because of this possibility, travel agencies can be expected to protect themselves against devaluation of the CRS to which each subscribes by insisting on contract terms that restrict the ability of vendors to arbitrarily grant display favors to one airline at the expense of other airlines. In addition, nothing prevents airlines themselves from insisting on contract terms with CRS vendors that protect airlines from arbitrary display bias.

CRS Competition

The monopoly leveraging theory also ignores the ability of carriers who do not own a CRS system to use other CRS vendors to compete with attempted monopolization of particular air-passenger routes. Vendors compete amongst themselves for patronage by travel agencies. Just as a travel agency is unlikely to sign a contract allowing the vendor to charge higher prices than those charged by another vendor offering similar services, few travel agencies will subscribe to a vendor who uses display criteria preventing agencies from securing the most desirable flights and fares for customers.

To assert the contrary is to assume that travel agents are systematically inept business people or that entry into the travel-agency business is seriously impeded. This is a subtle point that was lost on the DOT and others. In previous work, one of the authors of this article suggested that, although alleged market power does not justify CRS regulation, display bias may give rise to fraud because consumers do not know which CRS system the travel agent uses and thus they have a hard time preventing

bias.⁴⁴ This argument ignores two facts: (1) consumers can easily shop among travel agencies, many of which subscribe to different CRS's, for lower-priced fares or better flights, and (2) existing agents who defraud consumers make entrance into the travel-agency business easier. For example, even if all current travel agents possess especially poor business skills or low ethical standards, low barriers to entry into the travel-agency business ensure that new agents will enter the market if profit opportunities exist.⁴⁵

Furthermore, anti-consumer display bias creates profit opportunities for new travel agents who will insist on contract terms prohibiting vendors from sequencing their displays in ways that prevent these new agents from providing better service to consumers. Consumers will shift from those agencies that allow vendors to bias their displays in ways that harm consumers to those agencies that do not allow harmful bias. Again, unless DOT can show that vendors are successfully colluding or that travel agencies operate in a market with high barriers to entry, the observed pattern of data sequencing provided by vendors is likely to promote consumer welfare.⁴⁶

⁴⁴ See Jerome Ellig, *Computer Reservation Systems, Creative Destruction, and Consumer Welfare: Some Unsettled Issues*, 19 TRANSP. L. J. 287, 303 (1991).

⁴⁵ The authors are not aware of anyone arguing that the travel-agency industry is marred by high entry barriers. Such an argument would be entirely unbelievable. Although the authors have no data on the typical dollar amount of capital required to run a successful travel agency, this amount is probably quite low. Travel agencies require only modest amounts of office space and office furniture, no expensive equipment, and labor which does not require long periods of specialized training. Perhaps the most expensive single investment for a travel agency is the computer hardware, but computers are no longer expensive items. Even if they were, investments in computers are not sunk costs because computers can easily be used in, or sold to, other businesses. Terminals and other specific CRS equipment may represent sunk costs for CRS vendors, but they are not for travel agents because travel agents can lease the equipment from vendors. Investments that are not sunk costs pose no entry barrier. See SHARKEY, *supra* note 18, at 146, 151-57.

⁴⁶ For reasons why data-sequencing patterns that appear to the outside observer to be biased against consumers might, in fact, contribute to consumer welfare, see *infra* notes 51-57 and accompanying text.

Market for CRS Slots

Finally, the leveraging theory overlooks the fact that a monopoly is worth something to carriers that do not own the CRS; there is no reason to assume A PRIORI that successful monopolization of an air-passenger route is worth more to an airline that owns a CRS than to an airline that does not own a CRS. Return to the American Airlines/America West example. Those who would argue that American Airlines' ownership of a CRS gives American an advantage at monopolizing the Wichita-Phoenix route implicitly assume that this monopoly is worth less to America West than it is to American. But this assumption is unwarranted.

American's ownership of a CRS is an insufficient reason to believe that American will profit more than another airline from successful monopolization of this route. If America West expects to reap higher monopoly returns from successful monopolization of this route than does American, perhaps because America West is expanding its hub in Phoenix, and if such monopolization requires being listed in the premier slot on CRS displays, America West will offer to pay American's CRS more for the privilege of being listed first than American itself is willing to pay.⁴⁷ Again, the identity of the owner of a CRS plays no part in determining which airlines are listed first on CRS displays and which are not. This is true even if we assume that the premier slot on a CRS display is a ticket to monopolization of a particular air-passenger routes.

Ironically, regulations that prohibit CRS vendors from charging discriminatory fees may actually encourage a CRS-owning airline to bias displays against competitors. If all airlines must pay the same fees, they cannot bid against each other for the premier listing. An airline-owned CRS that receives equal booking fees from all air-

⁴⁷ That is, America West will offer to pay an amount for the premier listing that is higher than the value that American attaches to putting its own flights in this premier slot.

lines may then find it most profitable to consistently favor its own flights. If airlines could bid for the premier slots, this type of bias would likely diminish, because CRS systems could make higher profits by selling the premier slots to the highest bidder.

DISPLAY BIAS: CONSUMERS' FRIEND OR FOE?

So far this paper has established that, in an unregulated market, airlines owning computerized reservation systems (CRS) maximize profits by selling each display slot to the highest bidder. A CRS-owning airline will bias displays in its favor only if it values the premier slots more highly than do other airlines. This fact does not mean that display bias will not occur, only that observed bias is not a function of which airlines own the CRS. Displays may well be arranged according to carrier identity, even if the carriers favored by the displays are not always or even typically the carriers that own CRS's.

Why might some airlines value being listed first in a display more than do other airlines? Further, does observed display bias, even if it does not generally favor airline-owners of CRS's, promote or impede consumer welfare? According to Federal Trade Commission economist Andrew Kleit,⁴⁸ the value that airlines place on display preference derives from three sources. These sources promote only those forms and amounts of bias that increase the welfare of consumers of airlines' services:

First, display preference may reduce the cost to consumers of searching for their preferred supplier. Second, the willingness of a firm to purchase display preference may provide a signal of product quality. Third, a preferred display position may increase customer brand awareness for new or relatively unknown suppliers.⁴⁹

Each of these arguments will be considered in turn.

⁴⁸ Andrew Kleit, *Computer Reservation Systems: Competition Misunderstood* (April 1991) (unpublished draft, forthcoming in *ANTITRUST BULL.*).

⁴⁹ *Id.* at 15.

Reduced Search Costs

If consumers flying to or from Atlanta have a sufficiently strong preference for Delta Airlines over other airlines, CRS vendors may have an incentive, depending on the strength of this consumer preference, to list Delta first on displays showing Atlanta flights. This occurs because travel agents will prefer to subscribe to CRS's listing Delta flights first on these displays. Such a bias saves time and money because consumers would have requested Delta flights more frequently anyway.⁵⁰ Assuming consumer preference for Delta flights in this geographic region to be very strong, a CRS refusing to list Delta first on these displays would lose travel-agency subscribers to other CRS's that do list Delta first.⁵¹ Hence, display bias in favor of Delta emerges for flights to and from Atlanta. The bias, however, is solely a response to consumer preferences. It is not a function of the CRS owner's identity, nor does it in any way suggest monopolization of the CRS industry or of any segment of the air-passenger market. It is simply an efficient market response to consumer desires.

Signaling

An airline's purchase of the premier display slot may be an efficient way to signal travel agencies and air passengers that this airline intends to improve its service or to maintain its already high level of service. In this sense, display bias serves much the same purpose as celebrity endorsements or lavish commercials featuring consumer

⁵⁰ Note that, in this circumstance, Delta probably need not pay a premium to be listed first. Consumer preference for Delta here may be sufficient to cause CRS vendors to list Delta flights first.

⁵¹ Of course, consumer preference for Delta flights does not guarantee that Delta flights will be listed first. Other economic considerations may overwhelm this particular consumer preference, thereby causing some other airline's flights to be listed ahead of Delta. For example, even with some consumer preference for Delta flights, Continental may offer to purchase prime listing on a CRS's display at a price more than sufficient to cover the cost the CRS vendor incurs in the form of heightened risk that some travel agencies will switch to other CRS vendors that list Delta flights first.

products which cost firms that advertise substantial sums of money. To the extent being listed first in a display is valuable to airlines, market participants, particularly travel agents, are aware that any airline whose flights enjoy prime listing had to pay for such a listing. An airline that has no intention of delivering on its product-quality promises simply cannot afford to pay as high a price for prime display slots as can those airlines that plan to deliver the type of service they promise.⁵² Consumers obviously benefit from such signaling by airlines.

Facilitating New Entry

Finally, being listed first in a CRS display may be part of the optimal marketing mix for an airline attempting to get a share in a new market. In markets served by airlines with high name recognition among air passengers, a new entrant is at a disadvantage because the entrant must incur entry costs that are no longer required of the incumbents.⁵³ Entry costs can take innumerable forms. Examples of these costs include promotional air fares lower than fares charged by incumbents or the need to spend more on television and newspaper advertising than established airlines must spend.⁵⁴ To the extent that being listed first in a CRS display confers an advantage on a carrier, purchasing the top position in a display is another possible way for a new entrant to compete more effectively with established incumbents. Of course, because

⁵² The classic statement of this principle is Benjamin Klein & Keith B. Leffler, *The Role of Market Forces in Assuring Contractual Performance*, 89 J. POL. ECON. 615, 629-33 (1981).

⁵³ See GEORGE J. STIGLER, *THE ORGANIZATION OF INDUSTRY*, 67-70 (1968); Levine, *supra* note 4, at 425-32.

⁵⁴ Economists regard advertising as a highly effective way for new entrants into markets to attract customers away from incumbent firms and to make these markets more competitive. The literature on the economics of advertising is vast. See, e.g., ROBERT B. EKELUND AND DAVID S. SAURMAN, *ADVERTISING AND THE MARKET PROCESS* (1988) (rejecting the traditional theory that advertising decreases competition); ISRAEL KIRZNER, *COMPETITION AND ENTREPRENEURSHIP* (1973); Lee Benham, *The Effect of Advertising on the Price of Eyeglasses*, 15 J.L. & ECON. 337, 352 (1972) (showing empirically that the price of eyeglasses is lower in states that allow the advertising of eyeglasses than in states that prohibit such advertising).

consumers benefit from the increased competition made possible by new entry, this display bias benefits consumers.

FEES AND LONG-TERM CONTRACTS

The argument developed in this article thus far assumes that a lack of collusion among computerized reservation system (CRS) vendors, along with competition and low entry barriers in the travel-agency business,⁵⁵ is sufficient to generate competitive outcomes in the CRS industry. However, much of Department of Transportation's (DOT) argument in support of continued regulation of the CRS industry rests on its belief that (1) each CRS is a monopolist and, (2) long-term contracts between CRS vendors and travel agencies effectively undermine competitive forces.

According to the DOT, because the typical travel agency subscribes to only one CRS, "each airline must participate in all of the systems"⁵⁶ to get its fair share of bookings. The monopoly power that results from each airline's need to participate in all CRS's supposedly allows each vendor to charge monopoly prices to subscriber airlines without losing its airline customers. This argument ignores some fundamental economic facts about the travel-agency business.

If a CRS vendor increases the booking fees it charges to an airline, the airline will decrease by an equivalent amount the commission it pays to travel agents who use the now higher-priced CRS. As airline commission payments to travel agents decrease, the profitability to the agents of using the CRS that charges comparatively high booking fees falls relative to that of using CRS's that charge lower booking fees. The CRS that raises its booking fees above the competitive level will, therefore, be forced to lower its booking fees or be replaced by CRS's

⁵⁵ See *supra* note 48 for reasons why the travel-agency business is characterized by low barriers to entry.

⁵⁶ DOT Proposed Rules, *supra* note 3, at 12,589.

that charge competitive fees.⁵⁷ Travel agencies' ability to switch CRS vendors keeps them competitive.

The counterargument is that long-term contracts between CRS vendors and travel agencies effectively suspend this competitive process. According to the DOT, "most travel agencies are limited to contracts that discourage them from switching to a new system or adding a new system."⁵⁸ This argument is unconvincing for several reasons. First, travel agencies have every incentive to avoid any contractual commitments that allow CRS's to exploit them. Each travel agency surely knows that the longer the term of the contract it signs with a CRS vendor, the greater the danger that the agency will be obliged to forego switching to a competing vendor who offers superior terms. No reason exists for a profit-seeking business owner or manager not to consider the cost of the inability to switch to another CRS when he or she calculates all of the expected costs and benefits of agreeing to a long-term contract with a vendor.

Second, during the term of the contract, a travel agency can protect itself from possible fee increases above the competitive level by demanding contractual provisions covering such a contingency. Such provisions would insulate the agency from the ill effects of fee increases, including possible reductions in commissions received from airlines and any loss of business to agencies who subscribe to CRS and charge lower booking fees. If monopolistic behavior by vendors was a genuine problem during the contractual period, it is plausible that each agency would demand provisions restricting its vendor's ability to increase booking fees. Vendors who refuse to submit to such restrictions would lose travel agency subscriptions to vendors who contractually agree to limit their abilities to increase booking fees.

Thus, unless and until vendors successfully collude with each other, the argument that vendor monopoly power

⁵⁷ See Kleit, *supra* note 48, at 10-11.

⁵⁸ DOT Proposed Rules, *supra* note 3, at 12,589.

flows from the long-term contracts between vendors and travel agencies is implausible. But why does the typical travel agency subscribe to only one vendor? The answer must be that the costs to an agency of having multiple CRS's outweigh the benefits. These costs include the expense of training agents on multiple systems, the costs and inconvenience of having additional hardware taking up space in the agency's offices, and the possible expense of paying subscription fees to more than one CRS. On the other hand, subscribing to multiple CRS's would allow an agent the option of choosing a second CRS if the first CRS charges higher fees, has undesirable display bias, or is otherwise less attractive than a second CRS. An agency will subscribe to multiple CRS's only if these benefits outweigh the costs. However, if CRS vendors in fact behave competitively, the benefits of subscribing to multiple CRS's will be negligible because all CRS's will offer competitive packages to subscribing travel agencies. Thus, the costs of multiple subscriptions quite likely will outweigh the benefits. The observed phenomenon of single subscriptions by travel agencies is consistent with the argument that CRS vendors behave competitively.

In response critics charge that the fact that each agency typically subscribes to only one CRS is evidence of the restrictive contracting provisions insisted on by CRS vendors, rather than of the efficiency of subscribing to a single vendor. This argument is without merit absent collusion between CRS vendors. Competition among vendors for travel agency subscriptions ensures competitive contractual terms.

Non-colluding vendors will compete for the patronage of agencies seeking CRS service. Lack of collusion obliges each CRS vendor to compete for travel agency subscribers by offering agencies the best possible terms available. If a CRS vendor offers non-competitive terms to a travel agency, another vendor will find it profitable to offer competitive terms to that agency in order to secure

that agency's business. And, as argued earlier,⁵⁹ no rational reason exists to presume that the typical owner or manager of a travel agency is so inept as to sign a long-term contract with a vendor if other vendors are offering, or will likely offer, better terms. The competition among CRS vendors for long-term contractual relations with travel agencies is competition for the market, rather than competition within the market. As Harold Demsetz has shown, this type of competition generates competitive results.⁶⁰ When vendors compete for travel agency subscriptions, the terms in the typical agency-vendor contract most likely stem from efficiency, not monopoly.

Consequently, the fact that the typical travel agency subscribes to a single CRS in no way implies that each CRS exercises monopoly power over its subscribing agencies. Competition among CRS vendors for contractual relations with travel agencies assures that the emergent contractual provisions are fair to travel agencies. Since travel agencies are, in the words of DOT, "highly competitive,"⁶¹ any contractual advantages secured by travel agencies can be expected to flow through to consumers.

Since the DOT presents no evidence suggesting collusion among vendors, much of the language it uses to describe vendor-agency contracts is inappropriate. For example, the DOT asserts that "vendors impose various contractual requirements on their subscribers to prevent them from switching to another system."⁶² But, in fact, nothing is "imposed" on anyone. Contracts are voluntary agreements among two or more parties.⁶³ Each party promises to subject itself to conditions desired by the other party in return for the other party's promise to sub-

⁵⁹ See *supra* note 44 and accompanying text.

⁶⁰ Harold Demsetz, *Why Regulate Utilities?*, 11 J.L. & ECON. 55 (1968).

⁶¹ DOT Proposed Rules, *supra* note 3, at 12,609.

⁶² *Id.* at 12,594-95.

⁶³ To be enforceable at law, a contract must be the result of a mutual assent and a meeting of the minds between bargaining parties. RESTATEMENT (SECOND) OF CONTRACTS, §§ 17, 20 (1979).

ject itself to conditions desired by the first party.⁶⁴ DOT's language improperly suggests that vendors unilaterally select the terms of the contracts entered into with travel agents. However, the ability of each agent to choose the vendor to which it will subscribe, because there is no collusion among CRS vendors, and to switch vendors when its contract expires, suggests that the contractual agreements between vendors and agents are the result of competitive bargaining rather than the result of a unilateral exercise of monopoly power by vendors.⁶⁵ The DOT falls into the trap of circular reasoning. It accuses vendors of gaining monopoly power through the restrictive contracts signed with agencies and then suggests that the only reason agents sign these contracts is because vendors have monopoly power. Until someone presents persuasive evidence that CRS vendors consistently and successfully collude with each other, observed contract terms must be presumed to be optimal for both vendors and agents.

WHAT IF COMPETITION IS NOT "PERFECT"?

Even if computerized reservation system (CRS) competition is not perfect and CRS vendors earn seemingly high profits, that does not necessarily mean that regulation will benefit consumers. Instead, regulation could harm consumers by sending industry a strong message that innova-

⁶⁴ RESTATEMENT (SECOND) OF CONTRACTS, § 1 (1979), defines a contract as "a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty." *Id.* Section 2, in turn, defines a promise as "a manifestation of intention to act or to refrain from acting in a specified way, so as to justify a promisee in understanding that a commitment has been made." *Id.* § 2. Section 17 lists the requirement that contracts be built on "a bargain in which there is manifestation of mutual assent to the exchange and consideration." *Id.* § 17. Finally, according to § 71, "consideration" may consist of a bargained-for performance which, in turn, "(3) . . . may consist of (a) an act other than a promise, or (b) a forbearance, or (c) the creation, modification, or destruction of a legal relation." *Id.* § 71. See also E. FARNSWORTH, CONTRACTS (1982). Farnsworth notes that contract law is "concerned with exchanges that relate to the future because a 'promise' is a commitment by a person as to his *future behavior*." *Id.* § 1.1, at 4 (emphasis in original).

⁶⁵ See DOT Proposed Rules, *supra* note 3 at 12,589-90.

tion does not pay.⁶⁶

The CRS is such a dramatic innovation in the airline industry that few travel agents are willing to do without them. CRS helps airlines, travel agents, and the flying public in many ways. For example, travel agents have lower costs, and passengers get lower fares. If CRS raised costs or fares above what they would be in the absence of CRS, travel agents would have an incentive to revert to pre-CRS technologies. Despite allegations of abuses, it is simply irrational now for travel agents to return to the Official Airline Guide and to processing ticket orders by hand.

Despite the immense improvements CRS's brought to the industry, the DOT has not applauded the innovative airlines that developed CRS. Instead, after the innovation was put into practice and proven successful, the DOT declared CRS's to be "essential facilities"⁶⁷ and sought to lower CRS profits through regulation. This approach stands in direct contrast to the way this nation normally treats innovation. Customarily, public policy has acknowledged that if innovation is to occur, innovators must be able to appropriate the profits from their innovations.⁶⁸

In condemning restrictive CRS practices, the DOT ignores the fact that innovative firms frequently require an assortment of restrictive practices which allow them to reap the rewards from their innovations. In economist Joseph Schumpeter's classic statement,

[S]uch concerns are aggressors by nature and wield the really effective weapon of competition. Their intrusion can only in the rarest of cases fail to improve total output in quantity or quality, both through the new method itself — even if at no time used to full advantage — and through

⁶⁶ This section draws heavily on Ellig, *supra* note 44.

⁶⁷ DOT Proposed Rules, *supra* note 3, at 12,602.

⁶⁸ For surveys of economics literature that include discussions of this problem, see Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION, (Richard Schmalensee and Robert D. Willig eds., 1989); Giovanni Dosi, *Sources, Procedures, and Microeconomic Effects of Innovation*, 26 J. ECON. LIT. 1120 (1988).

the pressure it exerts on the preexisting firms. But these aggressors are so circumstanced as to require, for purposes of attack and defense, also pieces of armor other than price and quality of their produce which, moreover, must be strategically manipulated all along so that at any point in time they seem to be doing nothing but restricting their output and keeping prices high.⁶⁹

Consumers could easily benefit from the seemingly restrictive practices of CRS operators since the resulting profits are the prize that induced the innovation in the first place. If the airlines had known that display bias would be prohibited, that contract lengths would be limited, and that other contractual terms would be restricted, it is possible that the systems would not have been developed. The Seventh Circuit Court of Appeals even suggested in 1985 that

[m]aybe [biasing of computerized reservation systems] can be defended as a method by which airlines that spent hundreds of millions of dollars to develop computerized reservation systems, at considerable risk of failure, can recoup their investment with a profit commensurate with the amount of investment, the length of time it has been outstanding, and the risk of loss.⁷⁰

Regulators recognized from the beginning that CRS's may involve significant sunk costs. The DOT notes, for example, that

the [Civil Aeronautics] Board found a number of very high barriers to new entry or to expansion by existing vendors. The barriers included high capital costs, much of which were 'sunk,' i.e., not recoverable by an entrant upon exit from the market as well as the long time required for development of a competitive product.⁷¹

Unfortunately, regulators have viewed the sunk costs only

⁶⁹ JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 89 (3d ed. 1950).

⁷⁰ *United Air Lines, Inc. v. Civil Aeronautics Bd.*, 766 F.2d 1107, 1113 (7th Cir. 1985) (Posner, J.).

⁷¹ DOT Proposed Rules, *supra* note 3, at 12,592.

as a rationale for regulation and not as a potential reason for CRS developers to be enticed into the industry by the prospect of large profits.

CRS technology obviously will not disappear at the first hint of regulation. But restricting the profitability of this innovation after it is in place is analogous to confiscating a farmer's crops after they are harvested or leaving a restaurant after dinner without paying the bill. Airlines that do not own a CRS may reap short-term gains, but only by diminishing incentives for enterprise, ingenuity, and hard work in the future.

Tighter regulation of computer reservation systems would penalize the leading firms for being the first to recognize and develop the tremendous potential of their information-processing technology. As a result, regulation would discourage further innovation in the CRS industry. Innovation elsewhere in the economy might even be stifled if entrepreneurs in general assume that they too might have to forfeit their innovation-induced profits.⁷² As the global economy enters the information age, it would indeed be unfortunate if the DOT started penalizing American firms for launching dramatic innovations in information management. In short, the effects of existing and proposed CRS regulations could reach far beyond the airline ticket/travel agent marketplace. They set a precedent for the general treatment of innovation and it is a precedent that could discourage new discoveries in information technology fields.

CONCLUSION

The rationale for computerized reservation system (CRS) regulation emerged because regulators and theorists adopted a view of consumer welfare which is too narrow. If the economic models of perfect competition⁷³ or

⁷² KIRZNER, *supra* note 12; ISRAEL KIRZNER, *COMPETITION AND ENTREPRENEURSHIP* (1973).

⁷³ For definitions of perfect competition and policy implications see SCHERER, *supra* note 8, at 5-6; WATERSON, *supra* note 8, at 11.

perfect contestability⁷⁴ are used as a policy norm, there is little choice but to regard display bias, long-term contracts, sunk costs, and high profits as signals of monopoly. In the rarified theoretical worlds described by these models, individuals possess full relevant knowledge, resources are perfectly mobile, and abnormal profits are instantly competed away. As a result, the CRS industry's unusual business practices have little explanation other than as devices to attain and maintain monopoly.⁷⁵

The theoretical economic models, however, do not completely describe reality. Imperfect information means that display bias can perform a useful function by reducing search costs or signaling product quality. An uncertain future makes long-term contracts desirable to protect sunk investments. Ignorance of production possibilities implies that large profits are available to entrepreneurs who can see and implement more efficient technologies. In short, the practices and circumstances that seem to provide a rationale for regulation are actually means of solving the problems created when the real world departs from the assumptions of the economic models of perfect markets.⁷⁶

Viewed in this light, the split on the CRS issue among

⁷⁴ For definitions of perfect contestability and policy implications see WILLIAM J. BAUMOL, JOHN C. PANZAR, & ROBERT D. WILLIG, *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* (1982).

⁷⁵ For a critique suggesting that a world that does not conform to these models is rife with monopoly, see William G. Shepherd, *Three 'Efficiency School' Hypotheses About Market Power*, 33 ANTITRUST BULL. 395 (1988).

⁷⁶ For critiques of "perfect market" models as a policy standard see DONALD DEWEY, *THE ANTITRUST EXPERIMENT IN AMERICA* 131 (1990); BORK, *supra* note 9, at 92; F. HAYEK, *INDIVIDUALISM AND ECONOMIC ORDER* 191 (1948); Thomas J. DiLorenzo and Jack C. High, *Antitrust and Competition, Historically Considered*, 26 ECON. INQUIRY 431 (1988); John R. Carter, *Concentration Change and the Structure-Performance Debate: An Interpretive Essay*, 5 MANAGERIAL AND DECISION ECON. 204 (1984); Richard H. Fink, *General and Partial Equilibrium Theory in Bork's Antitrust Analysis*, 3 CONTEMP. POL. ISSUES 16 (1984); J. High, *Bork's Paradox: Static vs. Dynamic Efficiency in Antitrust Analysis*, 3 CONTEMP. POL. ISSUES 23 (1984); M. Bruce Johnson, *Can Economic Analysis Give Better Guidance to Antitrust Policy?*, 21 ECON. INQUIRY 4 (1983); Harold Demsetz, *Information and Efficiency: Another Viewpoint*, 12 J.L. & ECON. 1 (1969); Jerome Ellig, *Untwisting the Strands of Chicago Antitrust*, ANTITRUST BULL. (forthcoming).

members of the coalition supporting airline deregulation makes sense. Economists and policymakers who thought deregulation would bring the industry closer to perfect competition or contestability naturally suspect that airline-owned CRS's could subvert this goal. On the other hand, those who saw deregulation as a means of unleashing entrepreneurial innovation view CRS business practices as a natural and desirable result of the competitive process.

