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Christopher L. Sagers
Cleveland State University, c.sagers@csuohio.edu

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"RARELY TRIED, AND . . . RARELY SUCCESSFUL": THEORETICALLY IMPOSSIBLE PRICE PREDATION AMONG THE AIRLINES

CHRIS SAGERS*

ABSTRACT

Two large bodies of literature bearing on the competitive health of the deregulated airlines are in sharp conflict: (1) the volumes of judicial and academic output to the effect that the phenomenon of predatory pricing is, as a practical matter, impossible; and (2) the similarly massive body of industry-specific theory and empirical evidence that predation not only occurs in airline markets, but has been a key tool to preserve market power held by the surviving legacy carriers. This article seeks to establish from the latter that the former is a poor basis for policy, especially if there is nothing really so special about airline markets as to make predation uniquely likely there. This article therefore offers a basically derivative, but essential, empiricism to the largely theoretical predation debate.

> No one has the right, and few the ability, to lure [anyone] into reading another article on [predatory pricing] without some advance indication of its alleged contribution.
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> —George Stigler[1]

* Associate Professor of Law, Cleveland State University. My thanks to Peter Carstensen for comments. Aaron Edlin also kindly corresponded with me on certain points discussed here, and shared related work in progress. Also, despite transatlantic travel and the inconvenient need to keep body and soul together, Jessica Fajfar, Cleveland-Marshall J.D. *summa cum laude* 2008, provided me with catastrophically underpaid research assistance for this paper. This was so despite my frequent public mispronunciation of her name (It's FIFE-er).

[1] George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44, 44 (1964) (paraphrasing).

> [Still, and despite the allegedly persuasive force of the purely afactual, theoretical argument against the very possibility of predation,] whatever exists . . . must be possible.
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> —Gottfried Wilhelm von Leibniz[2]

> And in a similar manner, [Diogenes of Sinope] replied to one who had been asserting [,] [by way of an argument of Zeno of Elea,] that there was no such thing as motion, by getting up and walking away.
>
> —Diogenes Laertius[3]

SURELY ONE of the least accurate claims in the Supreme Court's antitrust endeavor of the past few decades (which apparently has been to render antitrust a scholastically metaphysical, a priori theoretical exercise) has been its repeated view that, "*[by] a consensus among commentators*[,] . . . predatory pricing schemes are rarely tried, and even more rarely successful."[4] While no doubt some people still agree with that claim, it turns out that there was not actually that much of a consensus even when the Court first said so in *Matsushita Electric Industrial Co. v. Zenith Radio Corp.* in 1986.[5] That was clear enough from the Court's brief string cite for it,[6] which centered mainly on one thirty-year-old, much discussed article that was surrounded by disagreement long before *Matsushita.*[7] But in the twenty years

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[2] Peter Long, *Possibility and Actuality*, 70 MIND 187, 187 (1961) (quoting GOTTFRIED WILLHELM VON LEIBNIZ, *Reflections on Knowledge, Truth, and Ideas*, *in* SELECTIONS 287, 287–88 (Philip P. Wiener ed., 1951)).

[3] 2 DIOGENES LAERTIUS, LIVES OF EMINENT PHILOSOPHERS BK. VI, 41 (E. Capps et al. eds., R.D. Hicks trans., Loeb Classical Lib. 1925) (ca. 200 C.E.) (paraphrasing).

[4] Matsushita Elec. Indus. Co. v. Zenith Radio, 475 U.S. 574, 589–90 (1986).

[5] *Id.* at 589–90.

[6] *Id.* The "consensus" the Court identified totaled all of six men, fully half of whom were central figures in the Chicago tradition. It also seems relevant that the fourth was a just-freshly degreed, assistant professor of economics at BYU, and the paper cited—while it has been cited many times since *Matsushita*—was a report, in a then-obscure journal, of empirical results from his dissertation. *See id.* (citing Roland H. Koller, II, *The Myth of Predatory Pricing: An Empirical Study*, 4 ANTITRUST L. & ECON. REV. 105 (1971)). Those results also happen to have been subjected to a test of replicability, and they failed it. That fact was reported in a paper published in an eminent journal well before *Matsushita* was decided. The paper has never been mentioned by the Court. *See generally* Richard Zerbe & Donald Cooper, *An Empirical Comparison of Alternative Predation Rules*, 61 TEX. L. REV. 655 (1982) (reanalyzing Prof. Koller's data).

[7] The paper was John S. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J. L. & ECON. 137 (1958). As early as 1976 Richard Posner observed in a widely read book that McGee's influence had been "excessive[ ]," and argued that predation could sometimes be rational. RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 185–87 (1976). Other pre-*Matsushita* literature ques-

since then, such consensus as ever there was fell apart pretty rapidly. By the mid-1990s, at just about the time that the Court would make predation virtually impossible to prove in litigation, a fairly immense theoretical literature had grown up running contrary to the Court's view,[8] and there was growing empirical evidence as well.[9] Still, none of that has stopped the Court from

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tioning McGee's findings was voluminous. *See infra* notes 47–48 and accompanying text. A certain delicious and gossipy history lurks behind the Court's string-cite. Though *Matsushita* was written by Justice Powell, a strong antitrust skeptic, it so happened that Thurgood Marshall (of all people) employed a clerk that year who is now law professor Paul Mahoney of the University of Virginia. Mahoney apparently persuaded Marshall to join the majority by drafting a bench memo laying out the theory as stated in what would become the majority opinion. (Marshall's was the deciding vote.). *See* William E. Kovacic, *Antitrust in the O'Connor-Rehnquist Era: A View From Inside the Supreme Court*, ANTITRUST, Summer, 2006, at 21, 24 & n.51. Rumor has it that as a student at Yale law school Mahoney was influenced in such matters by George Priest. In other words, the "consensus" that mattered may have been in some real sense actually George Priest and a law student.

[8] As Zerbe and Mumford put it, "[a]t one time predation existed as a legal concept but was discounted as an economic possibility . . . . Now predation may be said to exist economically, but . . . not to exist legally." Richard O. Zerbe & Michael T. Mumford, *Does Predatory Pricing Exist? Economic Theory and the Courts After Brooke Group*, 41 ANTITRUST BULL. 949, 951 (1996). *See also* Bruce H. Kobayashi, *The Law and Economics of Predatory Pricing*, *in* ANTITRUST LAW AND ECONOMICS (Keith N. Hylton, ed. 2009) (summarizing changing consensus); Louis Kaplow & Carl Shapiro, *Antitrust*, *in* 2 HANDBOOK OF LAW AND ECONOMICS 1073, 1195–1202 (A. Mitchell Polinsky & Steven Shavell, eds. 2007) (same); Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L. J. 2239, 2241–49 (2000) (same); Einer Elhauge, *Why Above-Cost Price Cuts to Drive Out Entrants Are Not Predatory—and the Implications for Defining Costs and Market Power*, 112 YALE L. J. 681, 685 (2003) (admitting that by the early 1990s the kind of theoretical confidence expressed in *Matsushita* had given way to substantial doubts, because predation skeptics had "never provided a satisfactory theoretical response to the critics nor addressed practical objections to actual industry behavior"); Alvin K. Klevorick, *The Current State of the Law and Economics of Predatory Pricing*, 83 AM. ECON. REV. PAP. & PROC. 162, 162 (1993) (summarizing changing consensus); Charles E. Koob, *Whither Predatory Pricing? The Divergence Between Judicial Decisions and Economic Theory: The American Airlines and Virgin Atlantic Airways Cases*, 3 SEDONA CONF. J. 9, 9 (2002) (same).

[9] Some well known empirical evidence even predated *Matsushita*. B.S. Yamey, *Predatory Price Cutting: Notes and Comments*, 15 J. L. & ECON. 129, 136 (1972) (discussing evidence of predation in ocean shipping cartels); Richard Zerbe, *The American Sugar Refinery Company, 1887–1914: The Story of a Monopoly*, 12 J. L. & ECON. 339 (1969). Also, at just about the time of the *Matsushita* decision, there was the beginning of what would become an econometric literature on predation, though it was probably not available to the Court. *Matsushita* was decided in March of 1986, and the April 1986 issue of *Journal of Political Economy* reported statistically significant evidence consistent with predation. Malcom R. Burns, *Predatory Pricing and the Acquisition Cost of Competitors*, 94 J. POL. ECON. 266, 266–67

repeating the initial claim verbatim. It has done so no fewer than four times since *Matsushita*,[10] and as recently as early 2007.[11] The lower courts do it frequently as well.[12]

Because of the Court's view, predation claims are now largely impossible for plaintiffs to win. The familiar *Brooke Group, Ltd. v. Brown & Williamson Tobacco Corp.* standard requires both: (1) that the defendant sold at a loss, and (2) that it is likely to recover its losses by price gouging after its victim exits the market.[13] Plaintiffs now almost always lose on one or both of these elements. Of the many scores of cases involving predation claims since *Matsushita*,[14] the number enjoying even minimal courtroom success is vanishingly small. The number not summarily dismissing predation claims early in the proceedings, over about twenty years, appears to be on the order of about nine or ten, and none have prevailed on the merits.[15]

(1986) (finding evidence that alleged predation reduced the cost of acquisitions by incumbent firms in the turn-of-the-century tobacco industry). In any case, since that time, the econometric and other empirical evidence of predation has grown substantially. *See infra* notes 47–51 and accompanying text.

[10] Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., 549 U.S. 312, 323 (2007); Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 226 (1993); Liquor Corp. v. Duffy, 479 U.S. 335, 343 n.5 (1987); Cargill, Inc. v. Monfort of Colo., Inc., 479 U.S. 104, 121 n.17 (1986). *See also* Pac. Bell Tel. Co. v. Linkline Commc'ns, Inc., 129 S. Ct. 1109, 1120 (2009) (not restating the Court's view of the "consensus," citing uncritically prior caselaw that did so, and repeating same skepticism of predation).

[11] *Weyerhaeuser*, 549 U.S. at 323.

[12] *See, e.g.*, NicSand, Inc. v. 3M Co., 507 F.3d 442, 458 (6th Cir. 2007); Virgin Atl. Airways, Ltd. v. British Airways, PLC, 257 F.3d 256, 266 (2d Cir. 2001); WorldCom, Inc. v. FCC, 238 F.3d 449, 463 (D.C. Cir. 2001); Taylor Publ'g Co. v. Jostens, Inc., 216 F.3d 465, 477 (5th Cir. 2000); Stearns Airport Equip. Co. v. FMC Corp., 170 F.3d 518, 528 (5th Cir. 1999); United States v. Western Elec. Co., 84 F.3d 1452, 1452 (D.C. Cir. 1996); Advo, Inc. v. Phila. Newspapers, Inc., 51 F.3d 1191, 1196 (3d Cir. 1995); Bathke v. Casey's Gen. Stores, Inc., 64 F.3d 340, 343 (8th Cir. 1995); Vollrath Co. v. Sammi Corp., 9 F.3d 1455, 1460 (9th Cir. 1993); Liggett Group, Inc. v. Brown & Williamson Tobacco Corp., 964 F.2d 335, 342 (4th Cir. 1992).

[13] 509 U.S. 209, 222–24 (1993).

[14] *See, e.g.*, U.S. Anchor Mfg., Inc. v. Rule Indus., Inc., 7 F.3d 986, 989 (11th Cir. 1993) (reversing denial of judgment as a matter of law following verdict for plaintiff); *Vollrath*, 9 F.3d at 1457 (9th Cir. 1993) (affirming judgment as a matter of law following verdict for plaintiff).

[15] In connection with this article, the author reviewed all reported federal district and appellate court opinions since *Matsushita* that address a predation claim on the merits. The author identified 123 appellate and 191 district court opinions. Almost all the appellate opinions, including claims for other than explicit price predation, like bundling and volume discounting, affirm summary pre-trial dispositions for defendant. Trial and appellate courts also override juries surpris-

The Court has made a mistake. The theoretical and empirical literature now suggests that predation is possible, can be rational from the predator's perspective, and might be quite harmful socially. If there is any consensus on the matter, it is probably only something like this: predation is a kind of conduct that characterizes *change* between equilibria, but the static welfare analysis that informs almost all of our antitrust—including that underlying the *Brooke Group* standard—does not capture it very well.

This line of thinking sometimes seems borne out when one looks in detail into an industry where predation claims have been made. The major point in this article is that the Court's view will sound pretty surprising to anyone who has paid attention to one of those industries, in particular, the deregulated airlines. During the industry restructuring that began almost immediately after deregulation, predation, by fairly common consensus, has been a tool to make new entry difficult and to protect pockets of market power, despite the generally high operating costs of incumbent firms. And yet, prevailing doctrine has made it all but impossible to prove airline predation, and all but one of the airline cases to have made its way through the federal courts have failed outright.[16] Moreover, it seems fairly critical to revisit the airline evidence, because it played a central role in an important recent article by Einer Elhauge.[17] That paper, which in many ways is really quite odd, consists mainly of a profusion of well-worn a priori arguments. And yet, it has had arguably quite bad consequences already: it played a key role in killing off one of the best and most important predation cases in recent times, a case that happened to involve the airlines.[18]

The study here is more or less a derivative, but essential, kind of empiricism. It examines all of the available evidence sur-

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ingly often in predation cases, and when they do, it is *always* for defendant's benefit. *Brooke Group* itself is not just an example, but a fairly jarring one: it appears to have been the only antitrust case in *history* in which the Court has reversed a verdict on the sufficiency of the evidence. *See* 509 U.S. at 219 (affirming judgment as matter of law following verdict for plaintiff). *See also, e.g., U.S. Anchor*, 7 F.3d at 989 (reversing denial of judgment as matter of law following verdict for plaintiff); *Vollrath*, 9 F.3d at 1457 (affirming judgment as matter of law following verdict for plaintiff).

[16] In the one exception, *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005), the parties settled confidentially following reversal of summary judgment for defendant. The case never reached litigation on the merits.

[17] *See generally* Elhauge, *supra* note 8.

[18] *See* United States v. AMR Corp., 335 F.3d 1109, 1118 n.13 (10th Cir. 2003).

rounding airline predation and asks whether it is more consistent with some model of predation or with the uncompromisingly general, a priori skepticism on which the Court has made airline predation probably legally impregnable. The study answers a call commonly made in the predation literature: it is thought that our understanding of predation, and dominant firm behavior generally, will be improved especially by industry-specific case study.[19]

In some respects, the airlines make a very good case study, and I am hardly the first to notice. For one thing, there seems to be about as good a case that it occurs in the deregulated airlines as in any market that there could be. Airline competitors have alleged predation incessantly;[20] most outside observers seem to believe it occurs in airline markets;[21] it has been investigated repeatedly by the U.S. government[22] and by foreign

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[19] Joseph F. Brodley & George A. Hay, *Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards*, 66 CORNELL L. REV. 738, 740 (1981); Richard Craswell & Mark R. Fratrik, *Predatory Pricing Theory Applied: The Case of Supermarkets v. Warehouse Stores*, 36 CASE W. RES. L. REV. 1, 4 (1985); Richard Schmalensee, *On the Use of Economic Models in Antitrust: The Realemon Case*, 127 U. PA. L. REV. 994 (1979).

[20] *See infra* notes 112–114 and accompanying text.

[21] *See, e.g., Aviation Competition Hearing: Before the Subcomm. on Aviation, S. Comm. on Commerce, Science, and Transportation*, 105th Cong. 1067 (1998) (statement of Alfred Kahn) ("[an] incumbent airline [that] is deliberately accepting financial losses selectively in the markets where it is subject to competitive challenge[ ] [is] engaging in . . . discriminatory sharp-shooting" and is engaged in predation); Stephan P. Brady & William A. Cunningham, *Exploring Predatory Pricing in the Airline Industry*, TRANSP. J., Fall 2001, at 5 (supporting the Transportation Department's decision to challenge even above-cost schemes; noting that "it can be argued that predatory pricing schemes have been far more successful than conventional wisdom supports"); Aaron S. Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941, 942–43 (2002); Elhauge, *supra* note 8, at 685–86 & n.14 (noting observers' special concern for airline predation); Rodney E. Slater, *How Antitrust Failed in America: The Sad Case of Predatory Pricing in the U.S. Airline Industry (IV)*, 33 ANTITRUST L. & ECON. REV. 61, 61–62 (2006); James L. Robenalt, Note, *Predatory Pricing in the Low-Fare Airline Market: Targeted, Discriminatory, and Achieved With Impunity*, 68 OHIO ST. L. J. 641, 642–46 (2007).

[22] *See generally* OFFICE OF THE SECRETARY, DEPT. OF TRANSP., ENFORCEMENT POLICY REGARDING UNFAIR EXCLUSIONARY CONDUCT IN THE AIR TRANSPORTATION INDUSTRY: FINDINGS AND CONCLUSIONS ON THE ECONOMIC, POLICY, AND LEGAL ISSUES (2001); OFFICE OF THE SECRETARY, DEPT. OF TRANSP., STATEMENT OF THE ENFORCEMENT POLICY REGARDING UNFAIR EXCLUSIONARY CONDUCT (1998). As part of its investigation, DOT commissioned a substantial investigation of it by two economists. *See generally* CLINTON V. OSTER, JR. & JOHN S. STRONG, PREDATORY PRACTICES IN THE U.S. AIRLINE INDUSTRY (2001).

ones;[23] and, most importantly, it has been the subject of a flood of empirical analysis. Some of that empirical work has found evidence of actual predation,[24] and a large proportion of it finds evidence of market power or other factors lending predation plausibility.[25] Also important is that the empirical literature has now ripened to an advanced state of theoretical maturity, such that the early tests finding very substantial market power abuses have been tested and retested under increasingly sophisticated controls. Despite those many refinements, empirical study continues to find some persistent market power in the hands of incumbent carriers at their hub airports, most of them legacy carriers that have maintained their incumbency since deregulation.[26] Airline predation has also engendered a fair bit of litigation and a number of published appellate opinions.[27]

For another thing, the fact that predation is effectively impossible to prove might, in the case of the airlines, produce a tellingly bad policy consequence. Predation is alleged almost exclusively against the major airlines,[28] which have remained higher-cost than the entrants that are ordinarily their alleged victims. So, in this case, *Brooke Group* might facilitate the most perverse of all outcomes within the neoclassical framework: the preservation of less efficient sellers and suppression (ordinarily leading to liquidation or cheap acquisition) of more efficient challengers.

Incidentally, this remains a good case study despite the seeming awkwardness of its timing. Admittedly, the industry just now

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[23] In recent years charges of price predation have been brought against air carriers by the competition authorities of Australia, *see* Australian Competition and Consumer Comm'n v. Qantas Airways Ltd, 2003 F.C.A. 125, ¶ 9–11; Canada, *see* Commissioner of Competition v. Air Canada, [2003] 26 C.P.R. (4th) 476, ¶ 1 (Can.); and Germany, *see* Bundeskartellamt [Federal Cartel Office] Feb. 18, 2002 9 Beschlussabteilung 144/01 (F.R.G.).

[24] *See infra* notes 85–90 and accompanying text.

[25] *Id.*

[26] *See infra* notes 116–125 and accompanying text.

[27] *See* Spirit Airlines, Inc. v. Northwest Airlines, Inc., 431 F.3d 917, 921 (6th Cir. 2005); United States v. AMR Corp., 335 F.3d 1109, 1111 (10th Cir. 2003); Virgin Atl. Airways, Ltd. v. British Airways, Plc, 257 F.3d 256, 259 (2d Cir. 2001); Cont'l Airlines, Inc. v. Am. Airlines, Inc., 824 F. Supp. 689, 692–93 (S.D. Tex. 1993).

[28] "Major" airline is a term of art among transportation lawyers; the Department of Transportation classifies airlines as "major" that have annual revenues in excess of $1 billion. In this article the term will be used in a looser sense to mean very large carriers operating hub-and-spoke networks.

happens to be on very hard times,[29] and so it may seem odd to accuse it of behavior designed to earn monopoly status. But, as this article explains, this industry's poor performance turns out to be a singularly poor economic metric.[30]

I. LAW AND THEORY AS THEY STAND

A. THE LAW

The test under which all antitrust plaintiffs must now prove price predation, first crystallized in *Matsushita*[31] and then more clearly codified in *Brooke Group*,[32] requires proof both that a defendant sold a product below some "appropriate measure of . . . cost[ ]" and that it had some serious chance of "recouping its investment in below-cost prices."[33] Still of academic debate is which measure of cost should be used, but every federal circuit has adopted some variation of a short-run price-cost test approximating the famous Areeda-Turner formulation, usually establishing presumptions concerning prices below average variable or between average variable and average total cost.[34] Evidence of predatory intent, which once was thought possibly sufficient on its own to prove predation,[35] is now: (1) insufficient in itself,

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[29] Specifically, the major carriers, for some time, have suffered consistent, significant financial losses, which promise to worsen with the continuing crisis in fuel prices and the drop-off in business travel associated with the current recession. *See* Ann Keeton, *Air Industry Faces Grim Year Ahead*, WALL ST. J., Sept. 16, 2009, at B3; *Heard on the Street*, WALL ST. J., Aug. 1, 2009, at B10 (noting the continuing difficulty of air carriers coping with fuel costs and their often unsuccessful efforts to control fuel price risks with hedging strategies).

[30] *See infra* Part III.B.

[31] Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 585–86 (1986).

[32] Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 222–24 (1993).

[33] *Id.* at 222, 224.

[34] *See* Michael L. Denger & John A. Herfort, *Predatory Pricing Claims After Brooke Group*, 62 ANTITRUST L.J. 541, 548–51 (1994). *See also* PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTIRUST LAW ¶ 723d (summarizing caselaw as of 2002); Russell A. Klingaman, *Predatory Pricing and Other Exclusionary Conduct in the Airline Industry: Is Antitrust Law the Solution?*, 4 DEPAUL BUS. L.J. 281, 299–302 (1992) (summarizing case law).

[35] A leading, but frequently criticized precedent predating *Brooke Group* and *Matsushita*, Utah Pie Co. v. Continental Baking Co., 386 U.S. 685 (1967), was traditionally taken as strong authority for the importance of intent evidence. Though technically *Brook Group* left it undisturbed, *Utah Pie* was overturned to whatever extent it held that proof of predatory intent alone could establish actionable predation. *See* 509 U.S. at 220–23. *See generally* AREEDA & HOVENKAMP, *supra* note 34, at ¶ 728.

(2) legally irrelevant in at least one circuit,[36] and (3) significant in other circuits only where the courts have adopted presumptions requiring evidence in addition to pricing below cost.[37] This will be true even in those frequent cases when a plaintiff adduces direct evidence of deliberate intent to sell below cost with predatory motives.[38]

Finally, an important practical point not often considered by courts and predation skeptics, is that predation cannot be illegal unless a plaintiff can prove either horizontal predation conspiracy or a very substantial amount of market power. The former, under the *Bell Atlantic Corp. v. Twombly* pleading standard[39] and the strong skepticism of predation conspiracy in *Matsushita*,[40] is probably impossible to prove without direct, smoking-gun evidence; and, as is now well-known, proof of the latter is very, very difficult.[41] So, it will be the rare plaintiff that can prove either horizontal price-fixing conspiracy under *Twombly* or the market power showing required under Sherman Act § 2 or the Robinson-Patman Act (RPA), as well as standing, antitrust injury, and the various other showings plaintiffs must meet. But even if a plaintiff can do all of that, it must then meet the extremely challenging substantive test under *Brooke Group*.

B. Theoretical Antecedents

The case against predation remains almost exclusively theoretical. It rests heavily on John McGee's seminal paper,[42] which

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[36] *See* A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc., 881 F.2d 1396, 1402 (7th Cir. 1989).

[37] *See* Denger & Herfort, *supra* note 34, at 549–50.

[38] Several courts have held that such evidence is to be discounted and cannot alone prove predation. *See, e.g.*, Morgan v. Ponder, 892 F.2d 1355, 1359 (8th Cir. 1989).

[39] 550 U.S. 544, 556–57 (2007) (requiring allegations of § 1 conspiracy, even at the pleadings stage, to be "plausible," apparently meaning that conduct alleged must be economically rational).

[40] *See* 475 U.S. 574, 589–90 (1986) (arguing that all the reasons suggesting the irrationality of predation generally are compounded in the case of predatory *conspiracy*, because the ordinary incentive to cheat from cartel pricing is even stronger where the cartel price is below members' costs).

[41] *Cf.* Stephen Calkins, California Dental Association, *Not a Quick Look But Not the Full Monty*, 67 Antitrust L.J. 495, 521 (2000) (stating author's view, as former FTC General Counsel, that "when the full, formal rule of reason is the governing standard, plaintiffs almost never win."); Michael A. Carrier, *The Real Rule of Reason: Bridging the Disconnect*, 1999 BYU L. Rev. 1265, 1267–68 (showing empirically that full-blown rule of reason cases almost never reach questions beyond market power).

[42] *See generally* McGee, *supra* note 7.

is said to have been "empirical" insofar as he reviewed extant historical evidence about the Standard Oil monopoly. Its empirical findings are now in substantial doubt.[43] But in any event, the paper's influence has followed almost exclusively from its theoretical underpinnings.[44] Its major thrust was that neither incumbents nor entrants[45] should ever find a below-cost price

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[43] Tellingly, McGee argued that his introductory "examination of the logic of predatory price discrimination" would "help[ ] in interpreting the facts." McGee, *supra* note 7, at 138. Among other things, later critics took him to task for allowing these theoretical pre-commitments to guide his "empirical" analysis (which consisted of reading a trial transcript and some other courtroom evidence, and offering his subjective opinion of them), leading him to exaggerate some points and neglect others. But he made other mistakes too, including some of a simple clerical variety. For criticism, see Janusz A. Ordover & Garth Saloner, *Predation, Monopolization, and Antitrust, in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 537, 545 (Richard Schmalensee & Robert D. Willig, eds. 1989) ("There is little doubt, [notwithstanding McGee's arguments] . . . that Standard Oil at least attempted to use pricing as a weapon to drive its rivals out."); James A. Dalton & Louis Esposito, *Predatory Price Cutting and Standard Oil: A Re-Examination of the Trial Record*, 22 RES. L. & ECON. 155, 157–58 (2007) (offering a variety of criticisms, and finding substantial evidence in the *Standard Oil* record consistent with predation); Nicola Giocoli, *When Low Is No Good: Predatory Pricing and the History of Antitrust Economics (Part I)*, 11–20 (2009) (Dept. of Econ., Univ. of Pisa, Working Paper), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1412808 (criticizing McGee's reasoning and findings); Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J. L. & ECON. 1, 23 (1996) (arguing that the evidence McGee considered would be consistent with a raising-rivals'-costs exclusionary strategy).

[44] Most critics of enforcement against predation follow McGee in resting on the a priori view that predation should ordinarily be irrational, will ordinarily be very hard to distinguish from legitimate price competition, and will impose no social harm unless recoupment succeeds. Two prominent exponents of McGee's views have argued that price-cutting should be per se legal. *See* ROBERT BORK, THE ANTITRUST PARADOX 149–55 (1978); Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 268 (1981). While most others are somewhat less confident, they too remain almost exclusively a priori. *See, e.g.*, AREEDA & HOVENKAMP, *supra* note 34, at ¶ 720–23; POSNER, *supra* note 7, at 191–93; Ward S. Bowman, *Restraint of Trade by the Supreme Court: The Utah Pie Case*, 77 YALE L.J. 70, 77, 83 (1967); Elhauge, *supra* note 8, at 688–89; Lester G. Telser, *Cutthroat Competition and the Long Purse*, 9 J. L. & ECON. 259, 259–60 (1966); *cf.* James C. Miller, III & Paul Pautler, *Predation: The Changing View in Economics and the Law*, 28 J. L. & ECON. 495, 495–96 (1985) (stating views of Reagan-era FTC Chair concerning predation, consisting of purely theoretical Chicago arguments).

[45] Theoretical arguments about predation are normally framed in terms of incumbents with some market power underselling entrants or smaller rivals. This is so, for the simple reason that without the prospect of preserving or enhancing some supracompetitive profits, the losses of below-cost pricing would never be rational. *See* Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 292 & n.25 (1977).

war more profitable than they would find it just to merge, and that in any event predation should always be a very costly and risky strategy for incumbents.[46]

During the decade or so after McGee's article appeared, there developed a small literature suggesting theoretical grounds to believe predation might be more likely than he thought and, in some cases, suggesting empirical evidence of it from other historical case studies.[47] But the first really massive round of discussion was triggered by Areeda and Turner's famous article of 1975.[48] Much of that literature implied that predation was more likely and more dangerous than Areeda-Turner or conservative perspectives would suggest. Most of it, however, did not doubt that some variation of some (usually short-term) price-cost comparison should remain the basis of predation doctrine, and argued merely that the Areeda-Turner doctrinal formulation would be underinclusive.[49] By the early 1980s, an importantly different second generation of criticism had developed, which found explanations for predation more subtle than the traditional "long purse" strategy that the neoclassical literature assumed to be its only possible rationale. Namely, employing mostly game theoretic approaches, economists and some lawyers came to suggest that predation might be rational in a context of ongoing interaction among firms, especially under conditions of imperfect or asymmetrical information.[50] So far, this second-generation literature has been received with persistent deafness by most of the federal judiciary.[51]

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[46] McGee, *supra* note 7, at 139–41.

[47] *See generally* DONALD DEWEY, THE THEORY OF IMPERFECT COMPETITION: A RADICAL RECONSTRUCTION (1969); Yamey, *supra* note 9; Zerbe, *supra* note 9.

[48] *See generally* Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 699 (1975).

[49] *See generally* Brodley & Hay, *supra* note 19; William J. Baumol, *Quasi-Permanence of Price Reductions: A Policy for Prevention of Predatory Pricing*, 89 YALE L.J. 1 (1979); Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213 (1979); F.M. Scherer, *Some Last Words on Predatory Pricing*, 89 HARV. L. REV. 901 (1976).

[50] *See generally* Jonathan Baker, *Predatory Pricing After Brooke Group: An Economic Perspective*, 62 ANTITRUST L.J. 585 (1994); Bolton et al., *supra* note 8, at 2262; Tom Campbell & Nirit Sandman, *A New Test for Predation: Targeting*, 52 UCLA L. REV. 365 (2005); Edlin, *supra* note 21; William Comanor & H.E. Frech, III, *Predatory Pricing and the Meaning of Intent*, 38 ANTITRUST BULL. 293 (1993).

[51] *See* Baker, *supra* note 50, at 592. *But see* Spirit Airlines, Inc. v. Nw. Airlines, Inc, 431 F.3d 917, 936 (6th Cir. 2005). The *AMR* court, in dicta, also acknowledged what it called "Post-Chicago" work on predation and wrote that, in light of that scholarship, the court would "approach[ ] the matter with caution, . . . [but

As it now stands, the very large theoretical literature can be conceived as existing in two rough categories.[52] Among those who favor some liability for some kinds of predation,[53] proposals almost always take the form of either (1) a cost-based doctrinal test for distinguishing procompetitive from predatory pricing, or (2) some dynamic test that examines an incumbent's behavior following entry, over time.[54] Cost-based proposals begin with the claim that selling goods for less than it costs to make them is irrational unless there is some longer-term gain to be achieved from it. Cost tests therefore seem to fit nicely with antitrust law's general definition of anticompetitive exclusion—conduct that would be irrational but for the prospect of supracompetitive returns following injury to rivals.[55] The problem has been to say when a price is actually below "cost." Theorists have tried average total cost,[56] average variable cost,[57] marginal cost,[58] and

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not] with the incredulity that once prevailed." United States v. AMR Corp., 335 F.3d 1109, 1114–15 (10th Cir. 2003).

[52] This discussion essentially follows a taxonomy nicely elaborated in Craswell & Fratrik, *supra* note 19, at 4–6.

[53] There are those who would prefer a rule of *per se* legality for all alleged predation. *See supra* note 44.

[54] There are some exceptions, which do not easily fit in either of these categories. F.M. Scherer, for example, urged what would in effect be a full-blown rule of reason for predatory pricing, under which a court would examine all relevant factors that bear on the long-run efficiency of an alleged predator's pricing. *See* F.M. Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869, 890 (1976).

[55] This standard was most clearly elaborated in Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8, 9 (1981), and is roughly encapsulated in the courts' requirement that monopoly power be acquired by something other than by "superior product, business acumen, or historic accident." United States v. Grinnell Corp., 384 U.S. 563, 71 (1966). Strictly speaking, there are a few ambiguities in the courts' usual application of the test, and they are relevant. Ordover and Willig seemed to intend a test that would bar any pricing that would fail to maximize profits in the absence of the victim's exit. Courts that have directly considered such an "opportunity cost" or profit maximization test have rejected it; *see AMR Corp.*, 335 F.3d at 1118–19, 1119 n.13 (10th Cir. 2003), and ordinarily the question is just not even considered. Likewise, the courts often do not attend to distinctions between short and long run costs.

[56] POSNER, *supra* note 7, at 188–96.

[57] Areeda & Turner, *supra* note 48, at 732–33.

[58] Areeda and Turner famously argued that short-run marginal cost is the theoretically correct measure of predation, because below that price sales are at actual loss and their rational explanation is likely the desire to injure rivals. *Id.* at 712.

combinations of costs with other factors.[59] But all such definitions have turned out either to be fraught with risk of over- or under-inclusion or to require numerous exceptions for special cases.[60] Moreover, cost-based tests are criticized for failure to consider possibly serious risks of predatory behavior that may not require sales at an outright loss.[61]

Dynamic models of predation, on the other hand, mostly eschew any focus on static price-cost comparisons and attempt instead to constrain strategic behavior over time, to allow some breathing room for procompetitive entry. As had been noticed even before the game theoretic revolution in industrial organization during the 1980s and 1990s, predation is an intertemporal problem possibly well-suited to the hunt for strategic advantage.[62] Because strategic competition over time is characteristic of change between equilibria, it may be only poorly captured in the traditional static analysis mostly used in antitrust. Static theory is best suited to explaining existing equilibria. For this reason, dynamic approaches have proposed rules that limit price or output response to entry for periods of time, rather than ask whether specific prices seemed predatory.[63]

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[59] Joskow & Klevorick, *supra* note 49, at 258–59 (urging a rule under which court would first ask whether a given market's structure, in terms of concentration and entry protection, could support predation, and only then would the court make a price-cost comparison); Ordover & Willig, *supra* note 55, at 10–13 (similarly urging a "market structure" inquiry, following which, if structure is found to be conducive to predation, court asks whether incumbent's price response would maximize profit only if target exits).

[60] *See, e.g.*, Elhauge, *supra* note 8, at 703–26 (describing the many logic problems posed by the various cost tests).

[61] *See, e.g.*, Edlin, *supra* note 21, at 955–60 (arguing that without legal constraints on above-cost predation, monopolists plausibly deter procompetitive entry and free monopolists from pressures that might encourage procompetitive, pre-entry limit pricing); *see also* Elhauge, *supra* note 8, at 686 (while ultimately disagreeing, acknowledging that above-cost predation had become "a serious concern that can no longer be suppressed with conclusory labels or contestable claims that ignore the effect on incentives to enter.").

[62] Williamson, *supra* note 45, at 284 (arguing that "predatory pricing involves strategic behavior in which intertemporal considerations are central," and generally critiquing the use of static welfare analysis to understand it); *cf.* POSNER, *supra* note 7, at 185–86 (though not adopting a dynamic doctrinal standard, noting that otherwise money-losing predation might be rational if the signal it sends deters entry that otherwise would have occurred).

[63] *See generally* Baumol, *supra* note 49 (urging a rule under which reactive price cuts following entry be made permanent for a time, or face antitrust liability); Edlin, *supra* note 21 (advocating the rule that where an entrant is able to enter a monopoly market at 20% or more below the incumbent's price, the incumbent's price should be frozen for 12 to 18 months); Williamson, *supra* note 45 (advocat-

Two specific theoretical problems that run through this literature have special relevance here. First, predation theory has long been dominated by the simple idea that the law should not constrain any allegedly predatory conduct unless it could exclude equally efficient entrants. That seems simple enough, because, after all, unless the entrant can meet or beat the incumbent's minimum above-cost price, the entrant will be driven out by the very price competition that it is the purpose of antitrust to protect.

This argument is also likely false. Even less-efficient entry is needed and healthy for two reasons. First, the presence of an existing fringe of small competitors or the risk of potential entry can constrain a dominant firm's pricing, even if those smaller competitors are higher cost.[64] But it is quite plausible that an incumbent can exclude them through short-term price reductions, and if it can make widely known and credible threats of such exclusionary pricing, it may never even have to engage in it. In other words, the limit pricing that may be the most competitive result feasible in many markets will not occur if an incumbent firm with some cost advantage can credibly exclude competitors despite persistent pricing above the limit.[65]

But maybe more importantly, there is substantial reason to believe that less efficient entry could *become* equally efficient if allowed to establish a market toehold and survive initial price and output response. Even Elhauge, who vehemently objects to any protection of less efficient entry, admits that this prospect "has some basis,"[66] though he then argues that it is logically impossible. In fact, it seems that less-efficient entry with prospects for improved performance should actually be fairly common. Entry at minimum efficient scale at costs equal to those of an incumbent—the only kind of entry Elhauge and most cost-theorists would protect from predation—seems like an out-of-the-ordinary occurrence in many ordinary markets. Few entrants will be able to match an incumbent's efficiency at the point of entry or even for some comparatively long period thereafter. Virtually by definition, the incumbent will be better established technologically and its cost functions will not change much over time

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ing the rule that an incumbent dominant firm or collusive oligopoly not be permitted to expand beyond pre-entry output for a period of 12 to 18 months).

[64] *See generally* WILLIAM J. BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE (1988).

[65] This is very persuasively explained in Edlin, *supra* note 21, at 955–60.

[66] Elhauge, *supra* note 8, at 778.

(except over fairly long-term horizons). But in most cases, an entrant's costs will be subject to change in two ways. First, it is unlikely to enter at its own minimum efficient scale and will need some room to compete for volume to reach efficient quantity. Second, the entrant's cost function itself is likely to change—the curves themselves will move—both because of learning-by-doing and because of growing access to better capital assets and more productive labor. (The latter change will be more significant in fields like air transport, where skilled labor is important.)

The arguments against this possibility have been most recently and comprehensively elaborated by Elhauge. But to be frank, these arguments say more by their strikingly bare and unconvincing character than by their substance. Elhauge argues that the law should not protect less-efficient entry (1) because several downsides might follow if an entrant can gain efficiency only at the expense of the incumbent's efficiency, and (2) because, if the entrant can gain efficiency without harming the incumbent, then capital markets will realize it and fund whatever price war may ensue, regardless whether antitrust provides any protection from predation.

Both arguments are extremely implausible. As to the first, Elhauge offers very little reason to anticipate the counterintuitive event that entry itself will cause the incumbent to become *less* efficient.[67] Elementary theory provides that competition increases competitors' productive efficiency,[68] and there is theoretical reason to believe that monopoly encourages organizational slack and at least sometimes deadens innovation.[69] Elhauge argues that entrant efficiency would necessarily come at the expense of incumbent efficiency if in a given market, minimum efficient scale is achieved only at output of more than half of the market. However, he gives no evidence of the frequency of such markets or reason to believe they would be likely, and indeed they would seem fairly rare. As to his other argument, the view that capital markets will fully fund any entrant with a hope of achieving efficiency amounts to favoring a legally irrebutable presumption that capital markets are perfectly efficient or nearly so. However, among the oldest argu-

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[67] *Id.* at 778–82.

[68] *See, e.g.*, DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION (3d ed. 2000).

[69] *See* Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807 (1975).

ments in the predation literature is that the purpose of a predation strategy might be to disrupt access to capital, and it has now been developed to exceptional theoretical richness.[70]

A second major theme in the predation literature is relevant here. A central claim of the game theoretic revolution in predation theory that began in the 1980s has been that predation as against one entrant or in one local market could establish an incumbent's *reputation* for predation. If that reputation deters entry in other periods or in other local markets, it could render an otherwise money-losing predatory campaign rational. Reputational strategies might be effective on the (realistic) assumption that potential entrants and their financiers lack perfect information about the incumbent's actual costs. A nice tool for legally operationalizing this insight is Williamson's condition that, other things equal, rules requiring entrants to have greater knowledge or bear more risk should be disfavored.[71]

Again, it is in a way the most telling defense of reputation-based arguments that the counterarguments made to them have been so slim and unpersuasive. Here, Elhauge's argument is truly striking. Though he claims that reputation theories have "manifold problems," his strangely overstated effort to discredit them virtually proves their plausibility in all but a few special cases.[72] In an otherwise immensely comprehensive, 148-page law review article, he devotes only four strained paragraphs to the issue, noting a handful of arguments that might conceivably prove problematic—for example, that some monopolists sell in only one market (though it is actually a bit unclear why this would preclude a reputation based strategy) and that it is possible that some entrants could enter all of an incumbent's markets at once (in which case, admittedly, a reputation for predation might be irrelevant, but that would be the unusual case and not the norm). He then concludes with a peculiar invocation of the so-called "chain store paradox."[73] Even aside from the fact that the "backward induction" outcome described

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[70] Telser made a point of it as early as 1966, *see* Telser, *supra* note 44, and it has been developed in a theoretical literature since then. *See, e.g.*, Patrick Bolton & David S. Scharfstein, *A Theory of Predation Based on Agency Problems in Financial Contracting*, 80 AM. ECON. REV. 93 (1990); Drew Fudenberg & Jean Tirole, *A "Signal-Jamming" Theory of Predation*, 17 RAND J. ECON. 366 (1986).

[71] Williamson, *supra* note 45, at 293.

[72] Elhauge, *supra* note 8, at 722–23.

[73] *Id.* at 723 (citing Reinhard Selten, *The Chain Store Paradox*, 9 THEORY & DECISION 127 (1978)).

in Selten's original paper would depend on perfect information and stylized, exceptionally unrealistic rules of play—and therefore is a long way from proving anything about actual pricing and entry in real-world markets[74]—Elhauge's use of it here is really quite odd. Selten's purpose in originally describing the paradox was to suggest that actual human decision makers probably *would not* follow theoretically correct strategies in the chain store scenario (and hence it was a "paradox").[75] Experimental evidence now suggests that, at least where information is incomplete, his hunch was correct.[76]

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[74] Selten constructed a game with many periods in which a chain store business operates stores in various towns. The business would face potential entry, once in each period, by one entrepreneur in each town. If a particular entrepreneur decides to enter, the incumbent would earn a better payoff in that particular period by conciliating—by reducing its output and not cutting price. But it would earn an even better payoff if the entrepreneurs chose not to enter at all. Selten thought there should never be any reason for the incumbent to react aggressively through price or output except that by developing a reputation for such things it might discourage future entry. However, in the very last period the incumbent would have nothing to gain from a reputation strategy—by definition there would then be no future periods in which a reputation might discourage entry. But all the other potential entrants would realize this, too, and therefore the second-to-last entrant could anticipate that there would be nothing for the incumbent to gain through aggressive response in the second-to-last period either. And so on, by backward induction all the way to the very first period. By Selten's reasoning the game theoretically-correct result is a "one shot" resolution under which all potential entrants enter and the incumbent accommodates all entry. *See* Selten, *supra* note 73, at 131–33. However, this result logically follows only under Selten's strict and highly unrealistic rules of play. All players have perfect information and there is only a known and finite number of periods of play, and a known and finite number of potential entrants. Subsequent theoretical work shows pretty conclusively that this result would not be obtained if any of a number of more realistic assumptions are added. *See generally* KAPLOW & SHAPIRO, *supra* note 8, at 1195–96.

[75] Selten, *supra* note 73, at 131–33.

[76] To be fair, the experimental results are mixed, only sometimes finding that entrants can be strongly deterred by the incumbent's reputation for aggression, and researchers remain unsure just why deviations from backward induction are observed. But one result that is definitely *not* borne out in any of the evidence is behavior consistent with backward induction, particularly where games involve many periods or lack perfect information. *See* Jordi Brandts & Neus Figueras, *An Exploration of Reputation Formation in Experimental Games*, 50 J. ECON. BEHAV. & ORG. 89 (2003); James Sundali et al., *Reputation and Deterrence: Experimental Evidence From the Chain-Store Game*, J. BUS. & ECON. STUD., Spring 2000, at 1; Dustin Tingley & Barbara Walter, Reputation Building in International Relations: An Experimental Approach (Oct. 30, 2006) (unpublished manuscript on file with the Journal of Air Law & Commerce); Yun Joo Jung et al., *On the Existence of Predatory Pricing: An Experimental Study of Reputation and Entry Deterrence in the Chain-Store Game*, 25 RAND J. ECON. 72 (1993).

C. The Theoretical Possibility of Airline Predation

With all that in mind, a plausible model of airline predation can be conceived, and it can be compared to empirical evidence from the industry. Price predation might plausibly be used by an incumbent airline with market power and some protection from easy entry or re-entry. Such a strategy would be rendered more rational if any of several characteristics are present in a given market: (1) the incumbent can limit the volume of traffic to which price cuts will be applied; (2) the price cuts as against one entrant will affect the expectations of potential entrants and their financiers in other markets (that is, that one successful episode of predation may have reputational consequences); (3) entry by less efficient rivals poses a threat to incumbent profits because of the risk of substantial increases in entrant cost efficiency; and (4) less-efficient entry that nevertheless poses threats to incumbent profits can be credibly repelled by profit sacrifice that is above cost or below cost only on an incremental basis.

The remainder of this article sets out to prove that such evidence as there is (and there is a lot), is more consistent with this model of incumbent predation than it is with the conception of predation contained in prevailing antitrust doctrine. The remainder of the paper is thus essentially an empirical account of the industry's history and the airlines' behavior.

II. THE INDUSTRY'S PERTINENT HISTORY

A. History to Date

Domestic aviation was largely the creation of Herbert Hoover's Postmaster General, Walter Folger Brown, who oversaw its development according to a Hooverian policy of associationalist industry self-regulation, along with substantial federal assistance to support the still dangerous and commercially nonviable industry. (Viability would have to wait for the development of long-range, wide body airplanes several years later).[77] Of relevance to this article is that Brown used a broad statutory discretion to award federal mail contracts—on which the industry was then dependent for its very life—and used that discretion to force the existing major carriers to divide the country's available passenger traffic among themselves (along a handful of major

[77] *See generally* T. A. Heppenheimer, Turbulent Skies: The History of Commercial Aviation (1995); Richard H. K. Vietor, *Contrived Competition: Airline Regulation and Deregulation, 1925–1988*, 64 Bus. Hist. Rev. 61 (1990).

transnational routes on which they would not compete with one another). That division, agreed to in secret among Brown and airline executives, would form the rudimentary basis of the industry's infrastructure until deregulation. Brown's meetings with the airlines, which later came to scandalous light in legislative hearings managed by Senator Hugo Black, came to be known as the "spoils conference."[78] There ensued a political backlash that led both to the creation of the Civil Aeronautics Board's (CAB) first predecessor in 1938 and to the diminution of federal subsidy. However, even as direct subsidy tapered off, the industry came to depend on a completely different kind of subsidy under CAB oversight. When it emerged from regulation in 1978, the industry was about fifty years old, but had never lived without either direct federal subsidy or the substantial aid of the CAB's policy of supporting all certificated carriers at profitable levels.[79] Under regulation, the industry was never especially profitable, but also never suffered persistent, systematic losses.

The industry's life since deregulation has been quite different. That thirty-year period can be seen in three roughly decade-long blocks. From deregulation until about 1985, aggressive competition prevailed, characterized initially by a barrage of new entry and fare competition by both entrants and the large incumbents, along with the industry reorganization one might expect from a transition to unregulated competition. Reorganization included acquisitions by the majors of significant regional carriers to serve as feeders,[80] as well as acquisition of many smaller entrants and the liquidation of a few of the large carriers.[81] Indeed, it was during this period that the Department of Transportation (DOT), during its short tenure as successor to the CAB's airline merger review authority, approved all of the twenty-one mergers submitted for its review.[82]

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[78] *See* HEPPENHEIMER, *supra* note 77; Vietor, *supra* note 77.

[79] *See* HEPPENHEIMER, *supra* note 77; Vietor, *supra* note 77; Peter C. Carstensen, *Evaluating "Deregulation" of Commercial Air Travel: False Dichotomization, Untenable Theories, and Unimplemented Premises*, 46 WASH. & LEE L. REV. 109, 111 (1989).

[80] This was notably the case of TWA's acquisition of Ozark and Northwest's acquisition of Republic.

[81] Braniff failed not long after deregulation, and it was roughly during this period that Pan Am, Eastern, and TWA also failed. (Notably, TWA was acquired in bankruptcy by American Airlines, with the effect that American retains dominance in St. Louis).

[82] *See* PAUL STEPHEN DEMPSEY & ANDREW R. GOETZ, AIRLINE DEREGULATION AND LAISSEZ-FAIRE MYTHOLOGY 227 (1992).

This period produced deregulation's most unambiguous benefits, consisting mainly in savings from fare competition and increased travel. Fares declined significantly in real dollars and ridership increased.[83] Consumer savings may have been as much as $6 billion per year by the mid-to-late 1980s,[84] and the absence of such consumer savings prior to deregulation may have represented a loss of as much as $1 billion per year.[85] That consequence had been foreseen by deregulators, but given their expectation of "contestability" in airline markets, certain other developments were quite surprising.[86] First, this was also the time during which competitive pressures encouraged the industry's current hub-and-spoke infrastructure[87]—one of the truly spectacular and unpredicted consequences of deregulation, and a change that had both economic benefits[88] and costs that are important in this article. Another major surprise of this period was the development of the sophisticated price discrimination approach known as "yield management," which also has relevance to predation.[89] In any case, this initial, exuberant period ended to some large extent with the initial consolidation of the

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[83] *See* Severin Borenstein & Nancy L. Rose, *How Airline Markets Work . . . Or Do They? Regulatory Reform in the Airline Industry* 12–13 & figs. 3–4 (Nat'l Bureau of Econ. Research, Working Paper No. 13452, 2007) (reporting that between 1976 and 1986 average revenue fell by 3.4% per year and passenger-miles increased by 8.2% per year; Borenstein & Rose also compare actual fares to what fares likely would have been if the CAB were still fixing minimum rates according to its "standard industry fare level" formulation and find that actual fares are substantially lower).

[84] *See* STEVEN MORRISON & CLIFFORD WINSTON, THE ECONOMIC EFFECTS OF AIRLINE DEREGULATION 31–33 (1986).

[85] *See id.* at 5, n.2 (collecting and summarizing pre-deregulation evidence).

[86] *See* Gloria J. Hurdle et al., *Concentration, Potential Entry, and Performance in the Airline Industry*, 38 J. INDUS. ECON. 119, 119–20 (1989) (a Justice Department-funded study by five economists); Thomas Gale Moore, *U.S. Airline Deregulation: Its Effects on Passengers, Capital, and Labor*, 29 J.L. & ECON. 1, 1 (1986).

[87] *See generally* MORRISON & WINSTON, *supra* note 84, at 6–10.

[88] *See* Steven A. Morrison & Clifford Winston, *Intercity Transportation Route Structures Under Deregulation: Some Assessments Motivated by the Airline Experience*, 75 AM. ECON. REV. PAPERS & PROC. 57 (1985). Prior to deregulation, consensus had it that deregulation would lead to significant drops in departure frequency, as theorists failed to predict the huge increase in hub-and-spoke organization. *Id. See also* MORRISON & WINSTON, *supra* note 84, at 6–7; Elizabeth Bailey et al., *Source of Economic Rent in the Deregulated Airline Industry*, 31 J.L. & ECON. 173 (1988); Jan K. Brueckner & Pablo T. Spiller, *Economies of Traffic Density in the Deregulated Airline Industry*, 37 J.L. & ECON. 379 (1994); Steven A. Morrison & Clifford Winston, *An Econometric Analysis of the Demand for Intercity Passenger Transportation*, 2 RES. IN TRANS. ECON. 213 (1985).

[89] *See infra* notes 104–05 and accompanying text.

hubs. By more or less that same time, virtually all of the new carriers that had entered interstate service since deregulation either failed outright or were acquired by major carriers (indeed, virtually every genuinely new entrant since deregulation, in this or any subsequent period, has failed).[90]

Next, beginning in about 1993, as the economy generally emerged from downturn and Southwest Airlines began to convincingly demonstrate the possibility of selective, low-cost competition against the majors, another entry flurry ensued. That period, too, was comparatively short lived.[91] During the late 1990s, the majors began to do quite well—in fact, for a time they earned all-time record profits. Nevertheless, by the end of this second period, the majors began to suffer again and, predictably, virtually all of the new entrants of this period either failed outright or were acquired. The end of this period also saw another time of intense efforts to consolidate among the majors, though the government at that time also imposed its first serious limits on those transactions.[92]

There then ensued what might be thought of as the present period, one generally characterized by fairly severe financial malaise among all airlines except Southwest (another new entrant that so far has survived on the low-cost carrier (LCC) model, JetBlue, has also fared better recently than most airlines). Concentration in airline markets is now as high as it has ever been, and it seems likely that it will increase if poor economic performance drives further merger and consolidation.

Interestingly, poor cost performance (or at least costs higher than LCC entrants) has persisted among the largest airlines even though there is reason to expect substantial returns to scale and/or scope in air transport, especially as to the carriers'

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[90] Some non-legacy carriers cannot be characterized as "new" entrants since deregulation, since they operated prior to 1978 in unregulated status, because they were only intrastate in character or otherwise not subject to CBA oversight. Some of these carriers have done better than post-deregulation entrants, the most significant being Southwest.

[91] *See* PAUL STEPHEN DEMPSEY, AIRPORT PLANNING & DEVELOPMENT HANDBOOK: A GLOBAL SURVEY 485 (1999).

[92] *See* Press Release, U.S. Dep't of Justice, Department Announces Tentative Settlement in Northwest-Continental Lawsuit, (Nov. 6, 2000); Stephen Labaton, *Airlines and Antitrust: A New World. Or Not.*, N.Y. TIMES, Nov. 18, 2001, at C1; Laurence Zuckerman, *Antitrust Laws an Issue in Airline Alliances*, N.Y. TIMES, Apr. 28, 2002, at E3.

information costs.[93] It is thought that the majors' higher costs are largely the result of union contracts,[94] which preserve wages and work rules developed under regulation and also protect a relatively senior work force.[95] But there was also a time when most observers thought that their comparatively high costs and the continued suffering of the majors would dissipate as they corrected the inefficient capital structure developed under regulation.[96] That view has come into doubt.[97]

Predation in the airlines, or concern about it, is at least as old as deregulation. Opponents of deregulation feared it, and the government, despite its great initial skepticism that it could occur in airline competition, took action to address it.[98] As deregulatory confidence in the expected near-perfect contestability of airline markets faded, realization set in with government and industry observers that predation might be real. By the late 1980s, as the hub-and-spoke infrastructure had settled into a certain stability and the majors began to exploit some market power, many small would-be entrants alleged predation. A similar period followed the burst of new entry during the early to mid-1990s, when new entrants sent a barrage of formal complaints to the Department of Transportation.[99]

So, interestingly, while it is often claimed (correctly) that deregulation spurred significant new entry and fare competition, it is really more accurate to say that in the thirty years since deregulation, there have been two fairly brief, discrete bouts of entry. Both followed industrywide or macroeconomic events that

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[93] Michael E. Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. ON REG. 393, 417 (1987) (summarizing arguments).

[94] *See* Aaron S. Edlin & Joseph Farrell, *The American Airlines Case: A Chance to Clarify Predation Policy*, *in* THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY 502, 505 (2001) (John E. Kwoka Jr. & Lawrence J. White, eds., 4th ed., 2004).

[95] *See generally* Paul Stephen Dempsey, *The Financial Performance of the Airline Industry Post-Deregulation*, 45 HOUS. L. REV. 421 (2008).

[96] *See, e.g.*, MORRISON & WINSTON, *supra* note 84, at 2.

[97] *See, e.g.*, Borenstein & Rose, *supra* note 83, at 18–19 (observing that the rate of carrier failure since deregulation "appears to reflect more than transitional uncertainty in the aftermath of deregulation.").

[98] *See* Robert G. Berger & Stephanie J. Mitchell, *Predatory Pricing in the Airline Industry: A Case Study—The Policies and Practices of the CAB*, 13 TRANSP. L.J. 287, 287–88 (1984) (discussing anti-predation policy established by Civil Aeronautics Board shortly after 1978 deregulation legislation, though also noting the Board's concern over chilling healthy price competition, and describing Board's standards as almost impossible to meet).

[99] *See* OSTER & STRONG, *supra* note 22, at 10 n.8.

suggested additional profits might be available (namely, deregulation itself, in the first instance, and the success of Southwest Airlines and the improving economy of the early 1990s, in the second). In both cases, flurries of complaints of predation, including some lawsuits challenging it, ensued; and in both cases, most entrants either failed or were acquired.

B. The Deregulated Airlines' Important Peculiarities

Airlines are said to display a number of important idiosyncrasies, and it is sometimes said that those "special" features explain why airline markets can exhibit predation even if others do not. While ultimately these traits actually do not distinguish the airlines that much with respect to their vulnerability to predation, the following discussion will be useful for later discussion.

1. Hubs, Network Effects, and Entry Barriers

The theme dominating the theoretical and empirical literature has been the industry's transition to hub-and-spoke networks, a change that was not predicted during the deregulation debate. Hubs are competitively significant for several reasons. As will be explained, they appear to support market power. The exact reason why is unknown, though it may have to do with the advantages they pose for local travelers in connection with frequent flyer programs and travel agent loyalty programs.[100] Second, they present significant positive network externalities for customers, who have been shown to strongly favor "online" connections that do not require taking different legs of the same trip on more than one carrier. Finally, they represent among the more significantly known entry barriers in the industry. If entry into an already-hubbed market requires establishment of a competing hub, then entry there will be very difficult.[101]

Current evidence suggests that the dominance of hubs is slowly eroding,[102] and anecdotal evidence has it that the inconvenience and travel delay associated with connecting flights may drive an evolution toward greater reliance on point-to-point

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[100] *See* Severin Borenstein, *Airline Mergers, Airport Dominance, and Market Power*, 80 Am. Econ. Rev. 400, 400 (1990).

[101] *See* Edlin & Farrell, *supra* note 94, at 519. *See also* Alfred E. Kahn, Lessons From Deregulation: Telecommunications and Airlines after the Crunch 8–9 (2004).

[102] *See* Kahn, *supra* note 101, at 5–7.

structures.[103] For the time being, however—and throughout the period during which available evidence of predation was compiled—hubs were an absolute force in commercial air travel.

2. *Price Discrimination, Perishability, Ramsey Effects, and RPA Exemption*

Surely, the next most salient market behavior following deregulation has been the carriers' extraordinary amount of price discrimination. Very shortly after deregulation, the major carriers developed means of very sophisticated inventory management, relying on the information obtained through computer reservation systems, primarily under the leadership of American Airlines. The carriers have not denied that their motive was to ensure that all passengers pay as close as possible to their maximum willingness to pay.[104]

It is sometimes said that, in addition to motives of profit maximization, airlines actually face a strong pressure toward price discrimination according to buyer elasticities, along with a related susceptibility to price wars associated with large fixed and small incremental costs. This is so because once a flight is scheduled, almost all of its costs become essentially invariant, regardless of how full it is. For this reason, airplane seats are often called "perishable."

As Peter Carstensen explains, the carriers can discriminate so well because they are legally free to prohibit transferability of

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[103] *See* Rose M. Rubin & Justin N. Joy, *Where Are the Airlines Headed? Implications of Airline Industry Structure and Change for Consumers*, 39 J. CONSUMER AFF. 215, 224–25 (2005) (citing Joe Sharkey, *Major Changes Foreseen in Air Travel*, N.Y. TIMES, Oct. 7, 2003, at C8).

[104] Incidentally, this discrimination itself does not violate the Robinson-Patman Act (RPA). The RPA generally bars price discrimination in sales to similarly situated buyers. Presumably, discrimination in airline fares, which is carefully tailored to individual demand elasticity with no necessary connection to other market circumstances, could not satisfy the RPA's cost-based exceptions or the "meeting competition" defense. *See* 15 U.S.C. § 13(a) (2006). However, the statute applies only to sales of "commodities." While no case appears to consider whether commercial air travel is a "commodity," courts have broadly held that "transportation" is not a commodity. *See* Fleetway, Inc. v. Pub. Serv. Interstate Transp. Co., 72 F.2d 761, 763–64 (3d Cir. 1934) (affirming dismissal of a claim involving passenger buses); Alliance Shippers, Inc. v. S. Pac. Transp. Co., 673 F. Supp. 1005, 1008 (C.D. Cal. 1986) (dismissing a claim involving railroad freight shipments and holding that "transportation is not a commodity").

tickets, preventing what presumably otherwise would be an arbitrage market dissipating most or all of the associated profit.[105]

3. Scarce Airport Facilities

A second possibly significant entry barrier, especially in the largest and most congested urban airports, is limitation of airport facilities. Almost all commercial airports remain government owned, and airport operators have been severely criticized both for failure to support needed expansion and to develop market-based means for apportioning facilities in pro-competitive fashion (and often airports have been pressured to avoid any such solutions by major airlines to which they feel beholden). Probably the most competitively significant facilities problem is a shortage of gates, which have often been tied up in very long-term leases to locally dominant carriers, though some problems also arise from limited "slots" for take-off and landing at especially congested airports.[106]

4. Sunk Costs of Entry

Yet another possibly significant entry barrier is that entry into a new airline route entails some sunk costs, especially in terms of advertising and the development of market-specific marketing information. Fixed investments that are truly "sunk"—not recoverable on exit—are now ordinarily recognized as barriers to entry or re-entry even if they were also initially incurred by the incumbent.[107]

5. Scale Effects Associated with Information

Michael Levine first observed that there may be significant information costs in deregulated airline markets, and they might be susceptible to scale and scope economies.[108] These costs arise because airlines must advertise themselves to a large and disperse body of consumers and must convey important infor-

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[105] *See* Peter C. Carstensen, *The Poor Financial Performance of Deregulated Airlines: Competition as Causation or Only Correlation? Reflections on Professor Dempsey's Article*, 45 HOUS. L. REV. 487, 503–04 (2008); Alexandra Marks, *Major Turbulence Ahead for Airlines*, CHRISTIAN SCI. MONITOR, June 26, 2008, http://csmonitor.com/2008/0626/p01s06-usgn.htm?print=true.

[106] A "slot" is a time of day assigned to a particular carrier dictating when it is permitted to take off or land an airplane at a given airport.

[107] *See* William Baumol & Robert D. Willig, *Fixed Costs, Sunk Costs, Entry Barriers, and the Sustainability of Monopoly*, 96 Q.J. ECON. 405 (1981).

[108] *See* Levine, *supra* note 93, at 396.

mation that consumers are ill-suited to judge before they purchase tickets.[109] Branding is particularly important, says Levine, because airline consumers normally pay before delivery, and the product happens to be dependent on consumer confidence in reliability and safety.[110] Scale is also thought to be important in effective frequent flyer and travel agent loyalty programs.

6. *Vertical Integration*

The major carriers integrate vertically in at least two ways that are said to have competitive significance: (1) in the distribution of travel services and (2) in the acquisition of connecting travelers. As for distribution,[111] however, what were once significant competitive concerns may have eased. There was a time when a chief concern over vertical integration was abuse associated with airline-owned computer reservation systems (CRS).[112] The problem engendered a fair bit of antitrust litigation, much of it successful,[113] and resulted in CAB-era rules to constrain anticompetitive abuses, which were in place for twenty years[114] until industry changes and the rise of internet distribution had largely displaced the power to constrain competition through the CRS's.[115]

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[109] *Id.* at 418.

[110] *Id.* at 426–27.

[111] *See* Computer Reservation System (CRS) Regulations, 69 Fed. Reg. 976, 979 (Jan. 7, 2004) [hereinafter 2004 CRS Order].

[112] All CRS's with U.S. operations were developed and traditionally owned by domestic carriers. American Airlines pioneered the field with its Sabre system in the 1950s, a joint venture with IBM. *See* HEPPENHEIMER, *supra* note 77; Robert V. Head, *Getting Saber off the Ground*, IEEE ANNALS OF THE HIST. OF COMPUTING, Oct.–Dec., 2002, at 32, 32–33.

[113] *See, e.g., In re* Air Passenger Computer Reservations Sys. Antitrust Litig., 694 F. Supp. 1443, 1475–76 (C.D. Cal. 1988).

[114] *See* 14 C.F.R. §§ 255.1–255.8 (2009). The CAB first adopted the rules in 1984 under its statutory power to prevent "unfair methods of competition" among the airlines. *See* Carrier-Owned Computer Reservations Systems, 49 Fed. Reg. 32,540, 32,541–42 (Aug. 15, 1984) (referencing 49 U.S.C. § 41712, commonly referred to as "Section 411" after its codification in the original Federal Aviation Act).

[115] *See* 2004 CRS Order, *supra* note 111, at 977. DOT promised in its order to use its unfair competition power to control abuses that might arise in the deregulated CRS marketplace. *See id.* at 977–78. Its assertion of jurisdiction to do so has been upheld on judicial review. *See* Sabre, Inc. v. Dep't of Transp., 429 F.3d 1113, 1115 (D.C. Cir. 2005). *See generally* Thomas L. Ray, *DOT's Authority to Regulate Airline Sales Through Computer Reservations Systems*, AIR & SPACE LAW., Spring 2006, at 23, 23–24.

Integration with feeders has also often been noted as a problem, though it seems not especially specific to airlines. Namely, it appears that majors have acquired regional carriers not only as a source of needed traffic for hub networks, but also to forestall the growth of would-be entrants.

III. AIRLINE PREDATION

A. THE BASIC CASE

Again, the case here is that predation by an incumbent airline with entry-protected market power is plausible and supported by the empirical evidence. The case will be strongest if the evidence is consistent with the incumbent's ability to limit the cost of predation, as through area discrimination and profit sacrifice that is above cost or below cost only on an incremental basis, and if there are important reputational effects.

So what does the empirical evidence show? First, structural factors should strongly facilitate airline predation. One important fact appears to be beyond serious dispute: since deregulation, the surviving major carriers have held pockets of market power.[116] Each of the network carriers maintains hub airports and most of them enjoy some significant market share dominance on at least some routes at their hubs. While certain dramatic results from the early years of deregulation have been tempered by more sophisticated research,[117] a consistently robust empirical result has been that fares are higher at concentrated hub airports[118] and that mergers increasing

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[116] Market power or structural factors rendering market power attainable are thought to be essential to most strategic entry deterrence. In unconcentrated or highly competitive markets, investments in deterrence would likely be wasted; rather, competition should be mainly based on price. Empirical evidence bears out this prediction. *See* David S. Bunch & Robert Smiley, *Who Deters Entry? Evidence on the Use of Strategic Entry Deterrents*, 74 REV. ECON. & STAT. 509, 517–20 (1992) (regression study on survey results of industry participants, finding market concentration strongly positively correlated with the use of a variety of entry deterrence strategies).

[117] For comprehensive review of the literature testing airline fares, *see* Michael W. Tretheway & Ian S. Kincaid, *The Effect of Market Structure on Airline Prices: A Review of Empirical Results*, 70 J. AIR L. & COM. 467, 469–98 (2005).

[118] *See* Severin Borenstein, *Hubs and High Fares: Dominance and Market Power in the U.S. Airline Industry*, 20 RAND J. ECON. 344, 344 (1989) (a regression analysis finding that concentrated firms charged elevated prices on routes they dominate; but, interestingly, also finding that concentration produced no "umbrella" effect allowing rivals on those routes to elevate fares); Amy D. Abramowitz & Stephen M. Brown, *Market Share and Price Determination in the Contemporary Airline Industry*, 8 REV. INDUS. ORG. 419, 429 (1993); William N. Evans & Ioannis N. Kessides, *Local-*

concentration at hubs are associated with higher fares.[119] Market power is further shown by price discrimination by the majors, which theoretically should be ineffective without it;[120] by evidence of oligopolistic pricing where two or more majors dominate a particular route;[121] and by the majors' apparent ability to engineer coordinated price increases.[122] Admittedly, the early evidence of very, very high "hub premiums" has been tempered by subsequent research. It was discovered that a number of factors other than market power could explain some portion of the hub premium. These mainly centered around the fact that hubs are located in larger cities, where price is naturally increased by the higher concentrations of low-elasticity business travelers, increased airport congestion, and similar factors, and the fact that hub carriers ordinarily have well established brand identities that render *all* their fares higher than those of smaller carriers. Hubs also tend to be characterized by a traffic mix in-

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ized Market Power in the U.S. Airline Industry, 75 REV. ECON. & STAT. 66, 66 (1993); Margaret A. Peteraf & Randal Reed, *Pricing and Performance in Monopoly Airline Markets*, 37 J. L. & ECON. 193, 206, 208 (1994) (a regression analysis finding that, while potential competition had some limiting effect on monopolist airline pricing, both monopoly on given routes and large national market share were associated with higher fares).

[119] *See* Borenstein, *supra* note 100, at 400–01 (a regression analysis finding fare increases associated with 1986 acquisition by Northwest of Republic); Matthew J. Hergott, *Airport Concentration and Market Power: An Events Study Approach*, 12 REV. INDUS. ORG. 793, 798–800 (1997); E. Han Kim & Vijay Singal, *Mergers and Market Power: Evidence From the Airline Industry*, 83 AM. ECON. REV. 549, 567 (1993) (a regression analysis of the flurry of mergers during the mid-1980s; finding merger led to increased fares).

[120] *See* AREEDA & HOVENKAMP, *supra* note 34, at ¶ 721c; OSTER & STRONG, *supra* note 22, at 22–23.

[121] James A. Brander & Anming Zhang, *Market Conduct in the Airline Industry: An Empirical Investigation*, 21 RAND J. ECON. 567, 571, 580 (1990) (a regression analysis of thirty-three "duopoly" routes to Chicago dominated by United Airlines and American Airlines finding behavior most consistent with Cournot competition). There is also evidence that when two legacy carriers face ongoing contacts in multiple city-pairs, they behave oligopolistically as to all of them. *See* Tretheway & Kincaid, *supra* note 117, at 494 (discussing Li Zou et al., Many Fields of Battle: How Cost Structures Affect Competition Across Multiple Markets, Address at the 2004 Air Transport Research Society World Conference in Istanbul, Turkey (July 2, 2004)).

[122] *See* Jonathan B. Baker, *Mavericks, Mergers, and Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws*, 77 N.Y.U. L. REV. 135, 166–67 (2002) (finding anecdotal evidence of successfully coordinated parallel price increase).

cluding shorter average distance flights, which are higher cost.[123]

And yet, despite many years of voluminous and persistently refined research controlling for this host of other factors possibly explaining hub premiums, researchers still consistently find a cushion of pricing power at hub airports explained by nothing else than market power.[124] There is reason to expect this pricing power to persist for some time. Domestic airline routes are more concentrated than they ever have been, and concentration worsened drastically following last year's merger of Delta and Northwest.[125]

Other structural factors are also conducive to predation. First, market power at hubs is enhanced by significant entry barriers. Some of these are governmentally imposed, as governments regulate access to airport facilities.[126] Scale and scope efficiencies associated with hubbing also represent first mover advantages that entrants will ordinarily find very hard to match.[127] Southwest has been able to penetrate these barriers, but other LCCs, by and large, have not.[128] Loyalty programs are also thought to represent significant entry barriers, particularly at hubs.[129] Moreover, entering any given city-pair entails some significant fixed costs that are sunk. Incumbents enjoy strong international brand identity and can enhance its effect at hubs with loyalty programs. Entrant airlines therefore must invest to establish brand identity and their presence on a given route and in the information resources necessary to market new route schedules to consumers for particular routes. All such costs are sunk.[130]

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[123] *See* Tretheway & Kincaid, *supra* note 117, at 474–78, 480–82 (discussing various explanatory variables confirmed by research subsequent to the early hub premium studies).

[124] *See id.* at 475–78 (collecting many such studies).

[125] *See* Diana Moss, *The Merger of Delta Air Lines and Northwest Airlines: An Antitrust White Paper* 2–3, 5–7 (Am. Antitrust Inst. White Paper, July 10, 2008), *available at* http://www.antitrustinstitute.org/archives/files/AAIWhite%20Paper_Delta_NW_071020081922.pdf.

[126] *See supra* note 92 and accompanying text.

[127] *See supra* note 101 and accompanying text; Edlin, *supra* note 21, at 943 & n.12.

[128] *See generally* RANDALL D. BENNETT & JAMES M. CRAUN, DEPT. OF TRANSP., OFF. OF AVIATION ANALYSIS, THE AIRLINE DEREGULATION EVOLUTION CONTINUES: THE SOUTHWEST EFFECT (1993).

[129] *See supra* note 101 and accompanying text.

[130] *See supra* note 107 and accompanying text.

Second, airlines are legally and practically well suited to a variety of price discrimination strategies, and they are known to practice them assiduously. They are exempt from the RPA prohibition on discrimination and have developed perhaps the most sophisticated information technology tools for discrimination of any industry. Specific routes are also highly insulated from geographic competition—geographic markets for airline competition are ordinarily defined as specific city-pairs—so airlines are well situated to practice zone pricing to limit predatory losses.[131]

Third, there is reason to believe that reputation effects are important in airline markets. While entry on a specific route need not involve significant capital outlay (unless it requires expansion in the given carrier's capacity by the addition of new planes), entering service in itself involves a huge capital commitment. New LCCs are therefore heavily dependent on access to capital, a fact that inherently puts them at some risk of predation.[132] Similarly, most airlines experience contact with one another in multiple markets. Developing a reputation for predation in one market might discourage entry in others, thereby protecting excess profits in several markets with predatory losses in only one.

So if the structural circumstances are right for predation, is there evidence that it has occurred? It is widely accepted that LCC entry in some airline markets draws swift and drastic incumbent price reactions, and the observed patterns of those reactions suggest predatory motives. In several well-documented accounts, incumbent reactions have been glaring and severe,[133] and there is some direct evidence that they were made at a genuine loss, especially if price-cost comparisons are made on incremental basis.[134] Two of the best known instances involve

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[131] *See supra* notes 121–22 and accompanying text.

[132] *See supra* note 70 and accompanying text.

[133] *See* Spirit Airlines, Inc. v. Nw. Airlines, Inc., 431 F.3d 917, 921 (6th Cir. 2005); OSTER & STRONG, *supra* note 22, at 7–10; Roger W. Fones, Chief, Transp. Energy & Agric. Section Antitrust Div. U.S. Dep't of Justice, Predation in the Airline Industry, Speech Before American Bar Association Forum on Air and Space Law 19 (June 12, 1997).

[134] That is, where the comparison is made by asking whether the increase in revenue associated with the increased output of a predatory strategy (which will occur almost by definition, since the predator's lower price will increase demand that the entrant will likely not want or be able to fill) is greater than the increased costs associated only with that additional output. It will frequently be the case that capacity responses to entry that are below-cost on this incremental basis will

antitrust litigation, in which courts extensively analyzed internal cost data suggesting pricing had been predatory. In both cases, world-renowned economists (including a Nobel laureate and an economist who is among the world's leading critics of anti-predation policies) opined as experts that price was either below cost in an absolute sense or represented a seriously anticompetitive profit sacrifice.[135] (Researchers ordinarily have no access to carriers' internal cost data, so documentation of actual below-cost pricing must ordinarily be found in litigation.) Econometric evidence has also shown that LCC entry is, in general, associated with very significant fare reductions.

But possibly the most significant and telling fact is evidence of substantial differences in incumbent reaction to different kinds of entrant. When the entrant is either Southwest Airlines or another of the legacy carriers, the price reaction is typically much smaller, and might be characterized simply as accommodation. There is substantial evidence that the presence of an LCC on a given route lowers prices there, even when a hub-incumbent has a dominant position,[136] but there is also substantial evidence that LCCs other than Southwest cannot survive under those circumstances, because virtually all of them have been liquidated or acquired by incumbents.[137]

B. Counter Arguments

A key counter argument might be that despite whatever evidence there may be of airline predation, the carriers have performed poorly. If they are effective long-term predators and hence monopolists, at least some of them should have flourished. But, superficially at least, they have not. Even the original deregulatory prophets have all acknowledged that unregulated competition has been unpredictable and problem-

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appear to be above-cost if the comparison is made on the basis of the predator's total output in the market.

[135] The cases are United States v. AMR Corp., 335 F.3d 1109, 1116–17 (10th Cir. 2003), in which Nobel laureate Joseph Stiglitz supported the government's predation theory, and Spirit Airlines, Inc. v. Northwest Airlines, Inc., 431 F.3d 917 (6th Cir. 2005), in which the court was heavily swayed in its decision to reverse summary judgment for defendant by the fact that plaintiff's case was supported by one of the world's leading predation skeptics, economist Kenneth Elzinga.

[136] *See* Tretheway & Kincaid, *supra* note 117, at 478–79 (collecting evidence).

[137] *See supra* notes 80–81 and accompanying text.

atic,[138] and, predictably, some "destructive competition" advocates say that competition itself is to be blamed.[139] The situation promises to grow only worse given this year's spectacular increase in fuel prices.[140] Significant scuttlebutt has it that the industry is near another of its epochal, paradigm-shifting reorganizations, a few of which it has already endured since deregulation (this would basically be the fourth of such reorganizations in thirty years). "Crisis" is the word of the day,[141] and calls are now made for some sort of reregulation or a system of legalized cartel regulation with antitrust immunity.[142] Whether policy changes arise or not, the industry will very likely change in some way or another through upcoming mergers.[143]

But the legacy airlines' luck since deregulation might be a singularly poor economic metric, even though their difficulties have persisted for some time and for several reasons.[144] For one

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[138] Michael Levine, among the more influential early advocates of airline deregulation, *see* Michael E. Levine, Note, *Is Regulation Necessary? California Air Transportation and National Regulatory Policy*, 74 YALE L.J. 1416, 1429 (1065), acknowledged as early as 1987 that it had been premised on undue optimism and overly simplistic theoretical predictions of the industry's behavior in open competition. *See* Levine, *supra* note 93, at 481. *See also* Elizabeth E. Bailey, *Aviation Policy: Past and Present*, 69 S. ECON. J. 12, 14–16 (2002); *see also* Alfred E. Kahn, *Airline Deregulation—A Mixed Bag, But a Clear Success Nevertheless*, 16 TRANSP. L.J. 229, 229–30 (1988).

[139] *See, e.g.*, Richard D. Cudahy, *The Airlines: Destined to Fail?*, 71 J. AIR L. & COM. 3, 33–35 (2006) (arguing that the performance of the industry has been so poor, and that consequences of systemic failure would be so dire, that airlines should be treated like any "mass transit" industry); Dempsey, *supra* note 95, at 422, 484; Rubin & Joy, *supra* note 103, at 219.

[140] *See* Marks, *supra* note 105 (taking concerns of industry officials and analysts about oil prices to support the prediction that "America's aviation system could be at risk of collapsing by the beginning of next year" and reporting that fuel-related costs will cause most major airlines to run out of cash around the new year); Micheline Maynard, *9 Airlines Face Threat of a Credit Downgrade*, N.Y. TIMES, May 23, 2008, at C4 (noting that, as of late May, all major U.S. airlines and several smaller ones had been placed in precarious credit status by major credit rating agency).

[141] *See, e.g.*, BOSTON CONSULTING GROUP, AIRPORTS—DAWN OF A NEW ERA: PREPARING FOR ONE OF THE INDUSTRY'S BIGGEST SHAKE-UPS 3 (2004), http://www.bcg.com/publications/files/BCGAirportsDawnNewEra.pdf; Cudahy, *supra* note 139, at 3; Rubin & Joy, *supra* note 103, at 227 ("The airline industry is experiencing its greatest changes since deregulation.").

[142] *See, e.g.*, Cudahy, *supra* note 139, at 34.

[143] *See generally* Moss, *supra* note 125 (discussing recent history of airline merger activity and likelihood of future mergers).

[144] Incidentally, the suggestion has been made occasionally that airlines are inherently unprofitable because their markets possess "empty cores." The argument is that, because of some special technological or cost characteristic, a partic-

thing, it might be that the airlines have not actually done that poorly over time. Industry profitability has arguably tracked the business cycle, such that the industry was profitable during the mid-1980s, suffered during the downturn of the early 1990s, enjoyed record profits during the boom of the mid-to-late 1990s, and now again is suffering quite significantly.[145] Explanations for this trend include that demand, especially for leisure travel, is uncommonly income elastic; the industry, which must plan capital investments far in advance, is unusually susceptible to its own mistakes in macroeconomic forecasting; and during the past few decades, the surviving carriers have had the burden of competing with carriers undergoing bankruptcy.[146]

Moreover, even to the extent that accounting profits have been lower than might have been hoped, it can be explained with no reference to fixed costs, destructive competition, or the failure of rent-seeking. First, capital investment in the industry has been distorted by an uncommon degree of subsidization throughout its entire history (up until the present day). This was first and foremost a federal policy failure. U.S. carriers subsisted on direct subsidy from their infancy well into the 1950s and enjoyed more limited direct subsidies even beyond then. Subsidy and rate-and-entry regulation encouraged two inefficiencies that were individually rational from the carriers' perspective. They systematically overinvested in capacity, and they negotiated excessive labor agreements.

Even since deregulation, there have been several intermittent direct federal subsidies in the form of "too big to fail" grants and loan guarantees. Also, a wholly different source of unhealthy and distorting subsidy appears to have been the private capital finance markets. For reasons that remain unclear, markets have consistently overinvested in the major airlines, contrary to the advice of industry observers and financial analysts.[147]

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ular market will possess no set of transactions that can preserve a stable equilibrium. *See* Brady & Cunningham, *supra* note 21, at 8; Cudahy, *supra* note 139, at 22. Even if the empty core argument had any general plausibility, a basic refutation of all overcapacity-related arguments is that capacity is a technological phenomenon that tends to be much more flexible in reality than it is in theoretical models that assume capacity constraints. *See* Chris Sagers, *The Demise of Regulation in Ocean Shipping: A Study in the Evolution of Competition Policy and the Predictive Power of Microeconomics*, 39 VAND. J. TRANSNAT'L L. 779, 805–08 (2006).

145 *See* STEVEN A. MORRISON & CLIFFORD WINSTON, THE EVOLUTION OF THE AIRLINE INDUSTRY 90 (1995).

146 *See id.* at 90–91, 105.

147 *See* Cudahy, *supra* note 139, at 15.

Second, the industry's current organization since deregulation has been the subject of an overly tolerant merger policy, especially during the years when contestability still held sway. For example, as mentioned above, DOT approved all twenty-one mergers presented to it during its brief tenure in the early 1980s.[148]

But maybe more important than any of the foregoing is that most legacy airlines have been victims of spectacularly poor management. First, in the early years of deregulation, the majors were the victims of their own perceived ripeness for exploitation in the market for corporate control. It is only too telling that several of them became junk-bond financed acquisitions of affiliates of Michael Milken and the Drexel Burnham firm. A reason the airlines may have been uncommonly attractive targets for leveraged buyouts during the heady merger and acquisitions days of the mid-to-late 1980s is precisely their emergence from deregulation. But, in any case, like other high-risk acquisitions of that period, they also came to be stuck with large, long-term fixed payments to service the resulting debt. This fact may partly explain the spectacular fiasco of Eastern Airlines' demise in the late 1980s;[149] the closely-entwined suffering of Eastern's sister airline, Continental, during the same period;[150] and the liquidation of TWA in 2001, which happened to be its third bankruptcy since deregulation and followed ten straight years of negative profits. Second, legacy airline managers have, for various reasons, chosen to take on other substantial, competitively unnecessary fixed obligations, especially including lease obligations.[151] Third, the carriers have persistently struggled with fluctuations in fuel prices, but this problem could have been avoided. Until this year, fuel had been the majors' second largest single variable cost, and from here forward, it promises to be their largest. Fluctuations in that cost are therefore among the carriers' most obvious risks, and protection against that risk through hedging strategies is feasible and profitable. However, among the large airlines, only Southwest has done so. Southwest pioneered hedging strategy and has used it astutely, and it could have been mimicked by other carriers.

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148 *See* DEMPSEY & GOETZ, *supra* note 82, at 227.

149 *See generally* AARON BERNSTEIN, GROUNDED: FRANK LORENZO AND THE DESTRUCTION OF EASTERN AIRLINES (1990).

150 *See id.* at 14–20.

151 *See* Carstensen, *supra* note 105, at 492, 500.

Moreover, to the extent that losses have been driven by fare competition itself, they may have been avoidable. It may be, as many have claimed, that given their high ratio of fixed-to-variable costs, the airlines face incentives to sacrifice long-term stability for short-term income.[152] But rational business managers and rational investors, properly incentivized, should foresee that long-term losses in such a strategy will outweigh near-term gains. If properly incentivized, then the airlines should not have made the mistakes that they made (one wonders to what extent failure to attend to the long-term risks reflects the need of all publicly-traded companies, under current accounting standards and securities law, to show short-term profitability).

Finally, it hardly needs to be stated that during the past seven or eight years, the industry has suffered an uncommon number of large misfortunes that on any measure are exogenous, including the single-largest drop in demand in the industry's entire history (following September 11, 2001).[153]

IV. AIRLINE PREDATION IN THE COURTS

In only one airline antitrust decision, among the several to work their way through the courts, has a predation claim enjoyed any lasting, meaningful success: the Sixth Circuit panel decision in *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*[154] However, plaintiffs there settled before ever reaching the merits. In one other case, *Continental Airlines, Inc. v. American Airlines, Inc.*, plaintiffs survived summary judgments on the merits of a predation claim,[155] but on grounds that have probably been effectively overturned.[156] And, in any event, plaintiffs in that case lost before the jury under unfavorable jury instructions.

A. The Cases Thus Far

Significant judicial attention has been given to at least four major episodes of airline predation. They were: (1) one of the more glaring cases so far publicly known—Northwest's response to the attempt of Spirit Airlines in the early 1990s to penetrate a

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[152] Brady & Cunningham, *supra* note 21, at 9; *see also* Cudahy, *supra* note 139, at 18.

[153] *See* Bailey, *supra* note 138, at 18.

[154] 431 F.3d 917, 921 (6th Cir. 2005) (reversing summary judgment for defendant).

[155] 824 F. Supp. 689, 703–04 (S.D. Tex. 1993) (finding plaintiff's claims were not implausible).

[156] *See supra* notes 35–38 and accompanying text.

few routes heavily dominated by Northwest from its hub in Detroit;[157] (2) Virgin Atlantic's effort in the early 1990s to initiate service from Heathrow to several American cities previously served only by British Airways;[158] (3) a campaign by American Airlines during the late 1990s against various LCC's that sought to enter routes at American's Dallas-Fort Worth hub; and (4) the aggressive low-fare pricing plan by American Airlines of the early 1990s, which plaintiffs Northwest and Continental alleged was a scheme to create and discipline interdependent oligopoly pricing among all the majors.[159]

B. Price Below Cost

In airline predation cases, the more difficult issue will normally be price-below-cost. It can be expected that any airline predation defendant will be among the majors and will be sued for predation in defense of market power held at a hub. In the cases so far litigated, every such defendant has held substantial market share in the challenged markets, and the evidence suggests that entry barriers are high in airline markets. Therefore, recoupment should be the comparatively easier of the two showings.

Accordingly, airline predation cases have almost always turned on a plaintiff's proof of defendant's costs, and the courts have focused very critical eyes on plaintiffs' presentation of factual evidence.

If, as seems likely, the predation doctrine will continue to depend on short-run price-cost comparison for its fundamental definition of predation, airline predation plaintiffs will face an acute problem of proof of costs. So far, most courts have taken an approach to it that makes their burden very difficult. In a predation case, it is difficult to distinguish fixed and variable costs.[160] In airline cases, the problem is acute because the way that airlines customarily keep accounts is intended to facilitate management decision models based on fully allocated costs. Since defendants' own internal records will normally be the only available evidence as to its costs, plaintiffs will have a very difficult time making the distinction.

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157 *See generally Spirit Airlines*, 431 F.3d 917.

158 *See generally* Virgin Atl. Airways Ltd. v. British Airways PLC, 257 F.3d 256 (2d Cir. 2001).

159 *See generally Continental Airlines*, 824 F. Supp. 689.

160 *See* Denger & Herfort, *supra* note 34, at 551 n.74.

This problem was demonstrated most sharply in *United States v. AMR Corp.*[161] Justice Department experts constructed an exceedingly careful, multi-part test purporting to show both that American's flights on the challenged routes were unprofitable and specifically that the costs of the incremental capacity added to combat LCC fares—American added substantial capacity at very low fares—outweighed the incremental revenue of that added capacity.[162] This followed the approach laid out in an important announcement of Department of Justice (DOJ) enforcement policy by TEA Chief Roger Fones, which appears not coincidentally to have been made not long before *AMR* was filed.[163] The Tenth Circuit rejected the DOJ's work out of hand, holding that any test of costs that includes any aspect of fixed costs must fail completely.[164]

AMR demonstrates another common problem. Airlines are keen examples in which a firm produces more than one product using common facilities. If only one of the products is challenged as predatory, there may be common variable costs that can be hard to allocate. Furthermore, as mentioned above, the enforcement approach laid out by Fones entails comparing only incremental revenues against incremental costs.[165] In principle, such a test could properly segregate the costs because in an airline predation scheme, added capacity will be entirely or mostly in the lowest fare category.

The court again rejected this approach wholesale, holding that an airline plaintiff must show that flights as a whole are unprofitable.[166] Only *Spirit Airlines* seems to have gotten this right, but one wonders how its rule will hold up over time.[167]

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[161] 140 F. Supp. 2d 1141 (D. Kan. 2001).

[162] *Id.* at 1173–74.

[163] *See* Fones, *supra* note 133, at 13.

[164] United States v. AMR Corp., 335 F.3d 1109, 1117–18 (10th Cir. 2003).

[165] Fones, *supra* note 133, at 13.

[166] *AMR Corp.*, 335 F.3d at 1120.

[167] Among the several reasons *Spirit Airlines* is remarkable is that plaintiff's experts included economists Kenneth Elzinga and David Mills, whose work on predation in part drove the reasoning in *Brooke Group.* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 226 (1993) (suggesting Kenneth G. Elzinga and David Mills, *Testing for Predation: Is Recoupment Feasible?*, 34 ANTITRUST BULL. 869 (1989), as one possibly appropriate measure for the likelihood of recoupment).

C. RECOUPMENT: REPUTATION EFFECTS IN MULTIPLE MARKETS AND THE TERRORIZING OF CAPITAL

Among the most prominent themes in the newer, mostly theoretical predation literature has been the argument that convincing bouts of predation might be worthwhile investments, even if the resulting losses cannot be immediately recouped in the market in question. They can be profitable if they deter entry in other markets where the defendant earns supra-competitive profit. This would seem an obvious and important problem in airline markets. Moreover, both the financial press and investor informational literature produced by investment advisors demonstrate that fear of airline predation is taken seriously in capital markets. And why should it fail to be? Virtually every new entrant since deregulation has failed or been acquired by a major, and many of them have been liquidated outright. So airline predation might be a reasonable strategy to deter future entry into markets other than the one in question if it can dry up entrants' access to capital.

V. CONCLUSIONS: GENERALIZABILITY AND DOCTRINAL RECOMMENDATIONS

All of the foregoing might be fairly academic if it could be claimed that, by however great a consensus predation has occurred in airlines, that case is really an isolated or *sui generis* one. In fact, if that were true, the airlines case would be especially academic because in this special context, there is already an industry-specific enforcement mechanism in place which appears to be free to take enforcement action against conduct that would not violate the *Brooke Group* standard.[168]

Admittedly, even those most disposed against predation and most willing to believe that it should be stopped in the airlines usually make their case by arguing that the airlines are special and so should be subject to special (and less lenient) rules.[169]

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[168] Namely, DOT can take such action under its § 411 power to constrain "unfair" competition. *See supra* note 22 and accompanying text.

[169] *See, e.g.*, John M. Nannes, Deputy Assistant Attorney Gen., U.S. Dep't of Justice, The Importance of Entry Conditions in Analyzing Airline Antitrust Issues, Address Before the International Aviation Club (July 20, 1999) (special characteristics of the market "alter the 'cost-benefit' predation calculation for a hub carrier in a way uncharacteristic of most other industries"); Robert M. Rowen, *The Dilemma of Predatory Pricing in the Airline Industry*, 13 AIR & SPACE LAW, at 1, 13 (1999) (arguing that "postulates that airline predatory pricing claims present unique issues under the tests established by Phillip Areeda and Donald F. Turner in their

This gives hope to some believers in predation policy, who note that the Supreme Court has never considered a predation claim in a network industry[170] and has not strictly closed the door on the idea that its predation rules might be subject to some modification in some special cases.[171]

But there are reasons to believe that the airlines case is not so special and that the surfeit of evidence there does not reflect the industry's special susceptibility to predation. I might merely reflect the very large amount of interest that academics have had in it. The case for this is simple and calls for no lengthy elaboration, though admittedly it calls for answers to some empirical questions that are testable in principle but remain inadequately tested. The predatory prowess of the legacy airlines does not obviously depend on any technological, regulatory, or organizational peculiarity of their markets. Instead, that majors can price predatorily reflects several resources that might exist in many industries. Perhaps most importantly, they have enjoyed entry-protected market power since at least the late 1980s. Second, they are sophisticated price discriminators. A predatory price need impose losses on them in only one or a few very narrow product and geographic markets. But as has been repeatedly observed through the history of debate on predation, this is likely true of all sorts of markets. Next, several reasons suggest that they can exploit reputational effects. Neither entrants nor capital markets can easily ascertain incumbents' true costs, but they can easily ascertain the long and largely uninterrupted succession of entrant bankruptcies. Again, no particular technological, organizational, or regulatory characteristic obviously limits this phenomenon to the airlines. So long as a large, multi-market incumbent has some market power and ability to discriminate, it could be profitable to terrorize entrants and capital with predatory signals. Finally, the major airlines enjoy network externalities that appear to facilitate market power and also may give greater impact to loyalty programs. But each of these traits is common in many industries and are not obviously dependent on technological factors or government interference.

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seminal 1975 article and suggests that a more flexible judicial approach is necessary").

[170] *See, e.g.*, Dempsey, *supra* note 95.

[171] *See generally supra* Part I.A.