Reaching Colluding Altitude: Regulating Algorithmic Airfares Under the Federal Aviation Act

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Airlines have historically been subject to close government scrutiny due to their oligopolistic nature and essential role as common carriers. Today, however, America's dominant airlines charge exorbitant fares without meaningfully improving efficiency, service, or onboard experience. Airlines use sophisticated pricing algorithms to push these fares higher and maximize the profit per traveler.

The use of algorithms in setting prices has received antitrust scrutiny in other sectors. This Note argues that algorithmic pricing tools in the commercial aviation industry may facilitate price collusion by enabling the exchange of nonpublic fare data between competitor airlines. Although traditional antitrust tools alone fall short of fully mitigating the potential harms posed by airline pricing algorithms, the Department of Transportation possesses distinct competition regulatory authority in the Federal Aviation Act. This authority can and should serve as a powerful tool to regulate the use of pricing algorithms in setting airfares.

Part I of this Note introduces the mechanisms of airline pricing at issue and explores the limits of the traditional antitrust laws in addressing competitive harm posed by these systems. Part II details the history of the Department of Transportation's regulatory authority and its current scope. Part III recommends that the Department of Transportation regulate the use of pricing algorithms as potential unfair methods of competition through an enforcement program under 49 U.S.C. § 41712, structured by guidance documents tailored to algorithmic pricing and reporting mechanisms under 49 U.S.C. § 41309.

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INTRODUCTION

On the website skiplagged.com, travelers access low airfares through an unconventional tactic: skipping the second leg of a

journey.[1] Airfares were historically standardized by distance traveled.[2] Today, however, both airlines and third-party travel platforms[3] feed a dizzying array of data points into sophisticated pricing algorithms to generate profit-maximizing airfares.[4] The result is fares that constantly change, remain hard to predict, and often defy logic.[5] An individual looking to travel directly from Baltimore to Houston, for example, can get a discount of more than $100 by booking a flight from Baltimore to Miami with a stop in Houston, and exiting the airport in Houston.[6] The factors that determine airline pricing are so labyrinthine that it would be impossible for customers to know the cheapest way to travel without websites like Skiplagged.[7]

Airlines and third-party travel companies increasingly rely on sophisticated pricing algorithms that both enhance market efficiency and expose consumers to unpredictable and potentially opaque pricing.[8] While travelers can sometimes use the inconsistency of pricing algorithms to score a good deal, algorithmic pricing can also mean that consumers looking to travel

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1. *See* Christine Chung, *Airlines Hate 'Skiplagging.' Meet the Man Who Helps Travelers Pull It Off*, N.Y. TIMES (Nov. 22, 2024), https://www.nytimes.com/2024/11/12/travel/skiplagged-flights-hacks.html [https://perma.cc/79VT-GFHR].

2. *See* GANESH SITARAMAN, WHY FLYING IS MISERABLE AND HOW TO FIX IT 44 (2023) (describing a system of standardized airfares).

3. This Note uses "third-party" travel platform to refer to both fare monitoring services like Kayak and Expedia as well as non-airline developers of pricing tools such as Sabre, Amadeus, and Fetcherr.

4. *See* Julie Weed, *How Will A.I. Change My Vacation This Year?*, N.Y. TIMES (Jan. 18, 2024), https://www.nytimes.com/2024/01/18/travel/ai-vacation-planning.html [https://perma.cc/M57T-4EBP].

5. *See* Aarian Marshall, *Airfare Prediction Algorithms Are Going Haywire*, WIRED (June 3, 2022, 7:00 EST), https://www.wired.com/story/airfare-prediction-tools/ [https://perma.cc/FB8C-CHCA] ("Airlines establish airfares through art and science. An entire class of airline-employed data analysts, who work in a field called 'revenue management,' work to anticipate who will want to go where when, and they set schedules, routes, and prices accordingly. Even after an airline prices out its schedule, the passenger sitting in seat 18A may have paid hundreds more for their trip than the passenger in 18B.").

6. *See Cheap flights from Washington, District of Columbia - WAS to Houston, TX - IAH*, SKIPLAGGED, https://skiplagged.com/flights/WAS/IAH/2025-03-14# [https://perma.cc/9VGB-ZD2U] (last visited Jan. 8, 2025).

7. *See* Salil K. Mehra, *Antitrust and the Robo-Seller: Competition in the Time of Algorithms*, 100 MINN. L. REV. 1323, 1370 (2016) ("[Airlines change fares] with such speed, with such complex rules, and with so many interactions between them, that mathematicians have observed that, in fact, finding the cheapest airfare between two locations is actually unsolvable as a practical matter.").

8. *See* Weed, *supra* note 4 ("A.I. systems trained on bigger and more up-to-date data sets will let airlines' dynamic ticket-pricing algorithms better use data . . . to charge as much as they can while still filling planes.").

by air are subject to high fares with no alternative.[9] These tools also determine ancillary fees, which are non-fare charges for seat selection, overweight luggage, or checked bags.[10] Proponents of algorithmic tools note that these tools can help sellers make sense of vast reams of data, and algorithmic pricing can even make airfare more affordable.[11] Algorithmic pricing also has the potential to improve the efficiency of certain markets by better aligning supply and demand.[12] Though the microeconomic benefits of algorithmically personalized pricing are appealing, there are few safeguards on the criteria airlines might use to determine the appropriate fare for a traveler.[13]

Algorithms can also enable anticompetitive business practices like collusion, which make airlines more profitable at their

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9. *See* Katy Marquardt Hill, *Your next airline ticket could be priced by AI*, CU BOULDER TODAY (Aug. 20, 2025), https://www.colorado.edu/today/2025/08/20/your-next-airline-ticket-could-be-priced-ai [https://perma.cc/7U3C-X77C] ("Delta is testing technology that could charge you more (or less) for the same flight based on what it predicts you're willing to pay."); *See also* Leslie Josephs, *Airlines Flex Pricing Power, Signaling Higher Fares in 2025*, CNBC (Jan. 23, 2025, 13:46 EST), https://www.cnbc.com/2025/01/23/airlines-signal-higher-fares-2025.html [https://perma.cc/VYS3-CEDH] (indicating airlines increasing fares across routes).

10. *See generally* STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, 118TH CONG., THE SKY'S THE LIMIT: THE RISE OF JUNK FEES IN AMERICAN TRAVEL 38–39 (2024) (detailing the rise of ancillary fees in air travel); *see also* David Gura & Alex Tighe, *Points, Miles, Tiers: How Airline Loyalty Programs Got So Complicated*, BLOOMBERG NEWS (Dec. 27, 2024, 15:23 EST), https://www.bloomberg.com/news/articles/2024-12-27/points-miles-tiers-how-airline-loyalty-programs-got-so-complicated?embedded-checkout=true [https://perma.cc/GR8Y-M9AB] ("We are moving to dynamic pricing, and therefore it became much harder for the average consumer to know when you could use your points for a ticket, how you could fly. And that's something that a lot of people have lamented.").

11. *See* Christopher Elliott, *Could Dynamic Pricing Be Influencing How Much You Pay For Your Plane Ticket?*, WASH. POST (Aug. 19, 2020), https://www.washingtonpost.com/lifestyle/travel/could-dynamic-pricing-be-influencing-how-much-you-pay-for-your-plane-ticket/2020/08/19/7e77e182-e17d-11ea-8181-606e603bb1c4_story.html [https://perma.cc/5FEP-W6XW] (noting that airlines price "tickets according to what the airline knows about you, including your ability to pay more—or less—for the ticket.").

12. *See* Becca Trate, *Policymakers Shouldn't Assume Algorithmic Pricing is Anti-competitive*, CTR. FOR DATA INNOVATION (Nov. 13, 2023), https://datainnovation.org/2023/11/policymakers-shouldnt-assume-algorithmic-pricing-is-anti-competitive/ [https://perma.cc/4GRT-H2QX]; Trevor Wagener, *Demystifying Algorithmic Pricing: How Smart Prices Stretch Small Budgets*, DISRUPTIVE COMPETITION PROJECT (July 1, 2025), https://project-disco.org/innovation/demystifying-algorithmic-pricing-how-smart-prices-stretch-small-budgets/ [https://perma.cc/8PLL-6U9S] ("By matching prices for each seat closer to actual willingness-to-pay for each consumer, airlines' algorithms make flying affordable for poorer consumers and maximize the filled seats on each flight.").

13. *See* Elliott, *supra* note 11 ("I shudder at the thought that airlines now have the ability to offer different fares to different people based on any criteria they choose. I don't trust any airline to do anything that is remotely consumer-friendly.").

customers' expense.[14] Because airlines are expanding the range of data they feed to pricing algorithms without disclosing the source or nature of that data, the risk that airlines are factoring confidential competitor data into their pricing decisions increases as well.[15] In the airline industry, such data may include details on fares, schedules, route offerings, ancillary fees, and the valuation of frequent flyer points.[16] Profit-maximizing algorithms that have access to such competitor data before it is available to consumers can learn to coordinate price increases with competitors, leaving the consumer with no cheap alternatives.[17]

This Note argues that the federal antitrust laws, particularly the Sherman Act and the Federal Trade Commission (FTC) Act,

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14. *See* Chris K. Anderson & Frederik Ødegaard, *The Perils of Algorithmic Pricing*, MIT SLOAN MGMT. REV. (Nov. 4, 2025) ("What makes the recent lawsuits worth paying attention to is the idea, expressed by federal regulators, that the use of pricing algorithms can lead to collusion without such overt agreements—and even if companies didn't intend to collude."). "Collusion" refers to competitors in a market agreeing about prices or other commercial terms, such that they are making competitive decisions jointly rather than unilaterally. Collusion encompasses both price fixing and anticompetitive information sharing. *See* DANIEL FRANCIS & CHRISTOPHER J. SPRIGMAN, ANTITRUST: PRINCIPLES, CASES & MATERIALS 53 (2025).

15. Competitor data can enter an airlines' algorithmic tools through either shared algorithm providers (in the case of pricing algorithms developed by industry-wide entities such as Sabre and Amadeus) or common data sets used in airlines' internal pricing tools. *See generally* Joseph E. Harrington, Jr., *Hub-and-Spoke Collusion with a Third-Party Pricing Algorithm*, J. INDUS. ECON., Jan. 2026 (explaining the risk of collusion inherent to third-party pricing algorithms). For further explanation of the regulation of these providers, *see infra* Part I.B. Given the opacity of source data for other third-party algorithm developers such as Fetcherr, there are virtually no safeguards against airlines integrating large sets of competitor data in their pricing decision. *See* Ted Reed, *Airline Pricing Systems Are 'Ancient.' Here's How AI Can Help*, FORBES (Aug. 21, 2024), https://www.forbes.com/sites/tedreed/2024/08/21/airline-pricing-systems-are-ancient-heres-how-ai-can-help/ [https://perma.cc/T7PR-D3PN] ("We've been training our engine, using all the data we can get our hands on"). Additionally, there is little oversight of passenger data collection, including the sale of personal and demographic data to data brokers that can be purchased by other airlines or organizations. *See* Joseph Cox, *Airlines Don't Want You to Know They Sold Your Flight Data to DHS*, WIRED (June 10, 2025, 9:00 EST), https://www.wired.com/story/airlines-dont-want-you-to-know-they-sold-your-flight-data-to-dhs/ [https://perma.cc/39QR-TY5P] ("The big airlines—through a shady data broker that they own called ARC—are selling the government bulk access to Americans' sensitive information, revealing where they fly and the credit card they used").

16. *See* William Gillespie and Oliver M. Richard, *Antitrust Immunity and International Airline Alliances*, U.S. DEP'T OF JUST. ECON. ANALYSIS GROUP DISCUSSION PAPERS, Feb. 1, 2011, at 3 (listing fares and schedules as "competitively sensitive matters" in the airline industry); *see also* Ari Goldfine, *The Financialization of Frequent Flyer Miles: Calling for Consumer Protection*, 77 VAND. L. REV. 233, 246 (2024) (explaining the confidential nature of frequent flyer point valuation).

17. *See* Ai Deng, *What do We Know About Algorithmic Tacit Collusion?*, 33 ANTITRUST 88, 88 (2018) ("After several rounds of interaction, it is possible that you realize that my algorithm appears to be sending you a signal: raise price with me or suffer financial losses.").

are ill-equipped on their own to fully address the potential for consumer harm furthered by algorithmic collusion in airline pricing. In established antitrust jurisprudence, the sharing of confidential commercial data among competitors can be prosecuted under the Sherman Act of 1890, which outlaws agreements "in restraint of trade."[18] The automated nature of modern information sharing, however, makes the government's burden of proving the existence of an agreement especially difficult.[19] Recent scholarship has explored the viability of Section 5 of the FTC Act, which empowers the government to prosecute "unfair methods of competition," as a promising alternative to the Sherman Act's agreement requirement in the algorithmic context.[20] Though the FTC Act is a helpful point of comparison, airlines are specifically exempt from its jurisdiction.[21]

In response to this doctrinal gap, this Note asserts that the Department of Transportation's enforcement authority against unfair methods of competition under the Federal Aviation Act, especially if structured through guidance and rules tailored to the airline industry, is the most effective avenue for meaningful, consumer-centered regulation of algorithmically generated airfares. The Department of Transportation (DOT or "the Department") possesses highly analogous regulatory authority to FTC Act Section 5 under the Federal Aviation Act to "block unfair competitive practices that could not be stopped through the enforcement of the antitrust laws."[22] This Note offers a DOT regulatory approach as the most practically feasible step forward in light of political and legal hurdles to more traditional

18. 15 U.S.C. § 1.

19. *See* ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY 9 (2016) (stating that algorithms do not "agree" to collude in the way that traditional cartels might).

20. *See* Mehra, *supra* note 7, at 1371 (advocating for Section 5 enforcement against pricing algorithms).

21. *See* 15 U.S.C. § 45(a)(2).

22. 49 U.S.C. § 41712; Enforcement Policy Regarding Unfair Exclusionary Conduct in the Airline Industry, No. OST-98-3713 at 2 (Jan. 2001). DOT notes that "the implementation of the Department's authority in addition to the Justice Department's antitrust law enforcement efforts will more effectively protect competition in the airline industry." *Id.* The Federal Aviation Administration is an organization within the Department of Transportation. *See* A Brief History of the FAA, FED. AVIATION ADMIN. (Nov. 15, 2021), https://www.faa.gov/about/history/brief_history [https://perma.cc/2YCJ-8CJJ]. This Note's discussion of DOT authority encompasses authority held by the Federal Aviation Administration.

enforcement actions, namely, Sherman Act litigation and new federal legislation on algorithmic pricing.

Part I of this Note outlines the shortcomings of traditional antitrust law when applied to pricing algorithms. Part II reviews the development of DOT's competition regulatory authority and the scope of its authority today. Part III discusses how to best structure the Department of Transportation's regulatory action to combat the use of airline pricing algorithms as vehicles for the exchange of confidential competitor information.

I. ANTITRUST ENFORCEMENT OF PRICING ALGORITHMS

The antitrust laws have the potential to address the harm posed by pricing algorithms, but they face key shortcomings that highlight the need for a more direct solution. Though the Department of Justice (DOJ) has brought price-fixing suits aimed at data shared through algorithms, these suits are constrained by the strict requirement for an agreement under the Sherman Act.[23] While the FTC Act is a potential source for more flexible antitrust enforcement, airlines are excluded from its jurisdiction.[24] Federal legislators have made recent proposals to expand antitrust enforcement authority specifically tailored to algorithmic pricing, but these bills have not made meaningful progress since their introduction.[25] These conventional solutions nevertheless offer key lessons to inform the structure of potential enforcement and guidance from the Department of Transportation.

Part I.A begins by outlining the primary federal antitrust laws. Part I.B offers a conceptual overview of algorithmic pricing and traces the development of pricing algorithms in the airline industry. Parts I.C and I.D explore the difficulty of addressing anticompetitive conduct stemming from pricing algorithms using the current legislative tools for antitrust enforcement.

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23. *See infra* Part I.C.

24. *See* 15 U.S.C. § 45 (excluding "air carriers and foreign air carriers"). Airlines were likely excluded from the FTC's purview because DOT (and its predecessors, including the Civil Aeronautics Board) was understood to have broad regulatory authority over the industry. *See* Jonathan Edelman, *Reviving Antitrust Enforcement in the Airline Industry*, 120 MICH. L. REV. 125, 130 (2021); *see also infra* Part II.A.

25. *See, e.g.*, Preventing Algorithmic Collusion Act of 2024, S. 3686, 118th Cong. (2024) (representing potentially effective legislation that has not made significant progress).

A. THE LEGISLATIVE FRAMEWORK FOR ANTITRUST ENFORCEMENT

The federal government has a detailed statutory framework to address competitive harm to consumers through practices such as price fixing and information sharing.[26] United States federal antitrust enforcement is centered around three statutes: the Sherman Act, the Clayton Act, and the FTC Act.[27] The Sherman Act, passed in 1890 in response to the dominance of Gilded Age oil and railroad monopolies,[28] provides that "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade" is illegal.[29] The 1914 Clayton Act filled key gaps in the Sherman Act's enforcement regime through specific provisions addressing anticompetitive mergers and anticompetitive practices such as interlocking directorates and exclusive dealings.[30]

In 1914, Congress also created a new agency tasked with addressing competition issues: the Federal Trade Commission.[31] Section 5 of the FTC Act gives the Commission jurisdiction to combat "unfair methods of competition" and "unfair or deceptive practices," notions that were intended to have a broader reach than

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26. This Note uses "collusion" to encompass both price fixing and anticompetitive information sharing. *See supra* note 14.

27. *See* JOHN H. SHENEFIELD & IRWIN M. STELZER, THE ANTITRUST LAWS: A PRIMER 15–23 (1998) (presenting the Sherman Act, Clayton Act, and FTC Act as the three primary antitrust statutes).

28. *See* William L. Letwin, *Congress and the Sherman Antitrust Law: 1887-1890*, 23 U. CHI L. REV. 221, 235 (1956) ("The general disposition of the public [in 1888] was not in doubt. There were numerous objections to the trusts . . . they threatened liberty, because they corrupted civil servants and bribed legislators; they enjoyed privileges such as protection by tariffs; they drove out competitors by lowering prices, victimized consumers by raising prices, defrauded investors by watering stocks, put laborers out of work by closing down plants, and somehow or other abused everyone.").

29. 15 U.S.C. § 1.

30. *See* 15 U.S.C. §§ 13–19. An interlocking directorate refers to the same individual or entity sitting on the board of directors for two competing businesses. *See* FRANCIS & SPRIGMAN, *supra* note 14, at 13. An exclusive dealing refers to a supplier placing limits on where, how, or to whom a seller may sell. *See Exclusive Dealing or Requirements Contracts,* FED. TRADE COMM'N, https://www.ftc.gov/advice-guidance/competition-guidance/guide-antitrust-laws/dealings-supply-chain/exclusive-dealing-or-requirements-contracts [https://perma.cc/GMH9-942W] (last visited Mar. 23, 2026). Critically, the Clayton Act also lowered the standard for liability from certainty to probability. *See* 15 U.S.C. § 18 ("[T]he effect of such acquisition *may be* substantially to lessen competition, or to *tend* to create a monopoly." (emphasis added)).

31. *See* George Rublee, *The Original Plan and Early History of the Federal Trade Commission*, 11 PROCS. ACAD. POL. SCI. IN N.Y.C. 114, 115 (1926).

strict Sherman Act violations.[32] Members of Congress looked to the text of Section 5 when adding unfair competition authority to the Federal Aviation Act and its legislative precursors.[33] These legislators envisioned that the body of Section 5 precedent would serve to elucidate the meaning of unfair competition in the airline industry.[34] The Supreme Court has also acknowledged this legislative history when considering the Federal Aviation Act, noting that Section 41712 was "patterned after [section] 5 of the Federal Trade Commission Act, and we may look to judicial interpretation of [section] 5 as an aid in resolution of questions under [Section 41712]."[35] Though the FTC does have regulatory authority over non-airline actors in the airline industry, the FTC Act itself explicitly carves out air carriers "subject to . . . Part A of subtitle VII of Title 49 [which includes the Federal Aviation Act]" from Section 5 jurisdiction.[36] This exclusion makes the Department of Transportation's authority under the Federal Aviation Act particularly important for competition enforcement in the airline industry.

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32. 15 U.S.C. § 45; *see also* E.I. du Pont de Nemours & Co. v. Fed. Trade Comm'n, 729 F.2d 128, 136–37 (2d Cir. 1984) (Section 5 bars conduct which may "not [be] a violation of the letter of the antitrust laws, [but] is close to a violation or is contrary to their spirit."); Herbert Hovenkamp, *The Federal Trade Commission and the Sherman Act*, 62 FLA. L. REV. 1, 3 (2010) ("'[U]nfair methods of competition' covers everything that the Sherman Act covers and goes even further to reach a 'penumbra' of practices that are not covered by the Sherman Act.").

33. *See Regulation of Transportation of Passengers and Property by Aircraft: Hearings on S. 2 and S. 1760 Before a Subcomm. of the S. Comm. on Interstate Commerce*, 75th Cong. 340 (1937) (statement of Sen. Joseph F. Guffey) ("The present bill . . . gives the [Interstate Commerce] Commission [before the creation of a separate aviation agency] authority like the Federal Trade Commission to prevent unfair competition.").

34. *See id.* at 514 ("[I]t would seem wise to give to the Interstate Commerce Commission the power to prevent unfair competition which the Federal Trade Commission now has. . . . [The FTC] has built up a large body of precedents which the Interstate Commerce Commission would find available as a background, and it could then proceed to meet the needs of the industry.").

35. Pan Am. World Airways, Inc. v. United States, 371 U.S. 296, 303 (1963) (quoting Am. Airlines v. N. Am. Airlines, 351 U.S. 79, 82 (1956) (internal quotations omitted)) (also emphasizing that the "parentage of [section 41712] is established").

36. 15 U.S.C. § 45(a)(2) ("The Commission is hereby empowered and directed to prevent persons, partnerships, or corporations, except . . . air carriers and foreign air carriers subject to part A of subtitle VII of title 49 . . . from using unfair methods of competition. . . ."). "Part A of subtitle VII of title 49" includes all sections relating to air commerce and safety. *See* 49 U.S.C. §§ 40101–46507.

B. DEVELOPMENT OF ALGORITHMIC PRICING

A "pricing algorithm" is a computational process, derived from machine learning or other artificial intelligence techniques, that processes data to recommend or set a price or commercial term.[37] A simple algorithm could, for example, increase the price of an event ticket by 10% each week before the event. More complex algorithms can factor in an item's popularity and compare prices with competitors' prices, as well as "data about you, such as where you live, when you shop . . . and what you've bought in the past."[38] In the airline industry, pricing algorithms can be developed either by specific airlines (such as United's legacy "Orion" pricing system)[39] or by third-party travel technology companies (such as Sabre's "Continuous Revenue Optimizer" system).[40] Both types of algorithms ingest reams of data, potentially including confidential competitor data, to generate optimized fares.[41] Such complex calculations are well-known in the industry; "yield management" techniques to optimize airfare in response to variables like flight capacity, route demand, and the mix of discretionary and non-discretionary passengers[42] have been a core element of the airline industry for decades.[43] As DOT Chief Administrative Law Judge

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37. *See supra* note 25. A commercial term refers to "any of the following: level of service; availability; output, including quantities of products produced or distributed or the amount or level of service provided; or rebates or discounts made available." *See* S.B. 1154, 2024 Sen., Reg. Sess. (Cal. 2024).

38. EZRACHI & STUCKE, *supra* note 19, at 8.

39. *See* Scott Kirby, PowerPoint Presentation at J.P. Morgan Aviation, Transportation and Industrials Conference 9 (Mar. 3, 2018), https://ir.united.com/static-files/c34c45bd-7b87-4717-875c-c0e8eeee5def [https://perma.cc/2ENG-X8BH].

40. *See Sabre Rolls Out AI Tool for Personalized Pricing*, ALTEXSOFT (Oct. 15, 2025), https://www.altexsoft.com/travel-industry-news/sabre-rolls-out-ai-tool-for-personalized-airline-pricing/ [https://perma.cc/6HB9-5LLV].

41. *See, e.g.*, Marshall, *supra* note 5 ("[One] company's predictive tool is trained on 75 trillion itineraries and eight years of historical price data").

42. Discretionary travel includes trips for recreational or social reasons, such as visiting friends and family or tourism. Non-discretionary travel, like that related to work or school, is characterized as taking place at a fixed location at scheduled times. *See* FED. HIGHWAY ADMIN., TRENDS IN DISCRETIONARY TRAVEL, 2017 NAT'L HOUSEHOLD TRAVEL SURVEY 1 (2019).

43. *See* Michael E. Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. REG. 383, 487 (1987) ("[A]irlines vary the capacity available at any given fare level day by day and flight by flight."); *The Competition Between the Airline-Owned Computer Reservation Systems: Hearing Before the Subcomm. on Antitrust, Monopolies, and Bus. Rts. of the S. Comm. on the Judiciary*, 100th Cong. 271 (1987) (statement of David A. Swankin, Consumer Federation of America) ("A yield management system monitors how bookings are coming in relative to the carrier's plan for discount seat allocation," enabling airlines to adjust the number of seats in each fare tier on

Ronnie Yoder noted in 1987, "Yield management and secrecy combine to make very difficult the consumer's attempt to buy the cheapest ticket at the right time from the right carrier."[44] In the nearly four decades since, algorithmic pricing tools have made Judge Yoder's characterization only more acute by both enabling novel collusive practices and further obfuscating the inputs involved in pricing decisions from air travelers.[45]

In the last decade in particular, rapid developments in technology have revolutionized the way airlines conduct pricing. In 2012, the International Air Transport Association (IATA), a global trade association for airlines, introduced its New Distribution Capability (NDC) plan.[46] The plan primarily outlines a new standard for easier data transmission between airlines, travel agents, and other third parties.[47] The NDC communication standard enables direct-to-consumer offers from airlines, allowing for greater offer flexibility compared to legacy reservation systems.[48] The NDC plan also enables airlines to sell certain types of fares (e.g., "Lite" or "Basic Economy") exclusively on their own websites, moving consumer traffic from legacy third-party reservation systems to their own websites and mobile applications.[49]

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a flight in real-time in response to sales.). A more formal definition of yield management is "the control and management of reservations inventory in a way that increases (maximizes, if possible) company profitability, given the flight schedule and fare structure." Barry C. Smith et al., *Yield Management at American Airlines*, 22 INTERFACES 8, 8 (1992).

44. *See* Recommended Decision of Administrative Law Judge Ronnie A. Yoder, USAir-Piedmont Acquisition Case, 1987 WL 111562, at *36 (D.O.T. Sep. 21, 1987).

45. *See* WILLIAM J. MCGEE & GANESH SITARAMAN, AM. CIV. LIB. PROJ., HOW TO FIX FLYING: A NEW APPROACH TO REGULATING THE AIRLINE INDUSTRY 25 (2024) ("With improvements in technology and profiling of individual travelers, airlines now use dynamic pricing and could even develop a system of 'personalized' pricing to ensure that specific travelers are offered flights at the highest price they will pay.").

46. *See* INT'L AIR TRANSPORT ASS'N, AIRLINE RETAILING – AN INDUSTRY VISION FOR OFFERS AND ORDERS 6 (2021), https://www.iata.org/contentassets/47c4d32973014560beef3cc421bdf402/airline-retailing-an-industry-vision-for-offers-and-orders.pdf [https://perma.cc/QND8-SRVV].

47. *See id.*

48. *See* INT'L AIR TRANSPORT ASS'N, DISTRIBUTION WITH OFFERS AND ORDER (NDC) FACTSHEET (2024), https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet-ndc/ [https://perma.cc/6WZL-CW9Z]; *see also* LUFTHANSA GROUP, CONTINUOUS PRICING 1 (2020) (on file with the *Columbia Journal of Law & Social Problems*) ("Today's airline pricing is working with standards based on outdated technology, limiting the pricing potential of the industry: Global Distribution Systems are controlling an airline's offer creation and their technology restricts airlines to 26 price points.").

49. *See* Robert Silk, *American Airlines Unveils Revised NDC Plans, Returns Fares to GDSs*, TRAVEL WEEKLY (June 12, 2024), https://www.travelweekly.com/Travel-News/Airline-News/American-returns-fares-GDSs [https://perma.cc/B8M2-XAAL]. American

The NDC plan offers some benefits to airline customers, but also advances the ability to manipulate pricing offers based on data about each individual traveler.[50] Real-time information exchange through a modernized communication protocol may increase fare transparency and promote more efficient communication with airlines, benefiting customers and third-party travel companies.[51] Rather than airlines posting a single fare, however, airlines can now engage in surveillance pricing, which means that the price will vary as a function of consumer characteristics.[52] These attributes include the consumer's purchase history, their origin and destination, the method they use to book the flight, and demographic factors that may affect their willingness to pay.[53] As Senator Richard Blumenthal said in a recent Senate hearing, algorithmic pricing capabilities are poised to enable the widespread "use of personal information to set fees or fares that differ one from another, same flight, same time, different people,

originally moved many of its booking options away from travel agent channels towards direct booking. Following commercial and industry pushback, American backtracked and fired the executive responsible for that strategy. *See* Donna M. Airoldi, *American 'Regrets' Distribution Execution, Plans Changes*, BUS. TRAVEL NEWS (May 29, 2024), https://www.businesstravelnews.com/Distribution/American-Regrets-Distribution-Execution-Plans-Changes [https://perma.cc/JEX7-T3KZ] (summarizing pushback from travel agent industry).

50. *See* Kunal Shah, *New Distribution Capability and the future of personalized air travel retailing*, ZS (June 4, 2024), https://www.zs.com/insights/ndc-air-travel-personalization [https://perma.cc/7SKB-NH6X] ("NDC allows airlines to implement personalized pricing at the time of booking by sharing more detailed data with distribution partners in real time. . . . This enhanced price differentiation enables airlines to target specific customer segments more effectively.").

51. *See* Action on IATA Agreement, Dep't of Transp. Order No. 2014-5-7 at 9, No. OST-2013-0048 (May 2014) ("[T]he use of common technical standards could facilitate the marketplace development of distribution practices and channels that would make it easier for consumers to compare competing carriers' fares and ancillary products across multiple distribution channels, make purchasing more convenient, allow carriers to customize service and amenity offers, and increase transparency, efficiency, and competition.").

52. *See* STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, *supra* note 10, at 21. *See* What Is New Distribution Capability?, NAVAN (Jan. 3, 2025), https://navan.com/blog/what-is-new-distribution-capability-explained [https://perma.cc/46AG-GSYX] ("NDC enables airlines to offer more personalized travel options for flights, seats, amenities, and services based on their preferences and previous travel behavior.").

53. *See* RICCARDO BOIN ET AL., MCKINSEY & CO., HOW AIRLINES CAN GAIN A COMPETITIVE EDGE THROUGH PRICING 7 (2017), https://www.mckinsey.com/industries/travel/our-insights/how-airlines-can-gain-a-competitive-edge-through-pricing#/ [https://perma.cc/QT3T-ZJ4P] ("Using existing information on a customer's attributes—including travel persona (for example, business or leisure), purchase channel, advance purchase window, origin and destination, and number of passengers in a booking—allows airlines to create high-level segments and can go a long way toward differentiating their offers and optimizing total revenue.").

different fees or fares."[54] This level of tailoring has a particular propensity for consumer backlash because consumers with a higher willingness to pay[55] (who are therefore offered higher prices for a product) may feel as though a firm has extracted more money from them without offering any additional service compared to consumers who are offered lower prices.[56]

IATA submitted its NDC plan for DOT approval in 2013, as required by reporting rules for airline agreements in 49 U.S.C. § 41309.[57] The Department of Transportation approved the plan, finding that the NDC plan met the public interest standard for approval under Section 41309.[58] In particular, the Department

54. *The Sky's the Limit—New Revelations About Airline Fees*, *Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Security and Governmental Affairs*, 118th Cong. at 01:35:03 (statement of Sen. Richard Blumenthal, Subcomm. Chair), *available at* https://www.hsgac.senate.gov/subcommittees/investigations/hearings/the-skys-the-limit-new-revelations-about-airline-fees/ [https://perma.cc/LHD6-MUJR]. For additional information on the hearing, *see infra* Part II.D.

55. Willingness to pay can be measured based on data collected about consumers across social media, online search activity, and demographics. Retailers attempt to measure the maximum value a given consumer would assign to a given product. *See* Rachel Reed, *The Algorithm Thinks You're Rich. Prepare to Pay More for That Flight*, HARV. L. TODAY (Aug. 15, 2025), https://hls.harvard.edu/today/how-delta-airlines-and-other-companies-use-dynamic-pricing-to-determine-how-much-you-pay/ [https://perma.cc/CQA2-UQVP].

56. *See* Kristy Strauss, *Why We Are Triggered by Dynamic Pricing*, QUEEN'S UNIVERSITY: SMITH BUSINESS INSIGHT (July 9, 2024), https://smith.queensu.ca/insight/content/Why-We-Are-Triggered-by-Dynamic-Article.php [https://perma.cc/N4EP-SBWU] ("When prices go up, people feel that the firm is getting more from them but has done nothing in return for the higher price."); *see also* Adam Crafton, *Zohran Mamdani Calls on FIFA to Abandon Dynamic Pricing for World Cup Tickets*, N.Y. TIMES (Sep. 9, 2025), https://www.nytimes.com/athletic/6614124/2025/09/09/zohran-mamdani-world-cup-tickets/ [https://perma.cc/4HMS-2DPZ] ("Supporters and consumers make great efforts, both financially and personally, to follow their teams. They should not be penalised by opaque pricing systems that reward affluence and algorithmic timing.").

57. IATA by-laws require IATA to file all agreements, resolutions and recommended practices for appropriate action by the Department before they may be implemented by IATA members. *See* Action on IATA Agreement, Dep't of Transp. Order No. 2012-4-18 at 2, No. OST-2010-0114 (Apr. 13, 2012). Certain recommended practices, agreements, or resolutions must await the Department's review and appropriate action before implementation. *Id.* (specifying IATA's process for submitting agreements for DOT review). Several GDS companies, travel trade associations, and consumer groups opposed the NDC plan, arguing that it would allow "airlines to engage in anti-competitive price discrimination by offering a fare based on the consumer's personal information and shared preferences." Action on IATA Agreement, Dep't of Transp. Order No. 2014-5-7 at 4, No. OST-2013-0048 (May 2014). The American Antitrust Institute also opposed the Resolution, arguing "this standardization of a distribution agreement between rivals is an 'agreement on the rules of competition,' which will create an environment for higher prices, restriction of choice, and less transparency." *Id.* at 6 (citing Am. Antitrust Inst., Comment on Agreement Adopted by the Passenger Services Conference of the International Air Transport Association, No. OST-2013-0048-0388 (May 1, 2013)).

58. *See* Dep't of Transp. Order No. 2014-5-7, *supra* note 51, at 9 ("Tentative approval of IATA's application appears warranted because of our tentative conclusion that the

found that modernization of airline systems offered a sufficient public benefit "by generating common industry-wide, real-time communications standards and protocols so that all of the participants in the distribution chain . . . could speak the same electronic language."[59] At the same time, the Department noted that "a pattern of direct consumer fraud or deception, or conduct that would violate the antitrust laws, are unlawful, and the Department will vigorously pursue violations."[60]

In the years since the approval of the NDC plan, airlines have been using algorithms to set both airfares and ancillary fees such as baggage fees and seat fees.[61] Airlines' use of pricing algorithms is not necessarily unlawful. United, for example, regularly updates its seat map in response to the route, aircraft type, legroom, and speed at which seat inventory is being purchased.[62] In addition, a pricing algorithm that generates airfares by monitoring the public websites of its competitors and adjusting its output accordingly might generate similar fares to its competitors, but that does not necessarily mean that the fares are a result of an illegal conspiracy to raise prices.[63] Thirdly, while the use of

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modernized communication standards and protocols and the marketing innovation they could facilitate would be procompetitive and in the public interest, provided that certain safeguards are imposed."). For further information on the criteria for approval under 49 U.S.C. § 41309, see *infra* Part II.B.

59. Dep't of Transp. Order No. 2014-5-7, *supra* note 51, at 10.

60. *Id.* at 14. The Order further stated that "[w]e cannot conclude, *a priori*, that every type of customized pricing that may develop in the future would necessarily raise fares, reduce competition, or otherwise harm the public interest. . . . We are tentatively not prepared to prohibit future innovations that may better match capacity with demand." *Id.*

61. *See generally* Aniko Öry & Kevin Williams, *Is Dynamic Airline Pricing Costing Us?*, YALE INSIGHTS (May 8, 2023), https://insights.som.yale.edu/insights/is-dynamic-airline-pricing-costing-us [https://perma.cc/E59L-QU78] (detailing the use of pricing algorithms in the airline industry); *see also* STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, *supra* note 10, at 5 ("Airlines are increasingly using algorithms to set fees and are investing in ways to target pricing based on customer information. Airlines leverage advanced technology and specific customer data to set and constantly adjust the prices they charge. This is particularly the case for seat fees, which can vary enormously from flight to flight and customer to customer.").

62. STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, *supra* note 10, at 40, n.235 (citing Letter from Couns. for United Airlines to the Hon. Richard Blumenthal, Chairman, Permanent Subcomm. on Investigations (Nov. 20, 2024) (on file with the Subcommittee)).

63. Businesses often monitor the actions of their competitors and react accordingly in order to remain competitive. *See* Bell Atl. Corp. v. Twombly, 550 U.S. 544, 553 (2007) ("While a showing of parallel business behavior is admissible circumstantial evidence from which the fact finder may infer agreement, it falls short of conclusively establish[ing] agreement or . . . itself constitut[ing] a Sherman Act offense." (internal citations omitted)).

personal information in setting airfares could violate data privacy regulations, it does not necessarily violate competition principles.[64]

There is potential for more invidious competitive harm, however, when algorithms use *nonpublic* competitor information to generate airfares.[65] Such information sharing could result in de facto coordination of airfares across competitors outside the bounds of legal competition, in potential violation of Section 1 of the Sherman Act.[66] This coordination may occur through two primary mechanisms.[67] First, airlines might use the same externally sourced data sets within their own internal pricing systems.[68] Because airlines are secretive about what input data they use to generate airfares, however, it is difficult to determine whether any of that data is nonpublic competitor data.[69] Major

64. For more on the potential for algorithmic pricing to violate data privacy laws, *see generally* FTC Staff, *Behind the Inquiry into Surveillance Pricing Practices,* FED. TRADE COMM'N: TECH. BLOG (July 23, 2024), https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2024/07/behind-ftcs-inquiry-surveillance-pricing-practices [https://perma.cc/9Q27-MUNF] ("Advancements in machine learning make it cheaper for these systems to collect and process large volumes of personal data, which can open the door for price changes based on information like your precise location, your shopping habits, or your web browsing history."); *but see* DIRECTORATE FOR FIN. AND ENTER. AFFAIRS COMPETITION COMM., ORG. FOR ECON. CO-OPERATION AND DEV., PERSONALIZED PRICING IN THE DIGITAL ERA — NOTE BY THE UNITED STATES 9 (Nov. 2018) ("[United States] antitrust laws do not condemn, absent harm to the competitive process, a firm's charging whatever price the market may bear. Accordingly, antitrust laws would likely not condemn a firm's use of personalized pricing unless it is part of a collusive agreement or some other arrangement that harms the competitive process."). For more on the Department of Transportation's general approach to air passengers' data privacy, *see generally Air Consumer Privacy*, U.S. DEP'T OF TRANSP. (Sep. 29, 2025), https://www.transportation.gov/individuals/aviation-consumer-protection/privacy [https://perma.cc/575T-89FH] (summarizing privacy rights for air travelers).

65. The nonpublic nature of the data is essential to transform parallel, uncoordinated business conduct between competitors into *anticompetitive* collusion. For more on the doctrine behind this distinction, *see infra* Part I.C.

66. *See* Liza Lovdahl Gormsen, *Algorithmic Antitrust and Consumer Choice*, *in* ALGORITHMIC ANTITRUST 65, 79 (Aurelien Portuese ed., 2022) (citing COMPETITION & MARKETS AUTH., PRICING ALGORITHMS – ECONOMIC WORKING PAPER ON ALGORITHMS TO FACILITATE COLLUSION AND PERSONALIZED PRICING (2018)) (offering two factors for concern: (1) "when an entire industry uses pricing algorithms developed by the same provider to achieve similar outcomes"; and (2) when markets are "already susceptible to tacit coordination, such as [in] highly concentrated markets").

67. *See supra* note 15 and accompanying text (detailing the mechanisms for algorithmic information sharing among airlines).

68. *See id.*

69. *See* Letter from Sens. Ruben Gallego, Richard Blumenthal, & Mark Warner to Ed Bastian, Chief Exec. Officer, Delta Air Lines (July 21, 2025), https://www.gallego.senate.gov/wp-content/uploads/2025/07/Delta-AI-Letter.pdf [https://perma.cc/QBE6-M6W7] ("The opacity surrounding Delta's new customized pricing model could aggravate these [privacy] concerns. Consumers have no way of knowing what data and personal information your company and Fetcherr plan to collect or how the AI algorithm will be trained.").

U.S. airlines, such as American Airlines, United, Delta Air Lines, Southwest, Alaska Airlines, and JetBlue, have already faced criticism for their joint operation of a data broker called Airlines Reporting Corporation (ARC), which collects and sells personal passenger data to entities including United States Immigration and Customs Enforcement (ICE).[70] Given that ARC requested ICE not disclose the source of such passenger data, ARC or comparable data brokers could have sold confidential airline data to competitors or third-party developers while similarly prohibiting disclosure.[71]

Second, if two airlines use the same pricing algorithm, algorithm developers may not have safeguards to ensure that one airline's confidential data is not used as an input in the algorithm for another airline.[72] Both Spirit Airlines and Frontier Airlines, for example, used a third-party algorithmic pricing product called Navitaire Dynamic Pricing.[73] Navitaire is owned by Amadeus, a

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70. *See* Joseph Cox, *Airlines Will Shut Down Program that Sold Your Flights Records to Government*, 404 MEDIA (Nov. 18, 2025, 13:43 EST), https://www.404media.co/airlines-will-shut-down-program-that-sold-your-flights-records-to-government/ [https://perma.cc/UW39-94J8] ("ARC is co-owned by United, American, Delta, Southwest, JetBlue, Alaska, Lufthansa, Air France, and Air Canada. The data broker acts as a bridge between airlines and travel agencies. Whenever someone books a flight through one of more than 12,800 travel agencies, such as Expedia, Kayak, or Priceline, ARC receives information about that booking. It then packages much of that data and sells it to the government, which can search it by name, credit card, and more.").

71. *See* Joseph Cox, *Airlines Sell 5 Billion Plane Ticket Records to the Government For Warrantless Searching*, 404 MEDIA (Sep. 15, 2025, 9:14 EST), https://www.404media.co/airlines-sell-5-billion-plane-ticket-records-to-the-government-for-warrantless-searching/ [https://perma.cc/D7M5-2BGR] ("ARC has previously told the government not to reveal where this passenger data came from, which includes peoples' names, full flight itineraries, and financial details"); *see also* Katya Schwenk, *Airlines Are Collecting Your Data and Selling it to ICE*, THE LEVER (May 8, 2025), https://www.levernews.com/airlines-are-collecting-your-data-and-selling-it-to-ice/ [https://perma.cc/C5ZV-EG94] (reporting the data includes "'full flight itineraries, passenger name records, and financial details, which are otherwise difficult or impossible to obtain,' for past and future flights" (quoting U.S. Immigr. & Customs Enf't, Sole Source Justification J&A-25-0065 at 2, Spring 2025, https://www.documentcloud.org/documents/25964404-ice-documents-on-arc/ [https://perma.cc/D2UW-FFJ3])).

72. *See* Ted Reed, *supra* note 15. According to CEO Roy Cohen of Fetcherr, an Israeli pricing startup used by Delta, Virgin Atlantic, and WestJet, "We've been training our engine using all the data we can get our hands on. We are very stealth about how we work." *Id.*; *see also* Kelly McCarthy, *How Delta is using AI for ticket pricing and what it means for air travel*, ABC News (Aug. 5, 2025), https://abcnews.com/GMA/Travel/delta-ai-ticket-pricing-means-air-travel/story?id=124343088 [https://perma.cc/WT2D-4N5E] (detailing Delta's use of Fetcherr technology).

73. *See* STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, *supra* note 10, at 38–39. Note that Spirit Airlines ceased operations on May 2, 2026. Press Release, Spirit Airlines, Spirit Airlines Begins Orderly Wind-Down of Operations (May 2,

major airline reservation system.[74] According to Navitaire, their product "leverages the rich data collected by Navitaire platforms and our carriers by capturing every passenger experience."[75] Navitaire also explains that its platform is capable of supplementing "a carrier's data . . . with competitor pricing information" to "[c]reate[ ] dynamic pricing rules and offers to beat/match competitors"[76] Given the lack of oversight over algorithmic pricing tools, there is nothing preventing the data transferred between airlines and their algorithm developers from including confidential competitor information provided as part of Navitaire's contracts with other airlines or Amadeus' contracts for traditional booking services.[77] Another algorithmic pricing service offered by reservation system Sabre, called AirPrice IQ, also "support[s] the generation of continuous pricing based on competitor and customer data."[78]

While the true extent of potentially illegal information sharing through airline pricing algorithms remains unknown to the public, airfares continue to rise for American consumers.[79] In 2024,

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2026), https://www.spiritrestructuring.com/resources/Spirit-Airlines-Begins-Orderly-Wind-Down-of-Operations.pdf [https://perma.cc/2VNM-9S4F].

74. *See Reinventing Travel Retail*, NAVITAIRE: AN AMADEUS COMPANY (2024), https://www.navitaire.com/amadeus [https://perma.cc/TP29-FX9Y].

75. NAVITAIRE LLC, EMBRACING PREDICTING ANALYTICS: NAVITAIRE DYNAMIC PRICING 1 (2024), https://www.navitaire.com/downloads/Navitaire%20Dynamic%20Pricing%20Brochure.pdf [https://perma.cc/SYH6-ZP3D].

76. NAVITAIRE LLC, NAVITAIRE DYNAMIC PRICING (NDS) DEEPENS INSIGHTS WITH INFARE BENCHMARKING STUDY 1 (2024), https://www.navitaire.com/downloads/Navitaire%20Dynamic%20Pricing%20Case%20Study%20-%20Infare.pdf [https://perma.cc/KJ7N-RLRG].

77. *See supra* note 15 (explaining risk of data sharing between airlines and shared third-party providers); *see also* David Choffnes et al., *Tech Brief: Airplane Response*, GEO. L. INST. FOR TECH. L. & POL'Y (Aug. 2025), https://www.law.georgetown.edu/tech-institute/insights/tech-brief-airplane-response-2/ [https://perma.cc/9423-QNTR] (explaining that "an airline that denies using 'personal data' might still rely on information and inferences that are functionally personal to shape offers and prices to a person").

78. *SabreMosaic Air Price IQ™*, SABRE, (archived Oct. 6, 2024) (on file with Internet Archive, https://web.archive.org/web/20241006072458/https://www.sabre.com/products/sabremosaic/sabremosaic-offer-management/air-price-iq/ [https://perma.cc/ES8Y-ASEF]). Sabre's Continuous Revenue Optimizer service "segments customers based on trip purpose and factors in their willingness to pay, ensuring maximum revenue potential for airlines." *SabreMosaic™ Continuous Revenue Optimizer*, SABRE, (archived Oct. 6, 2024) (on file with Internet Archive, https://web.archive.org/web/20241006072920/https://www.sabre.com/products/sabremosaic/sabremosaic-offer-management/continuous-revenue-optimizer/ [https://perma.cc/D8BS-ZEK2]).

79. *See* Caleb R. Carswell, *JetBlue's Frustrations in Competition: Political, Economic, and Legal Analysis of U.S. Aviation Antitrust Policy*, 23 ISSUES AVIATION L. & POL'Y 207, 225 (2023) (noting that "algorithmic pricing is leading to higher prices and decreased consumer welfare").

airfares increased by 25%, outpacing inflation and marking the highest annual increase since the Federal Reserve Bank of St. Louis began monitoring the airline consumer price index in 1989.[80] Any mechanisms that could possibly contribute to these fare increases, including the potential for illegal information sharing through pricing algorithms, require fast-acting enforcement solutions.[81]

C. THE CHALLENGES OF PURSUING ALGORITHMIC PRICE FIXING UNDER THE SHERMAN ACT

Though traditional antitrust suits in the algorithmic context are doctrinally possible, recent applications of price-fixing theory to algorithmic pricing show the difficulty of successful federal suits in this area.[82] These challenges are not incidental; they are rooted in the structure of modern antitrust doctrine, which sets exacting requirements for pleading and proving coordination.[83] Horizontal price fixing, or price fixing among competitors at the same level of a supply chain, is a *per se* violation of Section 1 of the Sherman

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80. *See* Brett Holzhauer, *Airline Ticket Prices Are Up 25%, Outpacing Inflation—Here are the Ways You Can Still Save*, CNBC (June 24, 2025), https://www.cnbc.com/select/airline-ticket-prices-are-up-25-percent-why-and-how-to-save/ [https://perma.cc/YF5Z-8AVE]. The airfare price index is one of many consumer price indices collected by the Federal Reserve Bank of St. Louis' Federal Reserve Economic Data (FRED) program. *See Everybody Loves FRED: How America Fell for a Data Tool*, N.Y. TIMES (Dec. 6, 2024) https://www.nytimes.com/2024/12/06/business/economy/fred-economic-data-fandom.html [https://perma.cc/L42Z-PJ9Q].

81. The use of algorithmic pricing by airlines and other industries has also received attention from international authorities. *See, e.g.*, *Italian Antitrust Agency Investigates Sicily and Sardinia Air Fares*, REUTERS (Nov. 16, 2023, 6:50 EST), https://www.reuters.com/business/aerospace-defense/italian-antitrust-agency-investigates-sicily-sardinia-air-fares-2023-11-16/ [https://perma.cc/Z5QS-JE75]; Nic Fildes, *Australia to Ban 'Dodgy' Dynamic Pricing After Green Day Furore*, FIN. TIMES (Oct. 15, 2024) https://www.ft.com/content/4d05d52a-9af5-4d42-9895-a59298f8e47f [https://perma.cc/5X6X-EHD9]; *AI's Role in Modern Markets Could Lead to Collusion, Says CCI Chief*, THE STATESMAN (New Delhi) (Mar. 16, 2025, 17:33 IST), https://www.thestatesman.com/business/ai-in-modern-markets-might-enable-collusion-need-trust-based-regulations-cci-chief-1503408613.html [https://perma.cc/PRR5-Z8LC]; *see also* G7 COMPETITION AUTHORITIES AND POLICYMAKERS' SUMMIT, DIGITAL COMPETITION COMMUNIQUÉ 4 (2024) ("The use of AI and algorithms may facilitate collusion between firms, making it easier for them to coordinate prices or wages, share competitively sensitive information, and undermine competition. Collusion is still unlawful when it is carried out via an algorithm.").

82. *See* Julie Strupp, *RealPage Settles Rent Price-Fixing Suit With DOJ*, MULTIFAMILY DIVE (Nov. 25, 2025) https://www.multifamilydive.com/news/realpage-settles-doj-lawsuit-rent-pricing/806453/ [https://perma.cc/B2UV-JHJ3].

83. *See* Bell Atl. Corp v. Twombly, 550 U.S. 544, 556–57 (2007) (explaining the pleading standards for a Sherman Act Section 1 conspiracy).

Act, which prohibits combinations or contracts in restraint of trade.[84] This means that a plaintiff alleging price fixing need not demonstrate the actual anticompetitive effects of the conduct at issue.[85] The practice of price fixing, when an *agreement* is proven, is considered offensive enough to competition principles to be illegal on its own.[86]

Alternatively, antitrust plaintiffs can demonstrate competitive harm through the "rule of reason" approach, which requires plaintiffs to show a fact-specific assessment of the action's actual effect on competition.[87] Rule-of-reason plaintiffs must also demonstrate that any procompetitive justifications offered by defendants could be achieved through less anticompetitive means.[88] The sharing of nonpublic information with competitors ("information sharing") is not per se illegal, but can be found unlawful under a rule of reason analysis.[89] Though information sharing can constitute a violation of the antitrust laws without an

84. *See* 15 U.S.C. § 1; Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877, 886 (2007) (describing horizontal price-fixing agreements as per se unlawful).

85. *See* Northern Pac. Ry. Co. v. United States, 356 U.S. 1, 5 (1958) ("[C]ertain agreements . . . are presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use.").

86. *See* United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 223 (1940); *Antitrust Resource Manual: 1. Elements of the Offense*, U.S. DEP'T OF JUST.: ARCHIVES (Nov. 2017), https://www.justice.gov/archives/jm/antitrust-resource-manual-1-attorney-generals-policy-statement [https://perma.cc/Q94G-GGJZ] ("The courts have reasoned that these practices . . . have no legitimate justification and lack any redeeming competitive purpose and should, therefore, be considered unlawful without any further analysis of their reasonableness, economic justification, or other factors.").

87. For a clear application of the rule of reason approach to the airline industry, *see* United States v. Am. Airlines Grp. Inc., 121 F.4th 209, 220 (1st Cir. 2024) (finding that American Airlines and JetBlue's agreement to coordinate routes from New York City and Boston "led to decreased capacity, lower frequencies, or reduced customer choices on multiple routes," and that any procompetitive justifications were outweighed by these anticompetitive effects (quoting United States v. Am. Airlines Grp. Inc., 675 F .Supp. 3d 65 (D. Mass. 2023)).

88. *See* Ohio v. Am. Express, 585 U.S. 529, 541–42 (2018) (laying out the current three-step burden-shifting framework for rule-of-reason analysis). First, a plaintiff must show that the practice in question has a "substantial anticompetitive effect that harms consumers in the relevant market." *Id.* at 541. Next, a defendant must show that the practice is justified by a "procompetitive rationale." *Id.* at 541. The burden then comes back to the plaintiff to show that the "procompetitive efficiencies" could be achieved through "less anticompetitive means." *Id.* at 542.

89. *See* United States v. U.S. Gypsum Co., 438 U.S. 422, 441 (1978) (noting that information sharing among competitors is not one of a small set of actions "regarded as per se illegal"); *see also* FRANCIS & SPRIGMAN, *supra* note 14, at 251 ("[W]hen the target of Section 1 analysis is the information-sharing agreement, rather than an inferred underlying conspiracy to fix prices, the rule of reason generally applies.").

agreement to fix prices, claims of information sharing and price fixing are often closely related.[90]

The federal government has had limited success in bringing traditional information sharing cases against airlines in the past.[91] In *United States v. Airline Tariff Publishing Company*, the Department of Justice alleged that eight major airlines and the Airline Tariff Publishing Company (ATP) violated Section 1 of the Sherman Act.[92] ATP was a central clearinghouse through which airlines sent fares to the reservation systems used by travel agents.[93] The government alleged that airlines used the ATP platform to illegally coordinate the timing of fare increases on shared routes.[94] The government determined that "consumers in 300 markets would have paid $238 million more for air travel between April 1988 and December 1992 if coordination through ATP increased airline fares by as little as $1."[95] United Airlines and USAir entered into a consent decree in 1992, and the

90. *See* Statement of Interest of the United States at 7, *In re* Pork Antitrust Litig., 18-cv-01776-JRT-JFD (D. Minn. Oct. 1, 2024) (explaining that information-sharing conspiracies can be alleged either as standalone charges or as support for a price-fixing conspiracy).

91. This Note provides *United States v. Airline Tariff Publishing Company* as a primary example because of its use of third-party technology to communicate price information. *See* 836 F. Supp 9 (D.D.C. 1993). Consumers have also brought more standard information-sharing and price-fixing cases against airlines for exchanging confidential price and flight capacity information. Many airlines settled with defendants before reaching trial. *See, e.g.*, *In re* Domestic Airline Travel Antitrust Litig., 691 F. Supp. 3d 175 (D.D.C. 2023) (alleging a conspiracy among legacy airlines to limit seat capacity on domestic flights); *In re* Air Cargo Shipping Servs. Antitrust Litig., 2014 WL 7882100 (E.D.N.Y. Oct. 15, 2014) (alleging conspiracy among freight airlines to fix fuel and security surcharges paid by freight customers).

92. 836 F. Supp. at 10.

93. *See* David Kreighbaum, Jr., *Algorithms Take Flight: Modern Pricing Algorithms' Effect on Antitrust Laws in the Aviation Industry*, 32 LOY. CONSUMER L. REV. 282, 302 (2019–2020).

94. *See Airline Tariff Publ'g Co.*, 836 F. Supp. at 10. The information sharing via ATP's software was an early example of the use of technology to exchange fare data without directly speaking. Complaint at 2, United States v. Airline Tariff Publ'g Co., 836 F. Supp. 9 (D.D.C. 1993). Airlines would allegedly propose fare changes to competitors by publishing the date range that they would offer a given fare weeks in advance on ATP's platform. *Id.* at 7. A competitor airline could then exactly coordinate price increases on a given route with this information. *Id.* at 10. For further information on this mechanism, *see* Severin Borenstein, *Rapid Price Communication and Coordination: The Airline Tariff Publishing Case*, *in* THE ANTITRUST REVOLUTION 233, 236 (John E. Kwoka & Lawrence J. White eds., 1999).

95. Press Release, U.S. Dep't of Just., Justice Department Settles Airlines Price Fixing Suit, May Save Consumers Hundreds of Millions of Dollars (Mar. 17, 1994), https://www.justice.gov/archive/atr/public/press_releases/1994/211786.pdf [https://perma.cc/9NLQ-NC7K].

remaining defendants settled in March 1994.[96] Though the technology was rudimentary, the ATP case provides a helpful analog for applying core antitrust principles to airline pricing tools.[97]

There is significant appeal to expanding information-sharing and price-fixing theories of harm to the algorithmic context.[98] However, applying conventional theories of liability to algorithmic pricing faces several hurdles that limit the Sherman Act's ultimate efficacy. Consumer harm from collusion is often shown by demonstrating prices above a baseline competitive level, but a baseline price is incredibly difficult to calculate when the fare between any given two cities is constantly changing.[99] Even when evidence of harm is available, plaintiffs face the difficulty of differentiating legal parallel business conduct from illegal price fixing or information sharing by showing the existence of an agreement.[100] Parallel conduct, where sellers monitor prices set by their rivals and respond accordingly, is especially common in oligopolies like the airline industry, where a small number of firms

96. *Id.* This settlement regulated use of ATP with specific limitations for ten years. In the years since, airlines have occasionally faced antitrust penalties for using ATP for "flashing," when airlines alert each other to fare changes by adding and then quickly canceling new fares on the shared system. *See* Leah Nylen, *JetBlue-Spirit Trial Revives DOJ Claim Over Air-Fare Colluson*, BLOOMBERG L. (Dec. 8, 2023, 6:00 EST), https://news.bloomberglaw.com/antitrust/jetblue-spirit-trial-revives-doj-claim-over-air-fare-collusion [https://perma.cc/WW2L-FDHE]; *The New Invisible Hand? The Impact of Algorithms on Competition and Consumer Rts., Hearing Before the Subcomm. on Competition Policy, Antitrust, and Consumer Rts. of the S. Comm. on the Judiciary*, 118th Cong. at 1:57:07, (Dec. 13, 2023) (statement of Professor Roger Alford, Univ. of Notre Dame Sch. of L.), *available at* https://www.judiciary.senate.gov/committee-activity/hearings/the-new-invisible-hand-the-impact-of-algorithms-on-competition-and-consumer-rights [https://perma.cc/9FKF-NMFX] ("[Airlines] can immediately signal and then send back the price so that it doesn't even reach the consumer necessarily, but it reaches the seller.").

97. For further discussion on the ATP case, *see* Noelle Choi, *Retooling Federal Antitrust Laws to Address Modern Pricing Solutions: Pricing Algorithms and Dynamic Pricing*, 7 J. L. & INNOVATION 160, 172–73 (2024).

98. *The New Invisible Hand?* (statement of Sen. Amy Klobuchar, Subcomm. Chair), *supra* note 96, at 20:55 ("Price fixing and other forms of collusion are illegal under the antitrust laws. When competitors that should be competing decide instead to delegate their independent pricing decisions to an algorithm, the result is little more than a sophisticated cartel hiding in code.").

99. Mehra, *supra* note 7, at 1370 (noting that "current antitrust analysis depends crucially on asking whether a seller's conduct raises prices to consumers above a competitive level," but determining a baseline price for algorithmically priced airfares is "actually unsolvable as a practical matter").

100. *See generally* Michael K. Vaska, *Conscious Parallelism and Price Fixing: Defining the Boundary*, 52 U. CHI. L. REV. 508 (1985) (explaining that price fixing and conscious parallelism are difficult to distinguish in part because courts disagree on the "plus factors" that bring lawful parallelism over the line to become unlawful collusion).

dominate the entire market.[101] Where just a few firms dominate the market, it is easier, and legal, to mirror the actions of one's competitors quickly after price changes are implemented without ever explicitly agreeing to do so.[102] Firms in an oligopolistic market might "share monopoly power" by recognizing their shared interests in keeping prices above a competitive level.[103]

Coordinated price changes become illegal when they are the result of a previous agreement, or "meeting of the minds."[104] Because parties are likely to be secretive about their price-fixing agreements, courts look for certain "plus factors" that allow them to infer an agreement in the absence of direct evidence.[105] Since the plus factors focus on evidence of information exchange or clandestine meetings, however, the factors are ill-equipped to capture a situation where algorithmic pricing systems consider nonpublic data from competitors when recommending an output.[106] In the past, competitors "need[ed] to meet in secret to conspire in significant part because they cannot actually observe each other's prices comprehensively."[107] When airlines do not monitor what data is fed into their pricing algorithms, and especially if the algorithm is developed by a company that also serves that airline's competitors, it is possible that Airline 1's confidential pricing data is part of a larger data set provided to Airline 2's pricing algorithm. If Airline 1's pricing data forms the

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101. *See* Michal S. Gal, *Limiting Algorithmic Coordination*, 38 BERKELEY TECH. L. J. 173, 177 (2023). There is broad consensus that today's U.S. airline industry is an oligopoly. *See* TIM WU, THE CURSE OF BIGNESS 115 (2018) (listing airlines in a list of oligopolistic industries); Kaili Killpack, *Just 4 Airlines Control 80% of The Industry*, YAHOO FINANCE (Dec. 4, 2024), https://finance.yahoo.com/news/just-4-airlines-control-80-141521012.html [https://perma.cc/2NYY-P3VZ].

102. *See* E.I. du Pont de Nemours & Co. v. FTC, 729 F.2d 128, 139 (2d Cir. 1984) (explaining that supracompetitive parallel prices among oligopolistic competitors may be legal if there is no specific conduct indicating an unlawful agreement).

103. *See* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 227 (1993) (describing the phenomenon of conscious parallelism).

104. *See Antitrust Resource Manual: 1. Elements of the Offense*, *supra* note 86.

105. *See, e.g.*, *In re* Delta/Airtran Baggage Fee Antitrust Litig., 245 F. Supp. 3d 1343, 1370 (N.D. Ga. 2017), *aff'd sub nom.* Siegel v. Delta Air Lines, Inc., 714 F. App'x 986 (11th Cir. 2018) (detailing the importance of plus factors to differentiate parallel conduct from an illegal agreement).

106. *See* Michal S. Gal, *Algorithms as Illegal Agreements*, 34 BERKELEY TECH. L. J. 67, 104 (2019) ("Real-time data collection and rapid analysis make information exchange agreements redundant if relevant data can be easily collected through independent means. Still, other forms of information exchange may facilitate coordination, such as those pertaining to the kinds of datasets used by an algorithm, competitors' output and cost data, or the decisional parameters included in the algorithm.").

107. *See* Mehra, *supra* note 7, at 1360.

basis of a pricing recommendation for Airline 2, the two airlines have functionally coordinated their fare pricing without ever explicitly communicating.[108]

Despite these challenges, the Department of Justice has begun to use the Sherman Act to investigate price-setting tools in a variety of industries.[109] In 2023, DOJ and several state attorneys general brought action under Section 1 of the Sherman Act against Agri Stats, a platform for price forecasting in the meat and poultry industry.[110] DOJ alleged that Agri Stats compiles confidential price, cost, and production information shared by participating meat processors and provides the information to all participating competitors through detailed "production reports."[111] And in August 2024, DOJ filed a complaint against RealPage, a real estate technology company, alleging that RealPage facilitates price fixing by collecting "nonpublic, material, and granular rental data" from

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108. Ezrachi and Stucke have proffered a modified set of plus factors to better capture such competitive harm. *See* EZRACHI & STUCKE, *supra* note 19, at 53 (Regulators will "likely consider the firm's intent in using the algorithm, that is, whether they: (1) intended a clearly illegal result, such as agreeing to fix prices, or (2) acted with knowledge that illegal results, which actually occurred, were probable.").

109. *See, e.g.*, Statement of Interest of the United States at 5, *In re* Multiplan Health Ins. Provider Litig., 24-CV-06795 (N.D. Ill. Mar. 27, 2025) (explaining that "the Sherman Act can cover concerted action by competitors on . . . any formula used to fix benchmark, component, recommended, or 'starting point' prices, even if end prices ultimately vary." (citing Plymouth Dealers' Ass'n of N. Cal. v. United States, 279 F.2d 128, 132 (9th Cir. 1960))); *see also* Statement of Interest of the United States at 2, *In re* RealPage, Rental Software Antitrust Litigation (No. II), Case No. 3:23- MD-3071, (M.D. Tenn. Nov. 15, 2023) ("[W]hether firms effectuate a price-fixing scheme through a software algorithm or through human-to-human interaction should be of no legal significance. Automating an anticompetitive scheme does not make it less anticompetitive.").

110. Press Release, U.S. Dep't of Just., Justice Department Sues Agri Stats for Operating Extensive Information Exchanges Among Meat Processors (Sept. 28, 2023), https://www.justice.gov/archives/opa/pr/justice-department-sues-agri-stats-operating-extensive-information-exchanges-among-meat [https://perma.cc/5JA4-MRZ4]. In May 2024, a court found that the government had sufficiently pleaded that Agri Stat's reports "constitute anticompetitive conduct in the broiler chicken, pork, and turkey industries" because "the reports' forecasting of competitor action encourages processors to raise total industry profits on a collective scale." United States v. Agri Stats, Inc., No. CV 23-3009 (JRT/JFD), 2024 WL 2728450, at *2 (D. Minn. May 28, 2024). Agri Stats is also facing federal antitrust litigation in various class action suits. *See, e.g. In re* Pork Antitrust Litig., 495 F. Supp. 3d 753 (D. Minn. 2020); *In re* Broiler Chicken Antitrust Litig., 702 F. Supp. 3d 635 (N.D. Ill. 2023). Agri Stats reached a settlement with the Department of Justice on its price-fixing cases in March 2026. *See* Press Release, Hagens Berman, Settlements Reached with Agri Stats in Broilers, Turkey, Pork Antitrust Suits Over Price-Fixing Allegations (Mar. 13, 2026), https://www.hbsslaw.com/press/pork-antitrust/settlements-reached-with-agri-stats-in-broilers-turkey-pork-antitrust-suits-over-price-fixing-allegations [https://perma.cc/68U8-NKKJ].

111. *See* Complaint at 13, United States v. Agri Stats, 2023 WL 7037629 (D. Minn. 2023) (No. 23-cv-03009).

competing landlords and feeding that data into its rent pricing algorithm.[112] Landlords paying for RealPage's service provide their confidential rent data and are presented with a daily recommendation on whether and how much to raise rents.[113] DOJ further alleged that RealPage's AI Revenue Management software facilitates information sharing in violation of Section 1 of the Sherman Act, noting that landlords "share their competitively sensitive information with RealPage with the understanding that RealPage's software will use the data to generate recommendations for rivals."[114] The Department of Justice reached a settlement in its case with RealPage in November 2025, which, among other things, requires RealPage to stop using forward-looking, competitively sensitive information in generating its pricing recommendations.[115] Notably, however, neither RealPage nor landlord defendant Greystar admitted wrongdoing as part of their settlements.[116]

While *RealPage* and *Agri Stats* show that it is certainly possible to bring a traditional antitrust suit challenging the use of a pricing platform, the high evidentiary burden for agreement, the time and resources needed to procure the requisite evidence, and the industry-wide nature of airline pricing algorithms reveal the need for a more nimble solution.[117] First, even if DOJ adequately alleges

112. Complaint at 3, United States v. RealPage, Inc., 2024 WL 5186598 (M.D.N.C. 2024) (No. 24-cv-00710); *see also In re* RealPage, Inc., Rental Software Antitrust Litig. (No. II), 709 F. Supp. 3d 478, 502 (M.D. Tenn. 2023) (finding that plaintiff multifamily housing tenants adequately alleged "horizontal price-fixing agreement between competitors in the multifamily housing market, using RealPage as an intermediary to effectuate the conspiracy.").

113. *See* Press Release, U.S. Dep't of Just., Justice Department Sues Six Large Landlords for Algorithmic Pricing Scheme that Harms Millions of American Renters (Jan. 7, 2025).

114. Complaint at 7, United States v. RealPage, Inc., 2024 WL 5186598 (M.D.N.C. 2024) (No. 24-cv-00710). One landlord noted, "I always liked this product because your algorithm uses proprietary data from other subscribers to suggest rents and term. That's classic price fixing. . . ." *Id.* at 48.

115. *See* Press Release, U.S. Dep't of Just., Justice Department Requires RealPage to End the Sharing of Competitively Sensitive Information and Alignment of Pricing Among Competitors (Nov. 24, 2025), https://www.justice.gov/opa/pr/justice-department-requires-realpage-end-sharing-competitively-sensitive-information-and [https://perma.cc/S4A9-KKMM].

116. Heather Vogell, *DOJ and RealPage Agree to Settle Rental Price-Fixing Case*, PROPUBLICA (Nov. 26, 2025, 15:05 EST), https://www.propublica.org/article/doj-realpage-settlement-rental-price-fixing-case [https://perma.cc/92EK-89U4].

117. *See* William E. Kovacic et al., *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393, 396 (2011) (noting that the high bar for conspiracy in antitrust law can "impede the economically sensible resolution" of cases). Resource-intensiveness alone is not a reason against bringing suit. The federal antitrust agencies have formidable capabilities

that the use of an airline pricing algorithm has resulted in higher fares, proving an agreement under the Sherman Act for each of the airlines and third parties involved is extremely time- and resource-intensive.[118] Second, unlike the real estate industry, in which a single algorithm dominated an entire industry, there are numerous airline algorithmic pricing tools.[119] Because the competitive harm is tied to the general practice of using algorithms to share competitively sensitive information between airlines, investigating one particular algorithm would likely have limited effectiveness in solving the systemic issue. Party-specific remedies such as consent decrees might effectively stop a single airline or developer from operating an anticompetitive pricing algorithm, but would not reach that company's peers operating similar systems.[120] In addition, like in *RealPage*, airline defendants in price-fixing or information-sharing suits may settle to avoid antitrust liability.[121] Enforcement under result-focused statutes, including "unfair methods of competition" in Section 41712 of the Federal Aviation Act,[122] may offer a more appropriate ex ante solution to address the root of consumer harm posed by pricing algorithms.

D. OTHER TOOLS: THE FTC ACT AND LEGISLATIVE PROPOSALS

Scholars and policymakers have proffered a variety of solutions to further address the difficulties that algorithmic price fixing

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to collect evidence of Sherman Act violations, but such investigations allow consumer harm to continue while lengthy investigations are conducted. *Id.*

118. *See, e.g.*, Gibson v. Cendyn Group, LLC, 148 F.4th 1069, 1083 (9th Cir. 2025) (dismissing an alleged algorithmic price-fixing conspiracy between competing Las Vegas hotels using a common price-recommendation software, in part for lack of an explicit agreement to follow the software's recommendations); *see also* Kovacic, *supra* note 117, at 396 (explaining the difficulty of the agreement standard generally).

119. *See* Ali Hortaçsu et al., *Organizational Structure and Pricing: Evidence from a Large U.S. Airline*, 139 Q. J. ECON. 1149, 1151 (2024).

120. *See* Michael E. DeBow, *Judicial Regulation of Industry: An Analysis of Antitrust Consent Decrees*, 1987 U. CHI. L. FORUM 353, 359 (1987) (explaining the party-specific nature of consent decrees).

121. *See, e.g.*, Matt Stevens, *Southwest Airlines Settles Suit but Denies Colluding to Keep Prices High*, N.Y. TIMES (Jan. 6, 2018), https://www.nytimes.com/2018/01/06/business/southwest-airlines-lawsuit-prices.html [https://perma.cc/L4EN-9HDK]; Andrew Harris & Mary Schlangenstein, *American Agrees to Pay $45 Million to Settle Fare Collusion Suit*, BLOOMBERG NEWS (Jun. 15, 2018), https://www.bloomberg.com/news/articles/2018-06-15/american-agrees-to-pay-45-million-to-settle-fare-collusion-suit [https://perma.cc/SM8N-DJ5Z].

122. 49 U.S.C. § 41712.

poses for regulatory authorities, with significant consensus that Section 5 of the FTC Act would be an effective tool.[123] Airlines regulated under the Federal Aviation Act, however, are exempt from the FTC's Section 5 jurisdiction.[124] Even so, Section 5 is instructive because it demonstrates how unfair competition enforcement can reach algorithmic harms that elude the Sherman Act.[125] Because the unfair competition provisions of the Federal Aviation Act are modeled on the FTC Act, case law and scholarship detailing the application of Section 5 can apply to the Federal Aviation Act, where analysis on the statutory bounds of unfair competition is lacking.[126] Notably, the FTC has acknowledged that "practices that facilitate tacit coordination" fall under the scope of Section 5's prohibition.[127]

Acknowledging the difficulty of applying a regular rule of reason approach to algorithmic pricing, Professor Salil Mehra instead suggests that the FTC is well-positioned to create norms to govern the deployment of automated pricing that are centered around consumer protection.[128] Other scholars echo the difficulty of attributing true intent to an algorithm whose actions are

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123. *See, e.g.*, Terrell McSweeny & Brian O'Dea, *The Implications of Algorithmic Pricing for Coordinated Effects Analysis and Price Discrimination Markets in Antitrust Enforcement*, ANTITRUST, Fall 2017, at 75, 76 ("[T]he potential that pricing algorithms will facilitate tacit collusion beyond the reach of Section 1 of the Sherman Act is far from fanciful. Indeed, the Federal Trade Commission's authority under Section 5 of the FTC Act to prosecute 'unfair methods of competition' may be the only current tool available to police individual instances of algorithmic collusion.").

124. *See* 15 U.S.C. § 45(a)(2) (excluding "air carriers and foreign air carriers" subject to the Federal Aviation Act); *see also* Am. Airlines v. Christensen, 967 F.2d 410, 413 (10th Cir. 1992) ("The Federal Trade Commission Act specifically excludes air carriers from its purview."). Note, however, that the FTC Act does not exclude non-airline actors in the aviation industry.

125. *See* Rebecca Kelly Slaughter, *Algorithms and Economic Justice: A Taxonomy of Harms and a Path Forward for the Federal Trade Commission*, 23 YALE J. L. & TECH. Special Issue 1, 39 (2021) ("[T]he agency [FTC] has been able to apply the statute's general language to meet new enforcement challenges. That same approach urgently needs to be applied to algorithms.").

126. *See supra* note 34 (explaining that the FTC Act's Section 5 case law should be used in evaluating the scope of DOT's unfair competition power).

127. FED TRADE COMM'N, POLICY STATEMENT REGARDING THE SCOPE OF UNFAIR METHODS OF COMPETITION UNDER SECTION 5 OF THE FEDERAL TRADE COMMISSION ACT 13 (2022), https://www.ftc.gov/system/files/ftc_gov/pdf/p221202sec5enforcementpolicystatement_002.pdf [https://perma.cc/RY4F-UQRQ].

128. Mehra, *supra* note 7, at 1371 ("[T]he better route to avoiding competitive harm may be to undertake proactive shaping of industry behavior through dialogue with stakeholders, targeted regulation, and/or norm generation. The FTC is comparatively well-placed to do this job.").

removed from human interference.[129] These FTC-based policy recommendations suggest that unfair competition regulation from the Department of Transportation based on norms of fair competition would be better equipped to address the reality of nonhuman collusion than Sherman Act litigation.[130]

Given the difficulty of existing enforcement tools, some federal and state lawmakers have also focused attention on new legislation targeting algorithmic pricing, both within the travel industry and outside of it.[131] New York's Algorithmic Pricing Disclosure Act, which took effect in November 2025, requires firms to disclose tools that use personal data to set individualized prices.[132] California's Preventing Algorithmic Collusion Act, effective January 1, 2026, goes a step further by amending the state's antitrust law to prohibit the use of "common pricing algorithms," defined as algorithms that "use competitor data to recommend, align, stabilize, set, or otherwise influence a price or commercial term."[133]

While no legislative proposal has made meaningful progress in Congress, recent bills provide helpful frameworks for filling the

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129. *See* Kreighbaum, *supra* note 93, at 310; *see also* Aneesa Mazumdar, *Algorithmic Collusion: Reviving Section 5 of the FTC Act*, 122 COLUM. L. REV. 449, 476 (2022). Mazumdar suggests that the FTC should treat algorithms as public announcements to circumvent the agreement requirement under Section 1 of the Sherman Act. *Id.* When a company announces how its pricing strategy will be impacted by competitors' future conduct—either on a platform like an investor call or through publicly disclosing its use of an algorithm—competitors might view the announcements as demonstrative of the company's intent and will thus adjust their own pricing scheme in response. *Id.* at 477. Mazumdar further notes that public announcements have been investigated by FTC and DOJ administrative processes but acknowledges a single exception. *Id.* at 478–79.

130. *See* Doha Mekki, Principal Deputy Att'y Gen., U.S. Dep't. of Just. Antitrust Div., Address Before GCR Live: Law Leaders Global 2023 (Feb. 2, 2023), https://www.justice.gov/archives/opa/speech/principal-deputy-assistant-attorney-general-doha-mekki-antitrust-division-delivers-0 [https://perma.cc/9WQW-ZYMP] ("[W]e are experiencing an inflection point in the use of algorithms, data at scale, and cloud computing . . . it is important to revisit outdated guidance before it strays even further from market realities. In particular, we should reconsider whether our traditional guideposts concerning market structure and the nature of the data exchanged are sufficiently sensitive to detect modern competition harms.").

131. For a discussion of various proposals related to pricing and consumer protection, see *infra* Part I.D. Other legislation relates to the use of personal information by algorithms from a data privacy perspective. *See, e.g.*, H.R. 4624, Algorithmic Justice and Online Platform Transparency Act, 118th Cong. (2023), at 1 (introduced in part to "prohibit the discriminatory use of personal information by online platforms in any algorithmic process").

132. *See* Press Release, N.Y. State Att'y Gen., Attorney General James Warns New Yorkers About Algorithmic Pricing as New Law Takes Effect (Nov. 5, 2025), https://ag.ny.gov/press-release/2025/attorney-general-james-warns-new-yorkers-about-algorithmic-pricing-new-law-takes [https://perma.cc/D8VP-Y42T].

133. 338 CAL. BUS. & PROF. CODE § 16729 (West 2026).

gap in federal antitrust jurisprudence.[134] In January 2024, Senator Amy Klobuchar introduced the Preventing Algorithmic Collusion Act to outlaw the use of pricing algorithms that can facilitate collusion through the use of nonpublic competitor data.[135] The bill resembles California's prohibition, declaring that "it shall be unlawful for a person to use or distribute any pricing algorithm that uses, incorporates, or was trained with nonpublic competitor data."[136] It also empowers the FTC and DOJ to request a report from entities using pricing algorithms detailing information such as the data used to set prices, the rules used to set commercial terms, and whether and how the algorithm takes consumer identity into account when setting a price.[137] Though unlikely to pass, the bill evinces a growing federal interest in addressing algorithmic collusion.[138] Its limited prospects for enactment, however, reinforce the importance of pursuing more immediate solutions within existing statutory frameworks such as the Federal Aviation Act.

II. THE DEPARTMENT OF TRANSPORTATION'S REGULATORY AUTHORITY

The Department of Transportation retains significant competition regulatory authority in the aviation industry, stemming from a history of intense market oversight in the early days of aviation.[139] The scope of this governmental power was shaped by decades of direct regulatory control.[140] Though the 1978

134. *See infra* notes 135 and 138 and accompanying text.

135. Preventing Algorithmic Collusion Act of 2024, S. 3686, 118th Cong. (2024). The Act defines nonpublic data as "information that is not widely available or easily accessible to the public, including information about price, commercial terms, and related products or services, regardless of whether the data is attributable to a specific competitor or anonymized." *Id.* at 3.

136. *Id.* § 4(a) (2024).

137. *Id.* § 3(a)–(b) (2024). This provides a good example of a reporting framework that could be enforced through 49 U.S.C. § 41309. *See infra* Part III.B.

138. *See* Algorithmic Accountability Act of 2023, S. 2892, 118th Cong. (2023). The bill proposes directing the FTC to require impact assessments of automated decision systems in certain critical sectors like healthcare and personal finance, and allowing the FTC to engage in rulemaking to expand the definition of critical sectors. *Id.* at 21.

139. *See* Paul S. Dempsey, *Airline Regulation and Laissez-Faire Mythology: Economic Theory in Turbulence*, 56 J. AIR L. & COMM. 305, 396 (1990) ("Ample jurisdiction exists under the Federal Aviation Act to protect the public against unfair and deceptive competitive practices, if only the Department of Transportation would exercise it.").

140. *See* Timothy M. Ravich, *Deregulation of the Airline Computer Reservation System (CRS) Industry*, 69 J. AIR L. & COMM. 387, 388 (2004).

Airline Deregulation Act (ADA) dramatically reduced the Department's direct power over the industry,[141] the federal government has a history of robust regulation of the air travel industry. This history informs the potential contemporary application of the Department's current enforcement authority over unfair methods of competition under 49 U.S.C. § 41712 and highlights the Department's ability to address harms that are less amenable to traditional antitrust enforcement.[142] Part II.A recounts the highly regulated, public-utility inspired oversight of early air travel. Part II.B reviews regulatory action since the passage of the ADA to determine the scope of today's vestigial air travel oversight authority. Part II.C examines the most recent efforts to regulate airline practices to situate proposed enforcement under Section 41712.

A. THE ORIGINS OF ECONOMIC REGULATION OF AIRLINES

Congress quickly recognized the need to regulate a nascent airline industry in the early decades of the twentieth century.[143] The centralization of former patchwork regulation schemes in the 1938 Civil Aeronautics Act (CAA) gave the government a strong direct role in structuring the airline industry.[144] The CAA required airlines to establish reasonable fares and gave regulation of these fares to the newly formed Civil Aeronautics Board (CAB or "the Board").[145] CAB was given authority to regulate market entry (the ability of an airline to establish routes from a given airport), airfares, and leadership structure.[146]

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141. *See* Ravich, *supra* note 140, at 387 (summarizing the Department's loss of oversight over airline "rates, routes, and services").

142. *See* Edelman, *supra* note 24, at 131 (discussing DOT's power to fill gaps in antitrust enforcement in the airline industry).

143. *See* Frederick A. Ballard, *Federal Regulation of Aviation*, 60 HARV. L. REV. 1235, 1241 (1947) (describing early regulation of air mail contracts under the United States Postal Service).

144. *See* Civil Aeronautics Act of 1938, Pub. L. No. 75-706, 52 Stat. 973 (providing for the creation of CAB).

145. Civil Aeronautics Act of 1938 § 404(a) ("It shall be the duty of every air carrier to . . . establish, observe, and enforce just and reasonable individual and joint rates, fares, and charges."). The CAB was originally called the Civil Aeronautics Authority. MORGAN RICKS ET AL., NETWORKS, PLATFORMS, AND UTILITIES: LAW AND POLICY 578 (2022).

146. SITARAMAN, *supra* note 2, at 40–43. CAB's broad power is reflected in contemporary court decisions. *See, e.g.*, Lichten v. Eastern Airlines, 189 F.2d 939, 941 (2d Cir. 1951) ("It is well settled that questions of the reasonableness of rates and practices are to be left the administrative agency in the first instance, and . . . the provisions of a tariff properly filed with the Board and within its authority are deemed valid until rejected by it."). Congress

CAB was also given authority to remedy "unfair or deceptive practices or unfair methods of competition" in the airline industry.[147] The Supreme Court recognized that CAB could bring enforcement action against practices that were beyond the common-law understanding of unfair competition.[148] In *American Airlines v. North American Airlines*, for example, the Court concluded that the Board could require North American Airlines to change its name to avoid consumer confusion with American Airlines.[149] The Court found that the broad competition authority given to CAB did not require a showing of intentional deception or fraud, so long as the Board found its actions to be in the public interest.[150] Sherman Act violations, by contrast, often require intent or willfulness, and proof that the defendant acted without intending the anticompetitive consequences is often a strong defense.[151]

The government's expansive power in the airline industry reflected a view that airlines were of "essential concern to the public, as is true of all common carriers and public utilities."[152] Similar to public utilities and railroads, regulators thought that the optimal structure was one with few actors and high regulation—a regulated oligopoly.[153] This structure allowed

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reaffirmed the scope of this authority when giving largely identical power to CAB in the further consolidated Federal Aviation Act of 1958. Federal Aviation Act of 1958, Pub. L. No. 85-726, § 403(a), 72 Stat. 731, 758. The 1958 Act was motivated by the sentiment that the 1938 regulatory mechanisms were not centralized enough to address airspace that was significantly more crowded than two decades prior. In particular, a series of high-profile air crashes in the 1950s led to widespread calls for regulatory reform. Delta Air Lines Inc. v. United States, 490 F. Supp. 907, 915 (N.D. Ga. 1980) (detailing the evolution of the 1958 Act).

147. Civil Aeronautics Act § 411 at 1003.

148. *See* Am. Airlines, Inc. v. N. Am. Airlines, Inc., 351 U.S. 79, 86 (1958) (explaining that Section 41712 is concerned "not with punishment of wrongdoing or protection of injured competitors, but rather with protection of the public interest," so "findings that the use of the name was intentionally deceptive or fraudulent" were unnecessary); *see also* Nader v. Allegheny Airlines, 426 U.S. 290, 302 (1976) ("Section [41712] is both broader and narrower than the remedies available at common law.").

149. Am. Airlines, Inc., 351 U.S. at 85.

150. *Id.* at 86. The Court notes that protecting the public interest entails prohibiting those business practices which "which [have] the capacity to confuse, or deceive the public." *Id.* at 86 (citing Fed. Trade Comm'n v. Algoma Lumber Co., 291 U.S. 67, 76 (1934)).

151. *See Antitrust Resource Manual: 1. Elements of the Offense*, *supra* note 86. *See also supra* Part I.C (discussing Sherman Act Section 1 standards).

152. Pan Am. World Airways, Inc. v. United States, 371 U.S. 296, 303 (1963).

153. *See* RICKS ET AL., *supra* note 145, at 578. The regulated oligopoly structure prioritized two criteria drawn from the regulation of public utilities: (1) providers that were "fit, willing, and able" to fly; and (2) routes "required by the public convenience and necessity." *Id.* (quoting Civil Aeronautics Act of 1938, Pub. L. No. 75-706, § 401(d), 52 Stat.

companies to build the necessary network infrastructure to operate economically viable air service while setting safeguards for passenger welfare.[154] In the 1970s, however, policymakers and economists began to question the basic assumption that there was something unique about the airline industry that necessitated such pervasive oversight from the government.[155] Figures like Senator Ted Kennedy, economist Alfred Kahn, and then-Harvard antitrust professor Stephen Breyer thought that the airline industry was not a natural oligopoly, but rather "structurally competitive."[156] One scholar wrote that "the public has little to fear from unregulated [airline] entry. Participants in a market will be naturally limited to a number which ensures both competition and technical efficiency without chaos."[157]

When President Carter appointed Alfred Kahn to lead CAB in 1977, Kahn began to rapidly authorize airline proposals for low fares and loosen the entry restrictions on new routes and airlines.[158] The movement towards deregulation finally

973, 987). Regulators reasoned that if airlines were financially secure and guaranteed certain routes, they would have little reason to compromise safety in the name of competition. *Id.* Compare this conception of air travel with early ideas on railroad regulation: "That railroads, though constructed by private corporations and owned by them, are public highways, has been the doctrine of nearly all the courts ever since such conveniences for passage and transportation have had any existence." Olcott v. Fond du Lac Cnty., 83 U.S. 678, 694 (1872).

154. For more on rationales behind regulated oligopolies in the early twentieth-century airline industry, *see* Phillip Longman & Lina Khan, *Terminal Sickness*, WASH. MONTHLY (Mar. 1, 2012). http://washingtonmonthly.com/2012/03/01/terminal-sickness/ [https://perma.cc/6F3D-6EHW].

155. *See, e.g.*, David Burnham, *Ford to Seek Reduction of C.A.B. Regulatory Role*, N.Y. TIMES (Feb. 7, 1975). https://timesmachine.nytimes.com/timesmachine/1975/02/07/80125766.html?pageNumber=61 [https://nyti.ms/4vaVNMS].

156. *See* STAFF OF S. COMM. ON THE JUDICIARY, 94TH CONG., CIVIL AERONAUTICS BOARD: PRACTICES AND PROCEDURES 38 (COMM. PRINT 1975). The subcommittee began by noting that "there is no substantial historical, empirical, or logical reason for believing that increased reliance upon competition would lead to predatory pricing, destructive competition, or risk of monopolization." *Id.* at 4; *see also* TIMOTHY S. RAVICH, INTRODUCTION TO AVIATION LAW 290–91 (2020) (recounting the involvement of Senator Kennedy, Stephen Breyer, and Alfred Kahn in advancing airline deregulation).

157. Michael E. Levine, *Is Regulation Necessary? California Air Transportation and National Regulatory Policy*, 74 YALE L. J. 1441 (1965); *see also* ALFRED E. KAHN, THE ECONOMICS OF REGULATION, 216–19 (1970) (advocating for a removal of airline regulation). In the airline industry, common barriers to entry in an unregulated market include slot constraints, long-term gate leases by dominant airlines, and contracts between airports and airlines establishing that one airline will hold a majority of that airport's traffic. *Barriers to Entry: Hearing Before the Subcomm. on Aviation of the S. Comm. on Commerce, Science, and Transportation*, 105th Cong. 191 (1997) (response to written questions submitted by Hon. Slade Gorton to Paul Stephen Dempsey, Frontier Airlines).

158. John Howard Brown, *Jimmy Carter, Alfred Kahn, and Airline Deregulation: Anatomy of a Policy Success*, 19 INDEP. REV. 85, 90 (2014).

culminated in the 1978 Airline Deregulation Act (ADA).[159] The ADA amended the Federal Aviation Act to create the current framework for airline regulation, removing the federal government's authority to set airfares and regulate market entry.[160] Congress was nonetheless mindful of the government's continuing role in airline competition.[161] DOT retained authority to regulate unfair competition in the airline industry[162] and to impose civil penalties for violations:

> . . . if the Secretary considers it is in the public interest, the Secretary may investigate and decide whether an air carrier, foreign air carrier, or ticket agent has been or is engaged in an unfair or deceptive practice or an unfair method of competition in air transportation or the sale of air transportation.[163]

The Department also interpreted 49 U.S.C. § 40113, which states that the Department may take action "necessary to carry out this part," including "prescribing regulations," as a grant of rulemaking power against prohibited unfair methods of competition under Section 41712.[164]

The Supreme Court has considered the scope of the Department's unfair competition enforcement power on a few occasions.[165] In *Morales v. Trans World Airlines*, the Court warned

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159. This Note provides a high-level overview of certain rationales behind deregulation. The fight to deregulate the airline industry was a complicated and intense political battle among airline industry leaders, members of Congress, and the White House which is beyond the scope of this Note. For a colorful account of the years leading to deregulation, see THOMAS PETZINGER, JR., HARD LANDING: THE EPIC CONTEST FOR POWER AND PROFITS THAT PLUNGED THE AIRLINES INTO CHAOS 77–94 (1995).

160. *See* 49 U.S.C. § 40101(a)(6).

161. *See* H. R. Rep. No. 98-793, 98th Cong., 2d Sess. (1984) at 5 ("The approach "plac[ed] maximum reliance on competitive market forces and on actual and potential competition . . . to encourage efficient and well-managed air carriers to earn adequate profits and attract capital.").

162. The ADA provided for the dissolution of CAB, and its regulatory functions were transferred to the Department of Transportation and DOT's constituent agency, the Federal Aviation Administration. ROBERT M. KANE, AIR TRANSPORTATION 121 (2003).

163. 49 U.S.C. § 41712. 49 U.S.C. § 46301(a)(1)(A) further gives the Department the ability to impose civil penalties for violation of chapter 417. § 46301(a)(1)(A).

164. Defining Unfair or Deceptive Practices, 85 Fed. Reg. 78707, 78707 (Dec. 7, 2020). For further debates about this interpretation, see *infra* Part III.A.1.

165. The Court has most frequently examined the ADA's provisions in the context of its preemption clause (49 U.S.C. § 41713(b)(1)). Determining whether a given state law was preempted by the ADA prompted the Court to closely examine the limits of the Act itself. *See* Shaw v. Delta Air Lines, 463 U.S. 85, 95 (1983) ("In deciding whether a federal law pre-empts a state statute, our task is to ascertain Congress' intent in enacting the federal statute at issue.").

that airlines do not have a "carte blanche to lie to and deceive customers" because DOT may prohibit practices "which in its opinion do not further competitive pricing."[166] The Court also noted that DOT has the "authority to prohibit and punish unfair and deceptive practices in air transportation," even though the "ADA is based on the view that the best interests of airline passengers are most effectively promoted . . . by allowing the free market to operate."[167] This new "free market" regime set the stage for fierce price competition, a deluge of new entrants, and rapid innovation in technologies designed to maximize airline revenue.

B. THE EVOLUTION OF DOT'S ENFORCEMENT POWER FOLLOWING DEREGULATION

Since 1978, the government no longer has an active role in setting airfares, approving market entry, or telling airlines which routes to fly.[168] An examination of DOT regulatory action since the passage of the ADA is therefore critical for purposes of assessing the strengths and difficulties of future adjudication and guidance from the Department.

A deregulated air travel market catalyzed a drastic increase in the number of carriers and differing fares available, which led to the growth of mechanisms to support travelers in making their choices.[169] This growth included the ever-increasing dominance of computer reservation systems (CRS).[170] CRS are automated networks used to access and organize information about airfares, times, and routes.[171] Before the advent of online travel tools, travel agents relied heavily on CRS to access timely information about

166. Morales v. Trans World Airlines, 504 U.S. 374, 390-91 (1992); *see also* Am. Airlines v. Wolens, 513 U.S. 219, 228 (1995) (finding that Massachusetts state law which prohibited unfair and deceptive practices in airline customer contracts was preempted by the Federal Aviation Act).

167. Northwest, Inc. v. Ginsberg, 572 U.S. 273, 280–81 (2014).

168. *See* SITARAMAN, *supra* note 2, at 69 ("In just a few short years, the airline industry went from being structurally regulated—entry, routes, prices—to deregulated.").

169. While the entry of several new airlines meant that average fares dipped in the decades following deregulation, variance in fares also widened after deregulation. First- and business-class fares increased sharply, as did fares on heavily concentrated routes. *See* Andrew R. Goetz, *Deregulation, Competition, and Antitrust Implications in the U.S. Airline Industry*, 10 J. TRANSP. GEO. 1, 6 (2002).

170. *See* U.S. DEP'T OF TRANSP., SECRETARY'S TASK FORCE ON COMPETITION IN THE U.S. DOMESTIC AIRLINE INDUSTRY: AIRLINE MARKETING PRACTICES 44 (1990).

171. *See* PETZINGER, *supra* note 159, at 126 (describing the capabilities and proliferation of CRS platform Sabre).

available routes and fares for their customers.[172] American Airlines pioneered CRS technology through its Semi-Automated Business Research Environment ("Sabre") product.[173] Other airlines soon followed suit, with Delta and United launching comparable CRS platforms DATAS and Apollo, respectively.[174] Following deregulation, travel agents began to rely more heavily on CRS platforms.[175] Today, CRS capabilities are facilitated by global distribution systems (GDS), comprehensive tools that facilitate reservations, track real-time inventory, and route requests to the appropriate airline.[176]

CRS, in turn, accentuated the burgeoning competitive concerns within the industry, setting the stage for the most significant competition-related rulemaking to date from the Department of Transportation.[177] To make CRS products as attractive as possible to travel agents, developer airlines would allow other airlines to list their flight schedules on the same system.[178] In the late 1980s, airlines, travel agents, and other industry actors claimed that United and American unfairly took advantage of their positions as the two largest CRS-owning airlines.[179] These actors alleged that

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172. *See* Derek Saunders, *The Antitrust Implications of Computer Reservation Systems*, 51 J. AIR L. & COMM. 157, 163 ("CRS's have filled their role so successfully that they have had a major impact on the way airlines and air travelers do business . . . Modern travel agencies demand the use of CRS's because airline ticketing without CRS's is slow and inefficient.").

173. *See* PETZINGER, *supra* note 159, at 126.

174. *See* Saunders, *supra* note 172, at 159 n.12.

175. *See* U.S. GOV'T ACCOUNTABILITY OFF., GAO-86-74, AIRLINE COMPETITION: IMPACT OF COMPUTER RESERVATION SYSTEMS 2 (1986) ("The more intense competition under deregulation has resulted in a dramatic increase in the number of fares in effect, which in turn has contributed to a growing reliance on travel agents as marketers of airline tickets.").

176. *See What is a Global Distribution System?*, AMADEUS, https://amadeus.com/en/travel-glossary/gds [https://perma.cc/WK33-V9K9]. This Note will use the term "CRS" to refer to both traditional computer reservation systems and the reservation capabilities of modern GDS systems.

177. *See* Ravich, *supra* note 140, at 392 ("Regulation of the CRS industry specifically arose out of concern that a deregulated CRS market would allow intolerable competitive tactics by and among airlines to the detriment of airline consumers.").

178. Larry G. Locke, *Flying the Unfriendly Skies: The Legal Fallout Over the Use of Computerized Reservation Systems as a Competitive Weapon in the Airline Industry*, 2 HARV. J. L. & TECH. 219, 219 (1989) ("In order to make their systems more attractive to travel agencies, proprietary airlines began, in the late 1970s, to permit other airlines to list their flight schedules on the same system . . . ").

179. *See, e.g.,* PETZINGER, *supra* note 159, at 127–28 (detailing American Airlines' prioritization of its own routes on Sabre to push competitors out of the market); *On Sunset of the Civil Aeronautics Board: Hearing Before the Subcomm. on Aviation of the H. Comm. on Pub. Works & Transp.*, 98th Cong. 473 (1984) (statement of Frontier Airlines, Inc.) ("United's Apollo is used by so many travel agencies that delisting would have unacceptable financial consequences for the Frontier Family. Apollo is the 'eyes' for travel agents which

American and United charged exploitative rates for travel agents and other airlines to use the systems and placed their own routes more prominently in the results field than competitors' routes.[180]

CAB responded to industry concerns around the new CRS technology by proactively using its Section 41712 competition regulatory authority.[181] Following a notice-and-comment rulemaking process, CAB's 1985 non-discrimination rules provided that "system vendors shall not use any factors directly or indirectly relating to carrier identity" in ordering routes, and that "no system vendor shall discriminate among participating carriers in the fees for participation."[182] These rules were motivated in part by the fear that airlines owning CRS would have unfair access to their competitors' confidential market data.[183] The Seventh Circuit upheld the validity of these rules in *United Air Lines, Inc. v. C.A.B.*[184] Following the evolution of their CRS businesses and growing concern about antitrust scrutiny, airlines began to divest their CRS branches into independent companies.[185]

In the late 1990s, the Department used its regulatory authority to address alleged predatory pricing by legacy carriers to force new

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account for 72% of travel agent bookings in the Denver area, which is the hub of the Frontier Family's hub-and-spokes route system.").

180. *See The Competition Between the Airline-Owned Computer Reservation Systems* (statement of Carl L. Bryant, American Society of Travel Agents), *supra* note 43, at 2 ("[T]he bargaining for lease or purchase of these [CRS] systems is not a negotiation among equals. While some CRS vendors have maintained that the competition among vendors enables travel agents to extract valuable concessions in these negotiations, the fact is that the most onerous contract terms are not negotiable in any meaningful sense.").

181. *See* 14 C.F.R. § 255.4(b), 255.5(a) (1985). CAB's power was transferred to the FAA following CAB's dissolution in 1985. The FAA had been created in 1958 to supervise air safety standards. *From Civil Aeronautics Authority (CAA) to FAA*, FED. AVIATION ADMIN. (Nov. 16, 2021) https://www.faa.gov/about/history/photo_album/caa_to_faa [https://perma.cc/933Q-K64L].

182. 14 C.F.R. § 255.4(b), 255.5(a) (1985).

183. *But see The Competition Between the Airline-Owned Computer Reservation Systems* (statement of Michael A. Buckman, SABRE Travel Information Network, American Airlines), *supra* note 43, at 27 ("American absolutely rejects any claim that we have access to marketing data on a different basis than any other recipient of the data.").

184. 766 F.2d 1107, 1122 (7th Cir. 1985) ("[T]he rules must be upheld in their entirety against United's challenge"). The court also noted that DOT/CAB "rules [under § 41712] are well known to every air traveler and no court has ever questioned the Board's authority to issue them." *Id.* at 1111.

185. Computer Reservation System (CRS) Regulations, 69 Fed. Reg. 976, 1025 (Jan. 7, 2004) ("Our decision that most of the current rules should not be readopted in large part reflects the complete divestiture by U.S. airlines of their CRS ownership interests."). In 2004, DOT responded to these significant changes in industry structure by repealing most of the CRS rules forbidding specific practices. *Id.* at 1010 ("Due to the ownership changes and technological changes in the CRS business, competition between the systems is no longer a direct form of airline competition.").

low-cost carriers out of key routes.[186] This process marks one example of the Department of Transportation proactively filling a regulatory gap where antitrust litigation was ill-suited to capture the alleged harm.[187] In *United States v. AMR Corp.*, the government sued American Airlines for attempted monopolization under the Sherman Act § 2 after it cut fares below those of new entrant budget airlines on four key routes out of American's hub at Dallas-Fort Worth International Airport (DFW).[188] The government used American Airlines' own internal revenue management estimates to claim that American was forgoing revenue on those routes out of DFW to offer lower fares than new budget airlines and force the new airlines out of business.[189] Though American was able to retain its dominance by pushing new entrants out of the market, the Court found that the provided measure of cost did not satisfy the economic test for predatory pricing outlined in Sherman Act case law,[190] which required proof that a merchant priced its product below its marginal cost or variable cost to establish liability.[191] By expanding capacity,

186. Because the test for predatory pricing under the Sherman Act is notoriously difficult to meet, the predatory pricing framework provides an opportunity for agencies to develop alternative means of sector-specific enforcement for similar practices. *See* Weyerhaeuser Co. v. Ross-Simmons Hardware Co., 549 U.S. 312, 320 (2007) ("We described the two parts of the *Brooke Group* test as 'essential components of real market injury' that were 'not easy to establish.'" (internal citations omitted)).

187. *See* Robert W. Fones, Chief, U.S. Dep't. of Just. Antitrust Div., Transp., Energy, and Agric. Section, Address Before the Am. Bar Ass'n F. on Air & Space L.: Predation in the Airline Industry (Jun. 12, 1997), https://www.justice.gov/archives/atr/speech/predation-airline-industry [https://perma.cc/X888-9RTL]. Fones discussed the shortcomings of the "below cost" requirement for predatory pricing. *Id.* ("A strategy could be profitable, but still harm consumers. But to be 'rational,' a strategy must be *more* profitable than alternate strategies. If a particular strategy is *more* profitable than alternate (less aggressive) strategies only because it causes Upstart to exit, then the strategy harms consumers." (emphasis in original)).

188. *See* United States v. AMR Corp., 335 F.3d 1109, 1116–17 (10th Cir. 2003).

189. *See id.*

190. *Id.* at 1110. The court relied on the factors for predatory pricing outlined in *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, which emphasized setting prices below a seller's variable or marginal cost as an accepted mechanism for differentiating predatory pricing from procompetitive price cuts. 509 U.S. 209, 217 (1993). The district court itself recognized the difficulty of distinguishing illegal predation from competitive pricing in this case. *See* United States v. AMR Corp., 140 F. Supp. 2d 1141, 1196 (D. Kan. 2001) ("The problem with all such strategies is not that we doubt their existence or even their anticompetitive consequences. Rather, identifying them in the particular case without chilling aggressive, competitive pricing is far beyond the capacity of any antitrust tribunal.").

191. *See AMR Corp.*, 335 F.3d at 1117; *Brooke Grp.*, 509 U.S. at 223. The Government argued that *Brooke Group*'s focus on variable costs could disguise competitive harm in certain scenarios and instead offered for comparison American's internal cost-accounting

simultaneously cutting fares, and using yield management techniques to change the number of seats offered at the lower fares, American was undoubtedly forgoing some profit, but was still not operating below its average variable cost.[192] Competitor airlines were nonetheless pushed out of business, and American could return to its reduced capacity and resume charging higher fares with legal impunity.[193]

The predatory pricing guidance approach provides a helpful blueprint for future unfair competition guidance and enforcement.[194] In response to previous conduct similar to *AMR*, the Department of Transportation had issued a guidance document that better captured the mechanisms of consumer harm from predatory pricing by legacy airlines at hub airports.[195] The proposed policy prohibited price cuts in response to another airline's entry into the market if one of two conditions were met: (1) the price cuts could not cut the original airline's revenue by more than the airline would have lost because of the new entrant; (2) the price cuts could not reduce the original airline's short-run profits in that city pair more than a strategy of reasonable competition with the new airline would.[196] These tailored criteria

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measures, which were calculated including American's fixed costs. *AMR Corp.*, 335 F.3d at 1116. The district court found, and the 10th Circuit agreed, that comparing a fare level with measures of cost that are based on fixed costs would be insufficient to prove predatory pricing because fixed costs "also includes many costs that are not related to the operation of a particular flight or route." *Id.* at 1117.

192. Though the *AMR* court did not explicitly require calculations based on average variable cost, the court noted that the provided proxy "must be accurate and reliable in the specific circumstances of the case at bar." 335 F. 3d at 1116. It found the government's proffered measures of cost in this case "fundamentally unreliable." *Id.* at 1120.

193. In a similar predatory pricing case against Northwest Airlines at Detroit Metropolitan Airport, the Sixth Circuit noted when remanding the case that "even if the jury were to find that Northwest's prices exceeded an appropriate measure of average variable costs, the jury must also consider the market structure . . . to determine if Northwest's deep price discounts in response to Spirit's entry and the accompanying expansion of its capacity on these routes injured competition." Spirit Airlines, Inc. v. Northwest Airlines, Inc., 431 F.3d 917, 953 (6th Cir. 2005).

194. For more on the political debate regarding these guidance documents, *see* Daniel J. Gifford & Robert T. Kudrle, *U.S. Airlines and Antitrust: The Struggles for Defensible Policy Towards a Unique Industry*, 50 IND. L. REV. 539, 561–62 (2017).

195. A "legacy airline" is an airline that existed prior to deregulation, or one that can trace its origins to such an airline. *See* Alison Rieple and Clive Helm, *Outsourcing for Competitive Advantage: An Examination of Seven Legacy Airlines*, 14 J. AIR TRANSP. MGMT. 280, 280 (2008); *see also* Peter Morrell, *Airlines within Airlines: An Analysis of US Network Airline Responses to Low Cost Carriers*, 11 J. AIR TRANSP. MGMT. 303, 303 n.1 (2005) (contrasting business models of legacy carriers with those of newer low-cost carriers).

196. Enforcement Policy Regarding Unfair Exclusionary Conduct in the Air Transportation Industry, 63 Fed. Reg. at 17919, 17920 (proposed Apr. 10, 1998).

reflected the actual mechanisms of consumer harm in the airline industry more closely than the Sherman Act's stringent requirements did.[197] Met with significant industry pushback and a coordinated campaign against the suggested enforcement policy, however, the Department eventually withdrew the policy and decided to pursue predatory pricing on a case-by-case basis.[198] Following the political failure of those guidance documents, legacy airlines were able to solidify their dominance at key hub airports.[199]

C. THE SCOPE OF DOT'S COMPETITION ENFORCEMENT POWER TODAY

Recent legislative developments reflect bipartisan political appetite for consumer protection in the airline industry, reducing the potential for broad political backlash mirroring the predatory pricing effort of the 1990s.[200] Recent proposals in this space include Senator Blumenthal's Airline Passengers' Bill of Rights,[201] Senator Markey's FAIR Fees Act,[202] and Senator Hawley's End Airline Extortion Act.[203] On December 4, 2024, senators questioned airline executives from United, American, Delta, Spirit

197. *See* Fones, supra note 187, at 8–9 ("Many if not most predatory pricing cases [under *Brooke Group*] fail on the recoupment element. . . . Our experience in the airline industry suggests that recoupment on a city-pair by Incumbent after Upstart's exit is not only possible, but in many cases quite likely.").

198. *See* Edelman, *supra* note 24, at 144–45; *see also* ERIC M. PATASHNIK, REFORMS AT RISK: WHAT HAPPENS AFTER MAJOR POLICY CHANGES ARE ENACTED 126–28 (2008) ("The airlines mounted a multimillion dollar lobbying campaign and ran ads in leading newspapers that characterized the proposals as an unwarranted takeover of the airline business.").

199. *See* Edelman, *supra* note 24, at 144–45. A "hub airport" is a high-volume airport where an airline has a high share of the available gates and through which much of the airline's traffic is directed. *Barriers to Entry* (statement of Sen. Conrad Burns, Montana, Member, S. Comm. on Com., Sci., and Transp.), *supra* note 157, at 9.

200. *See, e.g.*, Caleb R. Carswell, *JetBlue's Frustrations in Competition: Political, Economic, and Legal Analysis of U.S. Aviation Antitrust Policy*, 23 ISSUES AVIATION L. & POL'Y 207, 219 (2023) (detailing the range of political interest in aviation antitrust policy). Airline consumer protection bills did not make meaningful progress in Congress through the 1980s and 1990s. *See* RAVICH, *supra* note 156, at 376–77.

201. Airline Passengers' Bill of Rights, S. 3222, 117th Cong. (2021).

202. FAIR Fees Act of 2023, S. 209, 118th Cong. (2023). The bill also directs the Secretary of Transportation to establish standards for evaluating the reasonableness of various airline ancillary fees, including cancellation fees, checked or carry-on baggage fees and seat selection fee. *See also* H.R. 659, 118th Cong. (2023) (identical House version).

203. End Airline Extortion Act, S. 5470, 118th Cong. (2024). The bill proposes amending chapter 423 of Title 49 to prohibit air carriers from "discriminating on the basis of a covered characteristic in charging or setting fares or ancillary fees." *Id.*

and Frontier regarding rising airline ancillary fees.[204] Senators posed questions both on the use of algorithmic pricing generally and the use of potentially sensitive consumer data by those algorithms.[205] The bills and hearing suggest broad receptiveness in Congress to consumer-centered action, which either imposes direct requirements on airlines or facilitates more vigorous DOT adjudicatory enforcement.[206]

The scope of the Department's unfair competition authority has been the source of some disagreement among regulators, however. In 2020, under the first Trump Administration, the Department of Transportation issued a rule codifying definitions of "unfair" and "deceptive" in Section 41712 to mirror definitions used by the FTC.[207] An "unfair" practice creates consumer harm that is (1) substantial; (2) not reasonably avoidable; and (3) not outweighed by offsetting benefits to consumers or competition.[208] A "deceptive" practice "(1) . . . actually misleads or is likely to mislead consumers; (2) who are acting reasonably under the circumstances;

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204. *See The Sky's the Limit*, *supra* note 54. Though the hearing primarily explored the use of algorithms in setting fees, the executives themselves acknowledged that significant price variance because of algorithmic pricing "happens on airfare as well." *Id.* at 01:32:02 (statement of Robert Schroeter, Chief Commercial Officer, Frontier Airlines).

205. *See id.* at 01:33:08 (statement of Sen. Josh Hawley). Sen. Hawley asserted, "[y]ou are charging people for the same thing, one checked bag or one carry-on bag on the same flight, people are paying wildly different prices for it . . . I think people will be amazed to learn today that if they fly on your airline . . . the guy next to him may be paying 15 bucks for the carry-on bag and they may be paying $80." *Id.* at 01:32:46. Sen. Maggie Hassan noted "there is reason for consumers to worry that their prices are being set according to their ZIP code or according to an algorithm that estimates, because of their personal information, how much they could pay." *Id.* at 01:24:37 (statement of Sen. Maggie Hassan).

206. *See infra* Part III; *see also* STAFF OF S. PERMANENT SUBCOMM. ON INVESTIGATIONS, 118TH CONG., *supra* note 10, at 53 (advocating for greater DOT action under Section 41712). For example, Senator Blumenthal suggested using Section 41712 to regulate the use of incentive payments to Spirit and Frontier gate agents to charge fees for supposedly oversized carry-on baggage. The incentive programs allegedly reward Spirit and Frontier gate agents for convincing passengers that their baggage does not meet the requirements to be taken onboard. *See* Letter from Sen. Richard Blumenthal, Chair, S. Permanent Subcomm. on Investigations, to the Hon. Pete Buttigieg, U.S. Sec'y of Transp. (Dec. 4, 2024), https://www.hsgac.senate.gov/wp-content/uploads/2024-12-4-Blumenthal-Letter-to-Secretary-Buttigieg.pdf [https://perma.cc/VG9J-6BMA].

207. *See* Defining Unfair or Deceptive Practices, 85 Fed. Reg. 78707, 78707 (Dec. 7, 2020).

208. *See id.* at 78714. This definition mirrors earlier standards promulgated by the FTC regarding its authority to regulate unfair practices. *See* Unfair or Deceptive Advertising and Labeling of Cigarettes in Relation to the Health Hazards of Smoking, Statement of Basis and Purpose, 28 Fed. Reg. 8355 (1964) (commonly known as the "Cigarette Rule"). The Department released a guidance document further elucidating terms in § 41712 in 2022. *See* Guidance Regarding Interpretation of Unfair and Deceptive Practices, 87 Fed. Reg. 52677 (Aug. 29, 2022).

and (3) with respect to a material matter."[209] Regulators such as then-FTC Commissioners Rohit Chopra and Rebecca Slaughter argued that these circumscribed definitions unnecessarily limited DOT's Section 41712 enforcement ability, because DOT "operates under a fundamentally different mandate than the FTC," namely, an "explicit mandate[ ] to prioritize certain public policies" such as public safety.[210] Commissioner Chopra also emphasized that because the ADA preempts state-level regulation of airlines, any effort to hamstring federal enforcement could not be counteracted at the state level.[211] The Biden Administration later responded by issuing a rule that simplifies the hearing procedure for Section 41712 adjudication, which the Trump Administration has proposed to overturn.[212] Airline pricing algorithms may nevertheless meet the narrowed definitions of "unfair" in the 2020 rule, meaning that future adjudications against airline pricing algorithms would center on these specific definitions of "unfair" to anchor the proposed algorithmic harm, even if the Biden-era

209. *See* 85 Fed. Reg. at 78714.

210. *See* Rohit Chopra, Comment on Notice of Proposed Rulemaking, Defining Unfair or Deceptive Practices at 2 (Aug. 29, 2022), https://www.ftc.gov/system/files/documents/public_statements/1576174/chopra_comment_to_us_department_of_transportations_dot-ost-2019-0182.pdf [https://perma.cc/KXR2-G42Q] ("The airline lobby's deregulatory demand leaves little doubt that the industry plans to aggressively challenge procompetitive rules, including rules on fee transparency, tarmac delays, and compensation for overbooking."); *see also* Rebecca Kelly Slaughter, Comment on Notice of Proposed Rulemaking, Defining Unfair or Deceptive Practices at 5 (Aug. 29, 2022), https://www.regulations.gov/comment/DOT-OST-2019-0182-0227 [https://perma.cc/L2GL-FUD7] ("[E]specially when technology is involved, the facts on the ground may change faster than a formal fact-finder can finally determine them. Unnecessarily elongated rulemaking proceedings risk ossified rules that are out of step and cannot keep up.").

211. *See* Chopra, *supra* note 210, at 2 (citing 49 U.S.C. § 41713) ("[I]f DOT adopts the FTC's unfairness approach, passengers cannot count on state enforcers to fill in enforcement gaps, as the Airline Deregulation Act prevents states from acting on their own to combat airline abuses.").

212. *See* Procedures for Regulating Unfair and Deceptive Practices, 87 Fed. Reg. 5655 (Feb. 2, 2022); Procedures in Regulating and Enforcing Unfair or Deceptive Practices, 90 Fed. Reg. 48849 (Oct. 30, 2025); *see also* Samuel A. A. Levine, Comment on Procedures in Regulating and Enforcing Unfair or Deceptive Practices at 5 (Oct. 30, 2025) https://consumerlaw.berkeley.edu/sites/default/files/comment_of_samuel_aa_levine_re_dot_udap_procedure.pdf [https://perma.cc/MK9Q-WBGB] ("Airlines faced accountability for their behavior only because the Department [of Transportation] and its partners across the government vigorously championed the public interest, using every tool available. It is no wonder that the airlines now want the Department to disarm itself and reverse the significant progress DOT has made. But doing so would leave passengers exposed and would embolden further misconduct.").

streamlined adjudicatory processes for addressing the alleged conduct are no longer available.[213]

DOT additionally retained broad authority to regulate certain agreements between airlines, a power that could form the basis of a reporting requirement for airlines using pricing algorithms.[214] This reporting mechanism can be a powerful complement to unfair competition enforcement.[215] In particular, the Federal Aviation Act invites foreign and domestic air carriers to submit any agreement or request for authority to discuss cooperative arrangements between the "air carrier and another air carrier, a foreign carrier, or another carrier," including any modifications to those agreements.[216] The Secretary approves these agreements when they are in the public interest, unless the Secretary finds that the agreement "substantially reduces or eliminates competition."[217] In cases where the approved agreement has some anticompetitive effect, however, DOT may exempt an airline from antitrust scrutiny related to that agreement.[218] Because data purchases and algorithm distribution are often achieved via

213. Some advocates argue Defining Unfair or Deceptive Practices, the 2020 rule promulgated by the first Trump administration, greatly constrains the department's power to adjudicate unfair practices by airlines. *See* WILLIAM J. MCGEE & GANESH SITARAMAN, AM. ECON. LIBERTIES PROJECT, HOW TO FIX FLYING: A NEW APPROACH TO REGULATING THE AIRLINE INDUSTRY 25 (2024). President Biden's 2021 Executive Order on Promoting Competition in the American Economy attempted to reverse this Trump-era narrowing of the Department's power by directing the Secretary of Transportation to "start development of proposed amendments to the Department of Transportation's definitions of 'unfair' and 'deceptive' in 49 U.S.C. 41712." Executive Order 14036 of July 9, 2021: Promoting Competition in the American Economy, 86 Fed. Reg. 36987, 36995 (July 14, 2021) (revoked by Executive Order 14337 of August 13, 2025: Revocation of Executive Order on Competition, 90 Fed. Reg. 40227 (Aug. 19, 2025)). However, the Biden Administration's DOT action in this space stopped short of revoking these definitions.

214. *See* 49 U.S.C. § 41507 (giving the Secretary the power to direct an "air carrier or foreign air carrier to stop charging or collecting the discriminatory price or carrying out the discriminatory classification, rule, or practice" in foreign air transportation).

215. *See infra* Part III.B.

216. 49 U.S.C. § 41309(a).

217. *Id.* § 41309(b)(1). Section 40101(d) details the factors to consider when evaluating whether a given practice is in the public interest. These factors include, *inter alia*, enhancing air safety, meeting national defense needs, and encouraging the adoption of new aeronautics technologies. *See* 49 U.S.C. § 40101(d). Agreements with anticompetitive effects may be approved if they meet a serious transportation need or a compelling public benefit, provided that "those benefits cannot be achieved by reasonably available alternatives that are materially less anticompetitive." 49 U.S.C. § 41309(b).

218. *See* 49 U.S.C. § 41308 (granting DOT power to confer antitrust immunity). *See, e.g.*, Press Release, U.S. Dep't of Transp., DOT Grants Antitrust Immunity to Delta-Aeromexico (Dec. 14, 2016), https://www.transportation.gov/briefing-room/dot-grants-antitrust-immunity-delta-aeromexico [https://perma.cc/28SV-G9W5] (example of interairline agreement granted antitrust immunity).

contract or purchase agreement, DOT jurisdiction over "agreements" would cover many instances of exchanged competitor information or common pricing algorithms.[219]

The Department refocused attention on its Section 41712 authority in the later months of the Biden Administration. In April 2024, the Department enacted a rule requiring proactive disclosure for airline ancillary fees such as baggage and seat fees.[220] In September 2024, former Secretary Pete Buttigieg opened an inquiry into rewards practices of the four largest U.S. airlines (American, United, Delta, Southwest) focused on how consumers are impacted by "dynamic pricing, extra fees, and reduced competition and choice."[221] Most recently, in 2025, the Department opened a request for comment seeking suggestions on how to reduce the Department's regulatory reach to align with the Trump Administration's deregulatory agenda.[222] The Department's regulatory action in 2024 nonetheless suggests that unfair competition guidance and adjudication from DOT is well-suited to effectively address contemporary issues, including the threat of algorithmic collusion.[223]

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219. *See, e.g.*, U.S. Immigr. & Customs Enf't, *supra* note 71, at 2 (showing one example of contractual language regarding sharing of airline consumer data).

220. *See* Enhancing Transparency of Airline Ancillary Service Fees, 89 Fed. Reg. 34620, 34620-01 (Apr. 30, 2024); Press Release, U.S. Dep't of Transp., Final Rule - Enhancing Transparency of Airline Ancillary Service Fees (Apr. 17, 2024), https://www.transportation.gov/airconsumer/ancillaryfeefinalruleapril2024 [https://perma.cc/4MFY-84HA]. Several airlines sued in federal court to stay implementation of this rule. The Fifth Circuit granted stay in Airlines for Am. v. Dep't of Transp., 110 F.4th 672 (5th Cir. 2024). For further discussion of the case, see *infra* Part III.A.1.

221. *See* Press Release, U.S. Dep't of Transp., USDOT Seeks to Protect Consumers' Airline Rewards in Probe of Four Largest U.S. Airlines' Rewards Practices (Sep. 5, 2024), https://www.transportation.gov/briefing-room/usdot-seeks-protect-consumers-airline-rewards-probe-four-largest-us-airlines-rewards [https://perma.cc/RX6F-NCRT]; *see also* Letter from Sen. Richard Blumenthal to the Hon. Pete Buttigieg, *supra* note 206 (informing Sec. Buttigieg of the Senate Permanent Subcommittee on Investigations' December 2024 hearing on airline ancillary fees and acknowledging the Department's open request for information).

222. *See* Ensuring Lawful Regulation, Reducing Regulation and Controlling Regulatory Costs, 90 Fed. Reg. 14593, 14593 (Apr. 3, 2025); *see also* Policies and Procedures for Rulemakings, DOT Order 2100.6B, at 5 (Mar. 10, 2025), https://www.transportation.gov/sites/dot.gov/files/2025-03/Rulemaking%20Order%202100.6B%20Signed%203.10.2025.pdf [https://perma.cc/B8BM-CS2Z] (detailing the Department's internal processes to review Department regulations for compliance with the Trump Administration's deregulatory goals).

223. The Department also brought suit against Southwest Airlines for chronically late flights under an unfair competition rule, 14 C.F.R. 399.81, which provides that "unrealistic scheduling of flights by any air carrier providing scheduled passenger air transportation is an unfair or deceptive practice and an unfair method of competition within the meaning of

III. MOVING FORWARD: DEPARTMENT OF TRANSPORTATION ENFORCEMENT SOLUTIONS

DOT's regulatory authority under the Federal Aviation Act offers an effective set of tools to regulate the proliferating use of pricing algorithms in the airline industry. Although the ex ante nature of rulemaking makes unfair competition rules an appealing solution, there are ongoing legal debates about whether Section 41712 actually bestows rulemaking power on the Department.[224] As a result, DOT should instead issue a tailored guidance document to structure adjudicatory enforcement of Section 41712 against uses of algorithmic pricing that further unfair methods of competition by increasing the risk of information sharing between competitors. DOT should additionally supplement Section 41712 enforcement with both voluntary and mandatory reporting of agreements relating to the use of algorithmic pricing under 49 U.S.C. § 41309, which would allow DOT to verify that airlines and their partners are using sufficient safeguards against illegal information sharing before any adversarial adjudicatory action is necessary.[225]

A. SECTION 41712: AN UNFAIR COMPETITION ENFORCEMENT REGIME

In the airline industry, "Congress supplemented the antitrust laws by authorizing the Department [of Transportation] to . . . prohibit unfair competitive practices even if they do not violate the antitrust laws."[226] As such, the unfair competition provisions in 49 U.S.C. § 41712 provide the most promising avenue for proactive

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49 U.S.C. 41712." *See* Complaint at 3, United States v. Southwest Airlines, Inc., 25-cv-00515 (N.D. Cal. Jan. 15, 2025). The second Trump Administration withdrew this complaint in May 2025. *See* Notice of Voluntary Dismissal at 1, United States v. Southwest Airlines, Inc., 25-cv-00515-SI (N.D. Cal. May 16, 2025).

224. *See infra* Part III.A.1.

225. For another example of proactive reporting requirements under 49 U.S.C. § 41309, *see* OFF. OF AIRLINE INFO., U.S. DEP'T OF TRANSP., PASSENGER ORIGIN-DESTINATION SURVEY (2024), https://esubmit.rita.dot.gov/(S(1q3tn4unv05w44vtjvqsxaqf))/QaA/Instructions%20to%20Air%20Carriers%20Collecting%20and%20Reporting%20O&D%20Survey_Immunized_022924.pdf [https://perma.cc/WLV4-TVEK].

226. *See* Findings and Conclusions on the Economic, Policy, and Legal Issues, Enforcement Policy Regarding Unfair Exclusionary Conduct in the Airline Industry, No. OST-98-3713 (Jan. 17, 2001) at 2.

regulation of the use of algorithms in airline pricing.[227] The Department's regulatory authority under Section 41712 encompasses both "air carriers" and "ticket agents," and CRS companies fall comfortably within the latter category.[228] Because at least one party to an agreement to use algorithmic airline pricing would necessarily be an airline or ticket agent, Section 41712 would also capture instances where the *developer* of a pricing algorithm does not directly fall under DOT's jurisdiction. Legislative rules governing the use of algorithmic pricing tools by airlines offer the most sweeping potential for policy change.[229] Since recent developments in administrative law make the future rulemaking under Section 41712 uncertain, however, the Department should pursue a robust adjudication program structured by a guidance document tailored to algorithmic pricing.

1. *The Difficulty of Unfair Competition Rulemaking post-*Loper Bright

Given the quantity and range of airlines and third-party organizations developing and using pricing tools in the air travel industry, proactive standard-setting via informal rulemaking would likely be the most effective agency action. Case-by-case adjudication without accompanying rules or guidance is likely to be insufficient in capturing the full range of anti-competitive practices as they arise.[230] In contrast, a rule that defines certain practices around the use of algorithmic pricing tools as "unfair methods of competition" could be effective in setting industry-wide

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227. As late as December 2020, rules promulgated by the Department under Secretary Elaine Chao did not question DOT's rulemaking authority under § 41712. The definitions of "unfair" and "deceptive" adopted by the Department at that time were intended to be used "in future discretionary rulemakings" under § 41712. *See* Defining Unfair or Deceptive Practices, 85 Fed. Reg. 78707, 78714 (Dec. 7, 2020).

228. *See generally* Computer Reservation System (CRS) Regulations, 68 C.F.R. 976, 995 (2004) (specifying that CRS companies meet the definition of "ticket agents"). *See also* Sabre, Inc. v. Dep't of Transp., 429 F.3d 1113, 1124 (D.C. Cir. 2005) (explaining that Sabre meets the definition of "ticket agent" in Section 41712).

229. *See* Tim Wu, *Antitrust via Rulemaking: Competition Catalysts*, 16 COLO. TECH. L. J. 33, 62 (2017) ("[T]here lies enormous potential in using the power of rulemaking to promote the goals of the antitrust statutes, and the best and most successful rules have transformed industries for the better.").

230. Rohit Chopra & Lina M. Khan, *The Case for Unfair Methods of Competition Rulemaking,* 87 U. CHI. L. REV. 357, 359 (2020) ("[T]he reliance on case-by-case adjudication creates a system of enforcement that generates ambiguity, unduly drains resources from enforcers, and deprives individuals and affirms of any real opportunity to democratically participate in the process.").

standards. For example, the rule could in part provide that, "it is the policy of the Department to regard as an unfair method of competition the common use of a pricing algorithm between two competitor airlines without processes to ensure the separation of commercially sensitive data."[231] However, ongoing debates around (1) a recent unfair competition rule issued by DOT, and (2) the scope of the FTC's rulemaking power under Section 5 of the FTC Act make it uncertain whether this intuitive solution will be politically and judicially viable.[232]

In April 2024, the Department promulgated a rule under Section 41712 to require transparent disclosure of airline ancillary fees.[233] In *Airlines for America v. Department of Transportation*, trade association Airlines for America and several co-plaintiff airlines argued that any rulemaking under Section 41712 exceeded the Department's statutory authority, and asked the Fifth Circuit to stay the regulation.[234] In granting the stay, the court noted that the statutory language of the Section only sets out an "adjudicatory process," in contrast to other sections of Title 49 that authorize the Department to "prescribe regulations."[235] The court also further called into question the Department's previous justification for unfair competition rulemaking through 49 U.S.C. § 40113, which authorizes the Secretary to "prescribe regulations" which are "necessary to carry out duties" elsewhere in the statute.[236] In January 2025, following oral argument, however, the court held that DOT "has authority to issue rules under Section 41712 as long as such rules are consistent with the statutory language and specifically address[ ] unfair or deceptive practices being

231. The Department's ancillary fee rules provide a recent example of a similar formulation. *See* Unfair and Deceptive Practices of Ticket Agents, 14 C.F.R. § 399.80 (2024).

232. Note that the Magnuson-Moss Act [15 U.S.C. §§ 2301-12] already confers rulemaking authority for the FTC to regulate "unfair or deceptive acts or practices," but does not cover unfair methods of competition. *See* Chopra & Khan, *supra* note 230, at 367; *see also infra* note 247 (discussing the Magnusson-Moss Act).

233. *See* Enhancing Transparency of Airline Ancillary Service Fees, 89 Fed. Reg. 34620 (2024).

234. *See* Airlines for Am. v. Dep't of Transp., 110 F.4th 672, 675 (5th Cir. 2024). The Fifth Circuit's initial order also explicitly rejected United Air Lines, Inc. v. C.A.B., 766 F.2d 1107, 1110 (7th Cir. 1985). *See* 110 F.4th at 676.

235. *See Airlines for Am.*, 110 F.4th at 675.

236. *See infra* note 245. The Court further noted that "[t]he grant of authority to promulgate 'necessary' regulations cannot expand the scope of the provisions the agency is tasked with 'carrying out.'" *Airlines for Am.*, 110 F.4th at 675–76 (quoting Gulf Fishermens Ass'n v. Nat'l Marine Fisheries Serv., 968 F.3d 454, 465 (5th Cir. 2020)).

conducted by airlines."[237] While the court remanded the rule to DOT to cure procedural issues for notice-and-comment rules under the Administrative Procedure Act (APA), the court upheld the Department's underlying rulemaking authority.[238] The court recognized that "the federal government has been issuing rules, including disclosure rules, based on Section 41712 and its predecessor since 1960."[239] The Fifth Circuit later vacated its January 2025 opinion and granted en banc review.[240] In February 2026, following en banc oral argument, the court issued a brief order vacating the DOT rule for the failure to meet APA procedural requirements.[241]

The Fifth Circuit's en banc order did not reach the issue of the Department's underlying rulemaking authority.[242] Recent trends in administrative law, however, make it unclear whether federal courts will uphold Section 41712 rulemaking in its current form. First, the Supreme Court's decision in *Loper Bright Enterprises v. Raimondo*[243] removes any obligation a court might have had to defer to the Department of Transportation's interpretation of the Federal Aviation Act as conferring unfair competition rulemaking authority under Sections 40113 and 41712.[244] While judges may choose to defer to the Department's interpretation in light of the discretion given to the Secretary in Section 40113 to carry out "appropriate" administrative actions, the Fifth Circuit's original

237. *Airlines for Am.*, 127 F.4th at 577.

238. *Id.* at 582.

239. *Id.* at 576 (citing *United Air Lines*, 766 F.2d at 1111).

240. *See* Airlines for Am. v. Dep't of Transp., 154 F.4th 323, 324 (5th Cir. 2025).

241. Airlines for Am. v. Dep't of Transp., 2026 WL 276679, at *1 (5th Cir. Feb. 3, 2026) ("The Department, both in its brief and at oral argument, conceded that it violated the APA when it failed to provide additional notice and the opportunity to comment on a study that was 'critical to the Rule's issuance.'").

242. *Id.* ("Apart from the notice-and-comment issue, questions have also been raised about other defects in the Rule. But in light of DOT's agreement to the remedy of vacatur . . . we pretermit those issues as premature.").

243. In *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, the Supreme Court held that federal courts should defer to agency interpretations of ambiguities in a statutory scheme that the agency is tasked to administer. 467 U.S. 837, 844 (1984). The Supreme Court overruled *Chevron* in *Loper Bright Enterp. v. Raimondo*, allowing courts to determine the best meaning of an agency's organic statute. 603 U.S. 369, 400 (2024).

244. *See* Guidance Regarding Interpretation of Unfair and Deceptive Practices, 87 Fed. Reg. 52677, 52677 n.1 (Aug. 29, 2022) ("In addition to section 41712, the Department's authority to regulate unfair and deceptive practices is based in the Department's rulemaking authority under 49 U.S.C. 40113, which states that the Department may take action that it considers necessary to carry out this part, including prescribing regulations.").

stay opinion also demonstrates the courts' ability to challenge this interpretation.[245]

Second, because Section 41712 is modelled after the Section 5 of the FTC Act, limits on the FTC's Section 5 rulemaking power can affect the viability of Section 41712 rulemaking in the federal courts.[246] While the FTC holds distinct rulemaking authority for unfair or deceptive acts and practices under the Magnuson-Moss Warranty Act,[247] the agency has also construed Section 6(g)'s general rulemaking grant as allowing it to issue rules under its Section 5 "unfair methods of competition" authority.[248] Following the FTC's implementation of legislative rules governing noncompete clauses,[249] Professor Thomas Merrill examined whether Section 5 legislative rulemaking is permitted under the FTC Act.[250] Merrill writes that though it is "logically possible"[251] to use Section 6(g) of the FTC Act, which authorizes the FTC to

245. *See* 49 U.S.C. § 40113 (providing that the Secretary may take action they "consider[ ] necessary to carry out this part, including conducting investigations, prescribing regulations, standards, and procedures, and issuing orders"); *see also* Seven Cnty. Infrastructure Coal. v. Eagle Cnty., Colo., 605 U.S. 168, 180 (2025) ("[W]hen an agency exercises discretion granted by a statute, judicial review is typically conducted under the Administrative Procedure Act's arbitrary-and-capricious standard. Under that standard, a court asks not whether it agrees with the agency decisions, but rather only whether the agency action was reasonable and reasonably explained.").

246. *See* Pan Am. World Airways, Inc. v. United States, 371 U.S. 296, 303 (1963) ("[T]his section [§ 41712] was patterned after § 5 of the Federal Trade Commission Act, and we may look to judicial interpretation of § 5 as an aid in resolution of questions raised under [section 41712]"); *see also* United Air Lines, Inc. v. C.A.B., 766 F.2d 1110, 1112 (7th Cir. 1985) ("Remember that section [41712] is essentially a copy of section 5 of the Federal Trade Commission Act.").

247. *See* 15 U.S.C. § 57(a). For a comparison between the Magnuson-Moss framework and the scope of DOT's competition authority, *see* Slaughter, Comment on Notice of Proposed Rulemaking, *supra* note 210, at 2 ("I harbor grave reservations about the Department's proposal to erect a number of procedural barriers to limit rulemaking under its authority to protect aviation consumers from unfair or deceptive practices, 49 U.S.C. § 41712. These proposed barriers mirror those that Congress enacted for the Federal Trade Commission in the Magnuson-Moss Warranty [Act].").

248. *See* FED. TRADE COMM'N, THE FTC'S LEGAL AUTHORITY TO BAN NONCOMPETES (2023), https://www.ftc.gov/system/files/ftc_gov/pdf/FTC-Legal-Auth-Ban-Noncompetes.pdf [https://perma.cc/76VA-8U9L].

249. Press Release, Fed. Trade Comm'n, FTC Proposes Rule to Ban Noncompete Clauses, Which Hurt Workers and Harm Competition (Jan. 5, 2023), https://www.ftc.gov/news-events/news/press-releases/2023/01/ftc-proposes-rule-ban-noncompete-clauses-which-hurt-workers-harm-competition [https://perma.cc/2RJH-MFAD]; Press Release, Fed. Trade Comm'n., FTC Announces Rule Banning Noncompetes (Apr. 23, 2024), https://www.ftc.gov/news-events/news/press-releases/2024/04/ftc-announces-rule-banning-noncompetes [https://perma.cc/4QR9-MA53].

250. Thomas W. Merrill, *Antitrust Rulemaking: The FTC's Delegation Deficit*, 75 ADMIN. L. REV. 277 (2023).

251. *Id.* at 299.

"make rules and regulations for the purpose of carrying out the provisions of this subchapter"[252] to confer rulemaking authority for the responsibilities in Section 5, Section 6(g) was "long understood to refer to procedural rules and other housekeeping matters."[253] Federal precedent upholding the FTC's unfair competition rulemaking authority is still good law.[254] Because, however, the relationship between Section 6(g) and Section 5 in the FTC Act is analogous to the relationship between Section 40113 and Section 41712 of Title 49, any judicial rejection of the FTC's legislative rulemaking authority under Section 5 could affect the viability of legislative rules under Section 41712.[255]

Legislative action remains a highly effective but politically unlikely solution.[256] Congress could create rulemaking authority under the Federal Aviation Act giving DOT the ability to prescribe regulations governing the use of pricing algorithms in air transport, or amend Section 41712 to explicitly confer the power to prescribe regulations addressing unfair methods of competition in air transport.[257] New legislation could also specifically outlaw the use of nonpublic competitor data in pricing software or amend the

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252. *Id.* at 295 (citing Federal Trade Commission Act, Pub.L. No. 63-203, § 6(g), 38 Stat. 717, 722 (1914) (codified at 15 U.S.C.§ 46(g))).

253. *Id.* at 295.

254. *See* Nat'l Petroleum Refiners Ass'n v. FTC, 482 F.2d 672, 698 (D.C. Cir. 1973), *cert. denied*, 415 U.S. 951 (1974); United States v. Morton Salt Co., 338 U.S. 632, 648 (1950); *see also* Lev Menand & Tim Wu, *On the FTC's Authority to Promulgate Trade Regulation Rules*, YALE J. REG.: NOTICE & COMMENT BLOG (Jun. 6, 2024). *But see* Ryan, LLC v. Fed. Trade Comm'n, 746 F. Supp. 3d 369, 384 (N.D. Tex. 2024) (holding that the FTC's noncompete rule exceeded its statutory authority and that the FTC "lacked the ability to create substantive rules" relating to unfair methods of competition).

255. Part of the legal debate around the applicability of Section 6(g) stems from the fact that it was enacted in 1914, well before administrative agencies were understood to have broad rulemaking powers. Since 49 U.S.C. § 40113 was enacted in 1958, just a few years before the FTC itself asserted rulemaking authority under Section 6(g) in 1962, the FAA rulemaking structure may fare better regarding this challenge. Today's judicial skepticism towards legislative rulemaking, however, remains a persistent hurdle. *See* ALEXANDER H. PEPPER & JAY B. SYKES, CONG. RSCH. SERV., FEDERAL COURTS SPLIT ON THE LEGALITY OF THE FTC'S NONCOMPETE RULE 2 (2024), https://www.congress.gov/crs-product/LSB11228 [https://perma.cc/PEY9-AE9A].

256. Congress has become increasingly gridlocked in recent years, making it difficult to pass even legislation that enjoys broad support. *See* NIEL S. SIEGEL, THE COLLECTIVE ACTION CONSTITUTION 447–48 (2024). For more on increased uncertainty under the Trump Administration, see *supra* note 275 and accompanying text.

257. Simple additions to provisions of the Federal Aviation Act can have far-reaching competitive consequences by directing FAA officials to consider specific economic or political criteria in their decision-making. *See, e.g.*, Airport Gate Competition Act, S. 4269, 118th Cong. (2024) (proposing an amendment of 49 U.S.C. § 40103(1)(b) to include competition as a factor that the Secretary should consider in making gate assignments).

existing antitrust laws to better capture the dynamics of algorithmic collusion in the definitions currently used for "agreement."[258] While new legislation would be welcome, the Department can readily pursue a guidance-based solution within its current jurisdiction.

2. *A New Approach: Result-Oriented Algorithmic Guidance Document*

Given the lack of clarity on whether legislative rules under Section 41712 could withstand judicial scrutiny, a comprehensive guidance document to structure an aggressive adjudicatory enforcement regime offers a more immediate solution to address algorithmic collusion in the airline industry.[259] Non-legislative guidance documents would be similar to the comprehensive merger guidelines authored by the FTC and DOJ.[260] Although not enforceable rules, these documents have the power to set widespread industry norms and communicate enforcement priorities to industry actors.[261] And because the process for promulgating guidance is quicker than that of notice-and-comment

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258. *See The New Invisible Hand?* (statement of the Hon. Bill Baer, Brookings Inst.), *supra* note 96, at 01:24:56 ("[I]t may well be that there needs to be legislation. It's a subtle tweak to Section 1 of the Sherman Act but that basically directs the courts to consider the anti-competitive impact of common use of pricing algorithms in the same market.").

259. For another example of ex ante antitrust strategy based on guidance documents, see U.S. DEP'T OF JUST. ANTITRUST DIV., EVALUATION OF CORPORATE COMPLIANCE PROGRAMS IN CRIMINAL ANTITRUST INVESTIGATIONS (2024), https://www.justice.gov/atr/media/1376686/dl [https://perma.cc/HQ7M-84Y4] (describing the Department of Justice's approach to promulgating corporate compliance programs in criminal antitrust investigations); *see also* John A. Fortin, *Algorithms and Conscious Parallelism: Why Current Antitrust Doctrine is Prepared for the Twenty-First Century Challenges Posed by Dynamic Pricing*, 23 TUL. J. TECH. & INTELL. PROP. 1, 26 (2021) ("While the current DOJ guidance document does not mention algorithms at all, the continued debate by scholars should ensure this document provides sufficient, ex ante measures to combat any potential algorithmic mischief.").

260. *See* Merrill, *supra* note 250, at 307 ("[T]he most important 'rules' employed by the FTC and DOJ in competition matters are the Merger Guidelines, which are general statements of policy, not legislative rules.").

261. *See id.* at 307. Unlike legislative rules, guidance documents are not legally binding and must not include "orders" or "commands." Nat'l Miners Ass'n v. McCarthy, 748 F.3d 243, 253 (D.C. Cir. 2014). Guidance documents do not set new legal standards or impose new requirements. *See* Elec. Energy, Inc. v. Env't Prot. Agency, 106 F.4th 31, 40 (D.C. Cir. 2024). Rather, the documents clarify an agency's interpretation of existing statutes or legislative rules. *See* Tennessee v. Dep't of Educ., 104 F.4th 577, 599 (6th Cir. 2024) (explaining that the Department of Education's guidance documents were invalid because they "bind the Department to a legal position and create legal consequences."); *see also* 5 U.S.C. § 553(b)(A) (excepting "general statements of policy" from the notice-and-comment requirements for legislative rules).

for legislative rules, guidance documents can also be updated more quickly, allowing them to better reflect market realities and the nuances of a given industry.[262]

DOT has already demonstrated its ability to use targeted, non-legislative guidance to address consumer harm in the airline industry. In response to the insufficiency of case-by-case litigation of alleged predatory pricing under the antitrust laws, DOT has in the past promulgated a policy statement outlining new guidelines for unfair competition enforcement under Section 41712.[263] That policy expanded the definition of predatory pricing in the airline industry to include pricing strategies that are only economically feasible due to a legacy airline's unique ability to expand capacity quickly at its hub airports, capturing industry harm better than the traditional predatory pricing test from antitrust law.[264] The Department issuing a similar policy statement outlining mechanisms specific to the airline industry for detecting consumer harm through unfair competition would be an effective complement to adjudication against unfair methods of competition under Section 41712.[265] Tailored guidance documents would be especially helpful because the Department has recognized that standalone Section 41712 adjudication can be time-consuming and resource-intensive.[266]

A tailored guidance document could, for example, suggest that use of pricing algorithms should be investigated as an unfair method of competition when:

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262. *See* Press Release, Fed. Trade Comm'n, Federal Trade Commission and Justice Department Release 2023 Merger Guidelines (Dec. 18, 2023), https://www.ftc.gov/news-events/news/press-releases/2023/12/federal-trade-commission-justice-department-release-2023-merger-guidelines [https://perma.cc/F8E6-HL2V] (explaining that the guidelines "reflect modern market realities, advances in economics and law, and the lived experiences of a diverse array of market participants.").

263. *See* Enforcement Policy Regarding Unfair Exclusionary Conduct in the Air Transportation Industry, 63 Fed. Reg. 17919, 17920 (Apr. 10, 1988).

264. *See* Patrick Bolton et al., *Predatory Pricing: Strategic Theory and Legal Policy*, U.S. DEP'T OF JUST. (Sep. 29, 1999), https://www.justice.gov/archives/atr/predatory-pricing-strategic-theory-and-legal-policy#N93 [https://perma.cc/ACN6-S59K].

265. This document would further build on the Department's 2022 guidance outlining its approach to adjudication under § 41712. *See* Guidance Regarding Interpretation of Unfair and Deceptive Practices, 87 Fed. Reg. 52677, 52678 (Aug. 29, 2022).

266. *See Airline Service Improvements: Hearing Before the Subcomm. on Aviation of the S. Comm. on Com., Sci., & Transp.*, 110th Cong. 9 (2007) (statement of Michael W. Reynolds, Deputy Assistant Sec'y for Aviation and Int'l Affairs, U.S. Dep't of Transp.) ("Even if a prosecution is ultimately successful, such cases are resource intensive, time consuming, and of limited precedential value because each is highly dependent on its own set of facts. That section [41712] is more important as the basis for DOT rulemaking and policy making, where the public interest dictates, to define the extent of its statutory reach.").

> (i) An air carrier or ticket agent used a pricing algorithm to set or recommend an airfare or fee associated with air travel; and
>
> (ii) (a) The pricing algorithm was used by another air carrier or ticket agent to set or recommend an airfare or fee associated with air travel in the same market or a related market; or (b) The pricing algorithm was developed by an entity that has a business relationship with another air carrier or ticket agent in the same market or a related market.[267]

When these prerequisites are met, the Department may investigate whether the pricing algorithm is likely to "use, incorporate, or be trained with non-public competitor data" through established adjudicatory processes under Section 41712.[268] This guidance circumvents the unrealistic "agreement" standard under Sherman Act Section 1's requirement for collusion by focusing on proactive examination of risk factors that could lead to higher, collusive prices—not on whether the parties intended or agreed to raise prices. Importantly, such results-based guidance addresses the particularly concerning scenarios where (i) two airlines are using the same algorithmic pricing tool, or (ii) an algorithmic pricing tool employed by an airline is likely to otherwise contain competitively sensitive information.[269]

Creating a more precise, sustainable enforcement system will require extensive, interdisciplinary conversations including experts in antitrust, artificial intelligence, and aviation. The Department of Transportation should work in collaboration with the Department of Justice, the Federal Trade Commission, and antitrust scholars to better understand mechanisms of competitive harm in the airline industry.[270] DOT should also solicit advice

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267. *See* S. 3686, 118th Cong. § 5(a) (2024) (presenting this language to frame algorithmic collusion).

268. *Id.*; *see also* Procedures for Regulating Unfair and Deceptive Practices, 87 Fed. Reg. 5655 (Feb. 2, 2022) (discussing standards for Section 41712 adjudication).

269. The above framework takes inspiration from Bill Baer's contention that "the FTC potentially could employ its unfair methods of competition authority under Section 5 to challenge the use of AI that results in anti-competitive outcomes, even if the evidence is not sufficient to show an agreement in violation of Section 1 [of the Sherman Act]." *The New Invisible Hand* (statement of the Hon. Bill Baer, Brookings Inst.), *supra* note 96 at 42:53.

270. The federal government has often solicited public comment from interdisciplinary industry actors when enacting specialized regulations in the past. *See, e.g.*, Press Release, Fed. Trade Comm'n, Federal Trade Commission, the Department of Justice and the

from scholars of artificial intelligence and algorithmic pricing to ensure that the guidance documents are technically sound and feasible. Lastly, the Department should solicit feedback from the aviation industry itself to ensure that new standards are practicable.[271] Guidance documents should keep in mind both (i) the rapid pace at which pricing algorithms are evolving, and (ii) the risk of regulation chilling any productive uses of pricing algorithms.[272]

Any enforcement under Section 41712 would also presumably follow the definition of "unfair" finalized by the Department in 2020.[273] The 2020 rule defined "unfair" as (i) causing substantial injury, which is (ii) not reasonably avoidable, and (iii) not outweighed by offsetting benefits to consumers or competition.[274] The inclusion of standards such as materiality, reasonableness, and a balancing of consumer benefit and harm will further structure the adjudicatory process, potentially allaying increasing concerns about agency overreach by making standards of evaluation in a potential adjudication clearer from the outset.[275]

Department of Health and Human Services Launch Cross-Government Inquiry on Impact of Corporate Greed in Health Care (Mar. 5, 2024), https://www.ftc.gov/news-events/news/press-releases/2024/03/federal-trade-commission-department-justice-department-health-human-services-launch-cross-government [https://perma.cc/7F93-JDPM]; Madison Adler, *DOJ seeks public input on AI use in criminal justice system*, FEDSCOOP (Apr. 24, 2024), https://fedscoop.com/doj-seeks-input-on-criminal-justice-ai/ [https://perma.cc/J7GT-GYDC].

271. *See* Memorandum on Review and Clearance of Guidance Documents from Gregory D. Cote, Acting General Counsel (Mar. 11, 2025), https://www.transportation.gov/sites/dot.gov/files/2025-03/Review%20and%20Clearance%20of%20Guidance%20Documents.Cote%20Memo.Signed.03-11-2025.pdf [https://perma.cc/B6V8-9U2D] (prescribing that each agency "responsible for issuing guidance documents shall . . . [m]aintain and advertise on its Web site a means for the public to comment electronically on any guidance documents" subject to notice-and-comment procedures).

272. *See The New Invisible Hand?* (statement of Sen. Mike Lee, Ranking Member), *supra* note 96, at 27:30 ("Using an algorithm is a much more efficient, and in some cases, fast, and perhaps, accurate way to set prices rather than engaging in a more traditional price-setting method.").

273. *See* Defining Unfair or Deceptive Practices, 85 Fed. Reg. 78707, 78714 (Dec. 7, 2020); *supra* Part II.A.

274. 85 Fed. Reg. at 78707. The Department declined to adopt a specific definition for "substantial injury," but noted that any finding of unfairness should be supported by data illustrating consumer harm. *Id.* at 78714. For a previous DOT proposed rule that provides specific examples of consumer harm, *see* Enhancing Airline Passenger Protections, 73 Fed. Reg. 74586, 74586 (Dec. 8, 2008).

275. *See generally* Jennifer Szalai, *Trump vs. The Bureaucrats*, N.Y. TIMES (Jan. 11, 2025), https://www.nytimes.com/2025/01/11/books/review/administrative-state-trump-bannon.html [https://perma.cc/KGP4-LM32] (describing the second Trump administration's concerns surrounding overreach of administrative agencies). Consumer advocacy groups argued that the "flexibility of undefined terms serves as a deterrent" for

B. SUPPLEMENTING ENFORCEMENT WITH REPORTING MECHANISMS UNDER SECTION 41309

The disclosure mechanisms in Section 41309 can supplement both Section 41712 adjudication and guidance, as well as help gather additional information to support Sherman Act suits if necessary in the future. Though adversarial investigation under Section 41712 may be necessary in many cases, both air travel corporations and regulators will be better served through cooperative mechanisms that allow the government to work together with private parties to manage algorithmic risk and preserve the productive uses of algorithms in the airline industry.[276] Under Section 41309, domestic and foreign air carriers may file with the Secretary of Transportation an agreement or "request to discuss cooperative arrangements."[277] Though some disclosures are optional in the statutory language, others, such as agreements between IATA member airlines, are mandatory.[278] The Department should assert that any inter-airline or airline alliance plan detailing the implementation of algorithmic pricing capabilities should be considered a "business model for distributing air transportation," which would require mandatory reporting for IATA members.[279]

Encouraging airlines to proactively file plans when adopting pricing algorithms potentially shared with other airlines could

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generally unfair practices in the airline industry. 85 Fed. Reg. 78707, 78709. The adoption of these definitions, by contrast, serves as a limitation on the scope of agency discretion.

276. *See* Cynthia Hanawalt et al., *Recommendations to Update the FTC & DOJ's Guidelines for Collaborations Among Competitors* 25–27, SABIN CTR. FOR CLIM. CHANGE L., COLUM. UNIV. (May 2024) (explaining the value of ex ante collaboration over adversarial adjudication).

277. The IATA by-laws require certain agreements passed through that organization to be filed with the Secretary for approval. Action on IATA Agreement, Dep't of Transp. Order No. 2012-4-18 at 2, No. OST-2010-0114 (Apr. 13, 2012). For further detail on IATA's submission process, *see supra* note 57.

278. Under the conditions of approval for IATA's NDC plan, "[a]ny future agreement among IATA member airlines regarding business models for the distribution of air transportation shall not be implemented without prior compliance with any applicable government approval or notification process." IATA Agreement, Dep't of Transp. Order No. 2014-5-7 at 10, No. OST-2013-0048 (May 2014).

279. *See* id. (noting that such business practices are subject to ordinary approval by the Department); *see also* Dep't of Transp., Order 2020-2-8, No. OST-2012-0058 (Feb. 14, 2020), at 1–2 ("The Order established a three-tiered system for the filing of IATA agreements . . . The third tier (Tier 3) consists of recommended practices, agreements, or resolutions that IATA still wishes to file with the Department for approval and, optionally, antitrust immunity under Title 49 U.S.C. §§ 41308 and 41309. Tier 3 filings must await the Department's review and appropriate action before implementation.").

prevent collusion concerns later on if the Department is satisfied that the airlines are taking sufficient precautions to prevent the exchange of sensitive information through those algorithms.[280] Though CRS companies and technology companies do not fall under the jurisdiction of Section 41309, a guidance document also laying out a review process for CRS would invite further cooperation between industry actors and the government. Section 41309's reporting provisions allow the Department to screen for and permit pricing algorithms that serve public need despite anticompetitive consequences. This section compels the Secretary to approve cooperative agreements that are in the public interest *unless* the agreement "substantially reduces or eliminates competition."[281]

Like Section 41712, this section leaves room for the Department to recognize lawful uses of pricing algorithms and dynamic pricing while creating a structured process to address practices that could result in significant consumer harm. The Secretary can approve an agreement that reduces competition if the Secretary finds that the agreement is "necessary to meet a serious transportation need" and "materially less anticompetitive" alternatives do not exist.[282] This carve-out for the Secretary acknowledges the possibility that algorithms with potential anticompetitive ramifications may nevertheless serve compelling transportation needs. This discretionary power is better suited to the Secretary of Transportation than airlines.[283]

CONCLUSION

While pricing algorithms undoubtedly have the potential to increase efficiency in the airline market, this Note argues that the

280. In particular, information supporting an airline's contention that it was set up safeguards to prevent information sharing would help the Department ensure that "the transportation need cannot be met, or those benefits cannot be achieved by reasonably available alternatives that are materially less anticompetitive," as required by law. 49 U.S.C § 41309(b)(1)(B).

281. *Id.* § 41309(b)(1)(A).

282. *Id.* § 41309(b)(1)(B).

283. *See id.* § 41309(c)(1) (stating discretionary nature of authority); *see also* Levine, Comment on Procedures in Regulating and Enforcing Unfair or Deceptive Practices, *supra* note 212, at 2 ("[R]ather than competing to attract customers by making flying faster, cheaper, or more comfortable, large carriers have spent decades working in lockstep to invent new fees, new restrictions, and new ways to monetize basic travel needs—all while lobbying in lockstep for DOT to bless these practices.").

unregulated use of pricing algorithms in the airline industry leaves the door open for the sharing of commercially sensitive information between competitor airlines. In particular, the massive movement of data enabled by IATA's NDC plan increases the risk that some competitively sensitive information is used to generate increasing fares for U.S. air travel.[284] The Federal Aviation Act offers the potential for a more nimble and better tailored enforcement regime than the conventional antitrust laws to regulate algorithmic pricing and guard against the risk of algorithmic price fixing in the airline industry. Structuring adjudication of unfair methods of competition under Section 41712 through algorithm-specific rulemaking would allow the Department of Transportation to effectively address algorithmic harm with a lower risk of judicial or political hurdles compared to Sherman Act enforcement or proposed legislative bills.

284. *See* Gormsen, *supra* note 66, at 79.