

CASE 10

Predatory Pricing in the Airline Industry: *Spirit Airlines v. Northwest Airlines* (2005)

Kenneth G. Elzinga and
David E. Mills*

INTRODUCTION

In the late 1990s, Spirit Airlines was a regional airline that carried passengers to and from a small number of cities in the United States. Northwest Airlines was a major airline that carried millions of passengers each year all around the world. Apart from carrying passengers, the two airlines could not have been more different.

In 1996, Spirit and Northwest tangled in a price war on two domestic routes that each served: Detroit-Philadelphia, and Detroit-Boston. Fares dropped to levels that most travelers between these cities never thought possible. Spirit claimed that Northwest's fares were so low as to be predatory; that these prices would lead to Spirit's exit from the markets; and that when that happened, Northwest would raise fares to much higher levels and consumers would be harmed. Northwest responded that the low fares in these two markets reflected head-to-head competition between the airlines. According to Northwest, consumers were the beneficiaries of the low fares.

In 2000, Spirit filed an antitrust suit that alleged that Northwest's pricing tactics violated Section 2 of the Sherman Antitrust Act. Northwest challenged this claim, arguing in court that Northwest's prices met neither an economic nor a legal definition of predation. Northwest added that to use the antitrust laws to penalize the kind of price competition that took place between Spirit and Northwest would harm consumers and set a dangerous

*The authors were consultants to Spirit Airlines. They are grateful to Federico Ciliberto and the editors for comments.

legal precedent for thwarting vigorous price competition in the future. A federal district court agreed with Northwest that Spirit's claims lacked merit; the U.S. Court of Appeals for the Sixth Circuit disagreed and sent the case back to the district court for a trial.

The case of *Spirit Airlines v. Northwest Airlines* provides a classic opportunity not only to examine the economic character of price competition between these two firms, but also to study the nature of competition between airlines. Even beyond that, *Spirit Airlines v. Northwest Airlines* offers a peg on which to hang the entire issue of predatory pricing. So we start with the law and economics of predatory pricing. Then we turn to the antitrust battle between Spirit and Northwest.

PREDATORY PRICING

Predatory pricing is a business strategy that is designed to create or maintain a dominant or monopoly position. In the canonical predatory pricing episode, a monopolist uses temporarily low prices to drive out a small incumbent or thwart an entrant whose presence would bring competition into the market. Here, in theory, is how it works: The predator cuts its prices to impose financial stress upon a small rival (or an entrant) to induce the target firm to exit the market. Once the target withdraws, the predator can charge supracompetitive prices.

In the short run, during the price war, consumers enjoy low prices. But consumers end up paying monopoly prices in the long run. If the predator's discounted long-run monopoly profit exceeds its short-run profit sacrifice during the price war, then consumers' discounted long-run loss will exceed the gain that consumers enjoy during the price war. All things considered, consumers would be better off and the market would be more efficient if the target firm survived rather than being eliminated in a price war.

Predatory pricing presents a policy dilemma for antitrust: The conduct of a predator during a predatory pricing episode looks a lot like vigorous competition, so it is hard to distinguish a situation where low prices are sustainable and pro-competitive from a situation where low prices are unsustainable and seek to persuade the target firm that its prospects for commercial success are poor. Ordover and Willig (1981) identify predatory pricing as an episode of low prices that would not be profitable for the monopolist unless they cause the target firm to exit the market (or, in some instances, accede to the monopolist's price leadership).

The dilemma for antitrust in identifying predatory pricing is heightened because the positive payoff from constructive intervention (in a predatory episode) and the negative payoff from obstructive interference (in a pro-competitive episode) both are greater early in the episode, when telling the difference is the hardest. The best time to arrest a predator is early on, before the entrant leaves the market. But compelling evidence of predation

is scarce early on, and the risk of spoiling competitive price-cutting is greater when antitrust puts a quick end to low prices instead of waiting for the entrant to fail.

Two decades ago, in his influential Supreme Court opinion in *Matsushita*, Justice Lewis F. Powell observed, "There is a consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful."¹ This view was informed by the theoretical contributions of Bork (1978) and McGee (1958, 1980), among others, who concluded that, as a rule, predatory pricing is irrational.

Subsequent theories of predatory pricing have been advanced that are more nuanced than earlier theories and less vulnerable to the "irrationality" criticism. These theories generally assume that the victims of predatory pricing are handicapped by incomplete information. A predator with more complete information is thought to exploit this handicap to make the victim doubt its own prospects for success in the market. The predator raises these doubts to persuade the victim to withdraw from the market.

For example, a firm that aggressively cuts prices in response to entry today may gain a reputation for being a "bully," which could deter other entrants in the future or in other markets. When part of a predator's payoff from an episode of low prices comes from establishing or strengthening a reputation for responding aggressively to future entry, the firm's payoff in the instant market may not offset its short-run profit sacrifice in that market.

The more recently formulated theories of predatory pricing are summarized by Ordovery and Saloner (1989) and Klevorick (1993). While these theories have caused some commentators to question the view that predatory pricing is uncommon,² little has happened in the courts in the years since *Matsushita* that would challenge Justice Powell's generalization—and, indeed, it was reinforced by the Supreme Court in 1993 in its *Brooke Group*³ decision and more recently in its 2007 *Weyerhaeuser*⁴ decision.

Some commentators on price wars in the airline industry have suggested that this industry may be an exception to Justice Powell's "rarely tried" observation. For instance Alfred E. Kahn (1998, p. 1), who played a prominent role in the deregulation of the U.S. domestic airline industry, stated that "[t]here are in fact strong reasons to believe that, at least so far as the airlines business is concerned, the Supreme Court's view . . . is simply

¹ *Matsushita Electric Industrial Co. v. Zenith Radio*, 475 U.S. 574, 589 (1986). See also Elzinga (1999).

² For example, Bolton *et al.* (2000) suggest that strategic considerations like reputation effects occur more frequently than courts have recognized. For a different perspective, see Elzinga and Mills (2001).

³ *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

⁴ *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., Inc.*, 127 S. Ct. 1069 (2007). This was a case involving allegations of predatory bidding. See the discussion by Gordon Rausser and John Foote in Case 9 in this Part.

incorrect." Characteristics of the airline industry that may predispose it to predatory price wars include the multiple city-pair markets in which airlines face each other, the price discrimination strategies that are available in the sale of tickets, and the unusual cost structure of airlines.

Whether and how frequently incumbent carriers respond to entrants in a predatory fashion is a question that recurs regularly in the antitrust community. Bamberger and Carlton (2006, p. 22) provide an account of how incumbent airlines have responded to the entry of so-called "low-fare carriers" since 1990. Although their review "finds no evidence that predation by major carriers against low-fare entrants . . . was systematic and successful during the mid-1990s," when the growth of low-fare carriers slowed temporarily, they "cannot rule out isolated instances of predatory conduct . . ."

During the 1990s, as the low-fare carrier segment of the U.S. airline industry expanded, several entrants complained to the U.S. Department of Transportation (DOT) about allegedly predatory conduct by incumbents.⁵ The DOT investigated these claims and released a report that agreed that incumbent airlines had responded to low-fare entrants with predatory practices, and proposed specific guidelines for delineating unlawful conduct (USDOT, 1998). These proposals prompted Congress to commission a study by the Transportation Research Board of the National Research Council (TRB 1999), which several months later issued a report that reiterated the DOT's concerns, albeit with some reservations.

In May 1999, the Department of Justice (DOJ) sued American Airlines for predatory conduct against low-fare carrier entrants at American's Dallas-Fort Worth hub. A district court dismissed the case in 2001 on several grounds. The court rejected the DOJ's various applications of the "average variable cost test," as well as the DOJ's recoupment theory, which was based on the alleged predator's acquiring a reputation for predation. The court also reasoned that since American's low fares only matched, and did not undercut, the low-fare entrants' fares, American was entitled to "meet" its new competition.⁶ The Tenth Circuit Court of Appeals affirmed the trial court's decision in 2003.⁷

A significant part of the DOJ's failure to win *American* was because of the court's reasoning as to how a price-cost test and a recoupment test should be administered in a predatory pricing case in the airline industry. Notwithstanding the legal outcome, *American* did not persuade everyone that if an incumbent airline (1) cut its fares to match a low-fare entrant, (2) increased its capacity sharply to reduce the number of occupied seats on

⁵ Bamberger and Carlton (2006, p. 2) report that the DOT received 32 such complaints between March 1993 and May 1999.

⁶ *United States of America v. AMR Corporation, American Airlines, Inc., and American Eagle Holding Corporation*. 140 F. Supp. 2d 1141 (2001). See also Eckert and West (2006), Edlin and Farrell (2004), and Werden (2003).

⁷ *United States v. AMR Corp.*, 335 F. 3d 1109 (10th Cir. 2003).

entrant's flights, and (3) then sharply raised fares and reduced capacity once the entrant retired, then this conduct should be outside the reach of the anti-trust laws.

Spirit Airlines v. Northwest Airlines offered a new opportunity for a trial court to distinguish predatory conduct from legitimate competition in this industry. Before turning to the facts and an analysis of the *Spirit* case, we review the legal standard that currently applies to predatory pricing claims.

DISTINGUISHING PREDATORY PRICING FROM COMPETITION

The most recent predatory pricing opinion issued by the Supreme Court involved two cigarette manufacturers. Neither firm was a new entrant to the cigarette industry. Brown & Williamson's aggressive pricing of its newly introduced discount cigarettes prompted Liggett, which previously was the main supplier of discount cigarettes, to cry foul. In a lengthy antitrust battle that made its way to the Supreme Court, the Court, relying on economic analysis, set a high bar for plaintiffs to succeed in predation cases.⁸ According to the Supreme Court's *Brooke Group* opinion, proving a predatory pricing episode requires three analytical steps:

The first is to define the relevant market in which the alleged predation takes place and determine whether structural conditions in that market make it plausible that, but for the target firm, the defendant firm could exercise market power. If the defendant's rivals in the relevant market are sufficiently small and limited in their ability to discipline the defendant's prices, and if there are significant barriers to entry in the market, the necessary market power is established. The analysis then moves to the second step. But if significant market power in the relevant market is not established, economics teaches that it is implausible for the defendant's aggressive pricing to harm competition in that market regardless of the particulars. Consequently, the possession of significant market power in the relevant market, or a reasonable prospect of acquiring it, is a threshold issue in proving that a defendant's pricing is predatory.

The second step in the economic analysis of predation is to determine whether the defendant's prices in the relevant market were below an appropriate measure of its costs. The most prominent cost benchmark for deciding predatory pricing cases is the Areeda-Turner (1975) test. This test asks whether the defendant's prices were below the firm's reasonably anticipated average variable costs (AVC). If the defendant's prices were below this benchmark, Areeda and Turner suggested that the defendant's low

⁸ *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 231-232 (1993). The case is often called *Brooke Group* because the Brooke Group acquired Liggett in the course of the litigation. See also Burnett (1999).

prices could be anticompetitive since such prices were not remunerative in the short run and were below the firm's shut-down point. In addition, prices this low would be below the shut-down point of the defendant's alleged target if that firm were no more efficient than the defendant. These prices might drive a rival out of the market and pave the way for a period of relatively unimpeded pricing.

Areeda and Turner (1975) proposed that charging prices above AVC would be a safe harbor for defendant firms. If the second step in the inquiry indicates that the defendant's prices were above the cost benchmark, then the defendant's pricing is presumed to be nonpredatory. Unless additional factors warrant continuing the analysis, the predatory pricing hypothesis is rejected. If the defendant's prices were below the benchmark, predation becomes a more likely hypothesis. The analysis proceeds to the third and final step.

The third step investigates the likelihood that the defendant could charge prices that would be high enough and over a time period that would be long enough after disposing of the target rival to recoup the losses that it endured during the period of low prices. This step is known as the recoupment test. Although showing that a defendant's prices were below an appropriate measure of its costs usually is necessary, it is not a sufficient condition for proving predatory pricing. The recoupment test creates a safeguard for courts against making Type-I errors (i.e., reaching false positive conclusions) in applying a cost-based test.⁹ Errors of this kind could occur if the defendant's costs were measured improperly or if the defendant's losses were inadvertent instead of strategic.¹⁰ The likelihood that the defendant's low prices were predatory is sharply reduced if the recoupment test indicates that the payoff from ousting a rival would be insufficient to warrant the losses that accompany the low prices. Under the antitrust laws, to prove that the defendant's low prices were predatory, a plaintiff must show that there was a "dangerous probability" that the defendant could recoup its predatory losses by charging high prices after the rival withdraws from the market. (Again, this standard ignores the possibility that the "recoupment" might be in the form of a reputation for being predatory, which would allow high prices to be unchallenged in other markets.)

The plaintiff's allegations in *Spirit Airlines v. Northwest Airlines* are similar to those in *Brooke Group* in that there was no reliance on predatory theories that were premised on the exploitation of information asymmetry

⁹ Katz (2006, p. 6) suggests that the recoupment test is a "reality check: If there was no reason for the firm that has been alleged to have engaged in predation to expect to be able to recoup, then it raises the question of why the firm would have ever tried to engage in predatory pricing."

¹⁰ In addition, there may be limited circumstances that would induce a defendant to charge prices temporarily below benchmark costs for reasons that are not anticompetitive. For example, a firm may use low introductory prices while introducing consumers to a new product. Or the firm's production learning curve may be so steep that it charges prices below cost for a time while costs are falling with accumulated experience.

between the firms. Given this similarity, we will use the Court's three-step *Brooke Group* approach to assess the allegations of predatory pricing in *Spirit Airlines v. Northwest Airlines*.

A BRIEF CHRONOLOGY OF EVENTS

Northwest Airlines was founded in 1926 as an air mail carrier between Minneapolis and Chicago. The firm began passenger service soon thereafter and became one of the five largest passenger airlines in the world. As the firm's operations at Minneapolis grew, Northwest developed a passenger service hub there. In 1986, Northwest merged with Republic Airlines, which had hubs at Detroit, Memphis, and Minneapolis. Northwest's domestic hub-and-spoke route structure remained centered on these three airports during the period relevant to this case. Northwest also offered service to many international destinations both directly and through its global airline alliances with European and Asian carriers. In 2000, Northwest had about 53,500 employees, \$11.4 billion in revenues, and net income of \$256 million. That year, the carrier reported approximately 58.7 million flown passengers.¹¹

At times, Spirit Airlines was a low-fare carrier whose economic profile was very different from Northwest.¹² In 2000, Spirit operated 28 aircraft and had almost 2000 employees serving 2.8 million flown passengers.¹³ At the time of the events that are the focus of this case, Spirit offered regularly scheduled air service to thirteen city pairs. Its primary business was flying passengers from Detroit and other points in the Northeast to Florida and other entertainment destinations.

Prior to December 1995, Northwest's share of the nonstop local passenger airline service between Detroit and Philadelphia (DTW-PHL) was about 70 percent.¹⁴ US Airways accounted for the rest of the local service on the DTW-PHL route.¹⁵ Northwest's average (one-way) fares for local passengers on the DTW-PHL route for every month during 1995–1997 are shown in Figure 10–1.¹⁶

¹¹ Northwest Form 10-K dated April 2, 2001.

¹² Spirit Airlines grew out of Charter One, a Detroit-based charter tour operator that started in 1980. The firm has operated under the Spirit Airlines name since 1992.

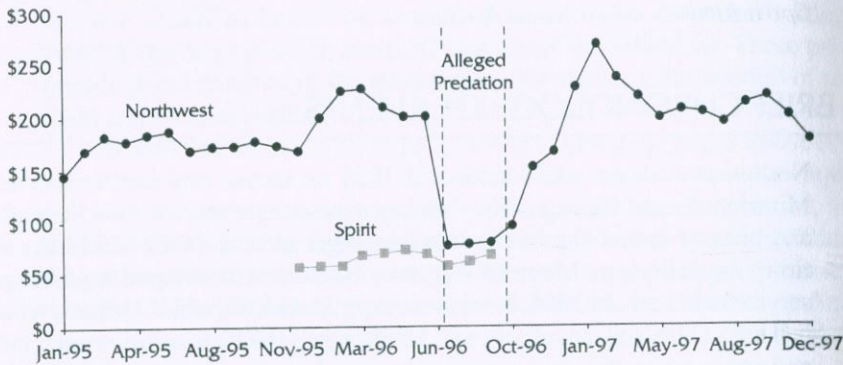
¹³ Spirit Press release, September 5, 2000, and January 12, 2001.

¹⁴ A *local* passenger on the DTW-PHL route is a passenger whose original point of departure is either Detroit or Philadelphia and whose final destination is the opposite city. Passengers, for instance, who fly from Minneapolis to Philadelphia via Detroit, or who fly from Philadelphia to Columbus by way of Detroit, are *connecting* passengers on the DTW-PHL route.

¹⁵ Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Origin and Destination Data Bank 1A. Carriers other than Northwest and US Airways accounted for less than four percent of the DTW-PHL market.

¹⁶ Northwest's average fares are constructed from Northwest's Local Passenger Data for the DTW-PHL route. Unless otherwise noted, all fares reported in this chapter are one-way fares.

FIGURE 10-1 DTW-PHL: Northwest's and Spirit's Average One-Way Fares for True Local Passengers*



* Northwest defines three types of local passengers: true local, connecting local, and multi-destination local. True local passengers are nonstop local passengers.

Sources: Northwest Airlines, Spirit Airlines

In December 1995, Spirit introduced a single daily nonstop flight on the DTW-PHL route that used an 87-seat jet aircraft.¹⁷ Spirit's average fares on this route, also shown in Figure 10-1, were substantially lower than Northwest's. Northwest's lowest unrestricted fare on the DTW-PHL route prior to Spirit's entry was \$355, and its lowest restricted fare was \$125.¹⁸ Spirit offered fares as low as \$49 when it began service and, three months later, was selling tickets for an average fare of \$57.¹⁹

Initially, Northwest did not materially reduce its fares in response to Spirit's entry. However, when Spirit introduced a second daily nonstop flight on June 28, 1996, "Northwest immediately and dramatically reduced its fares, offering a lowest published fare that matched Spirit's \$49 one-way fare, and . . . expanded its capacity on this route by adding another flight."²⁰ As a result, Northwest's average fare fell to \$77 in July 1996, as shown in Figure 10-1. Northwest's DTW-PHL lowest fares were "less than Spirit's lowest fare for 92.5 percent of the days during the [alleged] predation period."²¹

As Northwest increased its capacity on the DTW-PHL route, the number of passengers that Spirit served fell, and its operations on the route became unprofitable. Spirit achieved load factors as high as 88 percent on

¹⁷ Spirit Airlines' Response to U.S. DOJ Antitrust Division Civil Investigative Demand No. 17702, p. 5.

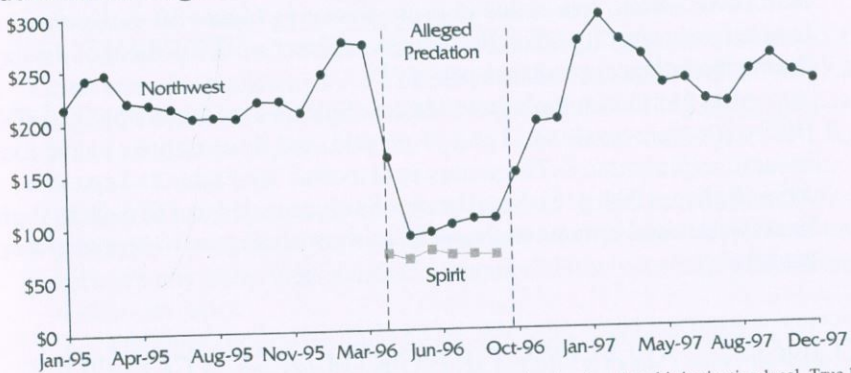
¹⁸ DOT Presentation Outline, Northwest Airlines, Inc., p. 20.

¹⁹ Spirit Airlines' Response to U.S. DOJ Antitrust Division Civil Investigative Demand No. 17702, Attachment 2, p. 12.

²⁰ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 2003 WL 24197742 (E.D.Mich.), 2005-2 Trade Cases, ¶ 75,002, p. 3 (March 31, 2003).

²¹ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 924 (6th Cir. 2005).

FIGURE 10-2 DTW-BOS: Northwest's and Spirit's Average One-Way Fares for True Local Passengers*



* Northwest defines three types of local passengers: true local, connecting local, and multi-destination local. True local passengers are nonstop local passengers.

Sources: Northwest Airlines, Spirit Airlines

this route before Northwest responded to its entry, but load factors fell to between 31 and 43 percent in subsequent months.²² Spirit canceled one of its DTW-PHL flights on August 20, 1996, and canceled the other on September 30, 1996 (Kahan, 1998, p. 5). After Spirit canceled its flights, Northwest raised its fares sharply, as shown in Figure 10-1, and reduced capacity.

A similar sequence of events occurred on a second route. Prior to April 1996, Northwest was the only airline that offered nonstop local passenger airline service between Detroit and Boston (DTW-BOS). Northwest's only competition on this route consisted of flights by other carriers that required a connection at a third city between DTW and BOS. Figure 10-2 shows Northwest's average fares for local passengers on the DTW-BOS route for every month during 1995-1997.²³ Northwest was charging \$411 for an unrestricted ticket on this route, and its lowest restricted fare was \$129.²⁴

On April 15, 1996, Spirit introduced a single daily nonstop flight that used an 87-seat jet aircraft on the DTW-BOS route. Spirit's introductory fare was \$69, and its average fare for as long as it operated on this route was in the range of \$67-75, as shown in Figure 10-2 (Kahan, 1998, p. 7). Northwest responded to Spirit's entry by adding two additional daily nonstop flights on

²² Ibid. A flight's "load factor" is the fraction of available seats that are occupied by revenue passengers.

²³ These average fares are constructed from Northwest's Local Passenger Data for the DTW-BOS route.

²⁴ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 2003 WL 24197742 (E.D.Mich.), 2005-2 Trade Cases ¶ 75,002, p. 4 (March 31, 2003).

the DTW-BOS route and offering a matching fare. One of these flights used a larger aircraft than Northwest had used on the route previously.²⁵ Northwest's sharp fare reductions are shown in Figure 10-2. Northwest's lowest fares were "less than Spirit's lowest fare for 93.9 percent of the days during the [alleged] predation period."²⁶

After Northwest took these actions, Spirit's load factors on the DTW-BOS route were between 17 and 31 percent, and its operations on the route became unprofitable.²⁷ The company canceled its flight on September 8, 1996 (Kahan, 1998, p. 8). Shortly after Spirit canceled its DTW-BOS flight, Northwest raised its fares on the route, as shown in Figure 10-2, and reduced capacity.

ECONOMIC ANALYSIS OF NORTHWEST'S CONDUCT

Seeking to establish that Northwest's conduct in these two city pairs was predatory and violated Section 2 of the Sherman Antitrust Act, Spirit's economic analysis followed the three-pronged approach that was suggested by the Court's *Brooke Group* opinion and described earlier. Northwest's economic analysis sought to discredit Spirit's claims and prove that Northwest's conduct was not predatory.

In keeping with Ordover and Willig's (1981) definition of predation, Northwest's analysis was framed as a test of whether Northwest's response to Spirit's entry on the two routes was motivated by profit considerations that were attributable to injuring competition. The implementation of this test involved steps that were similar to those undertaken by Spirit. However, because Northwest's analysis concluded that the carrier's revenues on the routes in question were not below any relevant cost benchmark, Northwest claimed that there was no need to examine whether Northwest had market power or the ability to recoup predatory losses in the relevant markets.

Market Definition

The first step in Spirit's analysis was to define the relevant markets and assess their structure. This was done to determine whether Northwest possessed the market power that was necessary to execute a successful predatory campaign. Market share matters because a firm with a small share of the market would not have the pricing discretion that is required to execute a predatory pricing campaign all by itself.

²⁵ Ibid.

²⁶ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 924 (2005).

²⁷ Ibid.

In antitrust economics, relevant markets have two dimensions: One identifies the relevant set of *products* that are bought and sold in the market; the other identifies the relevant *geographic* extent of sales.

Spirit took the position that the relevant geographic markets in this case were for passenger air travel between the city-pairs of DTW-BOS and DTW-PHL. Northwest agreed with this position. Defining geographic markets as city-pairs is plausible since an increase in the ticket price of a flight between Detroit and New York would have very little effect (if any) on the number of passengers who want to fly between Detroit and Boston. Defining geographic markets as “city pairs” assumes that the substitutability of travel between city pairs is *de minimis* compared to the substitutability of travel within city pairs.

Defining geographic markets as city pairs is generally accepted in airline industry circles. For example, Morrison (1998, pp. 150, 156) states that “the unit of output of a passenger airline is transportation of passengers between cities,” and it “. . . is at the route level, after all, that airlines actually compete with one another.” The Transportation Research Board of the National Research Council (1999, pp. 65–66) states that “[a]irlines compete for passengers at the city-pair level. There are thousands of combinations of origin and destination (O-D) points that comprise the markets for air transportation. . . .” In comments before the U.S. Senate, a former head of the Antitrust Division (Klein, 2000 p. 21) stated, “. . . relevant airline markets are likely to consist of scheduled airline service between a point of origin and a point of destination, generally referred to as city pairs. This market makes intuitive, as well as economic, sense.”

While Northwest agreed with Spirit that the relevant *geographic* markets in the case were the DTW-PHL and DTW-BOS city pairs, Northwest took sharp exception to Spirit’s proposed relevant *product* markets. This difference of opinion about product markets had much to do with the companies’ disparate conclusions about Spirit’s allegations.

Spirit offered two alternative definitions of the relevant product markets in this case: One alternative defined the markets to consist of all local passengers that flew on the DTW-PHL route and, similarly, all local passengers that flew on the DTW-BOS route. The other alternative defined relevant product markets to include only leisure-oriented price-sensitive local passengers on the two routes. Spirit claimed that price-sensitive passengers are an identifiable class of travelers who are strongly prone to alter their travel plans in response to changes in fares. These are vacation travelers and travelers flying for personal reasons who are more flexible about scheduling and who pay for tickets out of their own pockets. According to Spirit, business-oriented non-price-sensitive passengers, who prize flexibility in their travel plans and are on expense accounts, generally purchase higher-price tickets with no restrictions. Price-sensitive passengers often purchase lower-price tickets with restrictions (e.g., advanced purchase, not fully refundable, or requiring a Saturday layover).

Both of Spirit's product market alternatives limited the relevant markets to local passengers on the DTW-BOS and DTW-PHL routes; passengers whose trips began or ended elsewhere were excluded even though they occupied seats on the same plane as local passengers. Purchasing a DTW-PHL ticket is a poor substitute for a passenger whose trip begins in Indianapolis and ends in Philadelphia even if this trip involves a stopover in Detroit. Also, given the distances involved, Spirit's product market alternatives limited the relevant markets to airline travel only and excluded other modes of travel between the cities in question. Although some passengers might drive to their destinations, take a bus, travel by train, or even charter a plane, Spirit deemed these alternatives as not being "reasonably interchangeable" with scheduled airline service.

Northwest disagreed with Spirit's position that the relevant product markets included only local passengers, and contended that connecting passengers on the DTW-BOS and DTW-PHL routes also should be included. The fungibility of seats on the same plane occupied by passengers with different points of origin and or destination, Northwest claimed, meant that product markets should include all passengers who traveled these routes. Northwest's reasoning on this point stressed the carrier's yield management system and supply-side substitutability more than demand-side substitutability. The companies also disagreed that the distinction between price-sensitive and non-price-sensitive passengers identified separate product markets.

Spirit cited several factors in support of defining the product markets to include all local passengers. Available data make this approach more convenient since isolating price-sensitive passengers from the rest requires drawing a line between passengers on the same plane traveling from and to the same cities. Defining all-local-passenger product markets also acknowledges supply-side substitution between passenger classes. An airline might choose to change, on short-notice and at very little cost, the mix of seat prices on a given plane that served a particular route. For these reasons and perhaps others, the conventional approach taken in the economics literature does not distinguish price-sensitive and non-price-sensitive product markets.²⁸ In recognition of this convention, Spirit used an all-local-passenger market definition to assess Northwest's market power and pricing conduct.

Spirit contended, however, that defining the product market expansively to include all local passengers exaggerates the substitutability of alternative tickets for many passengers who happen to be flying on the same route. One indication that many passengers in the two geographic markets do not regard all flight options as substitutes is the bimodal fare structure that Northwest maintained in the months immediately prior to Spirit's entry. As shown in Figure 10-3, two-thirds of Northwest's passengers in the

²⁸ See, for instance, Borenstein (1989). However, Borenstein does exclude connecting, or "through," passengers from the routes that he investigates.

FIGURE 10-3 DTW-BOS: Northwest's Fare Distributions for Single-Coupon Local Passengers, Period Before the Alleged Predation, 1995Q2-1995Q4

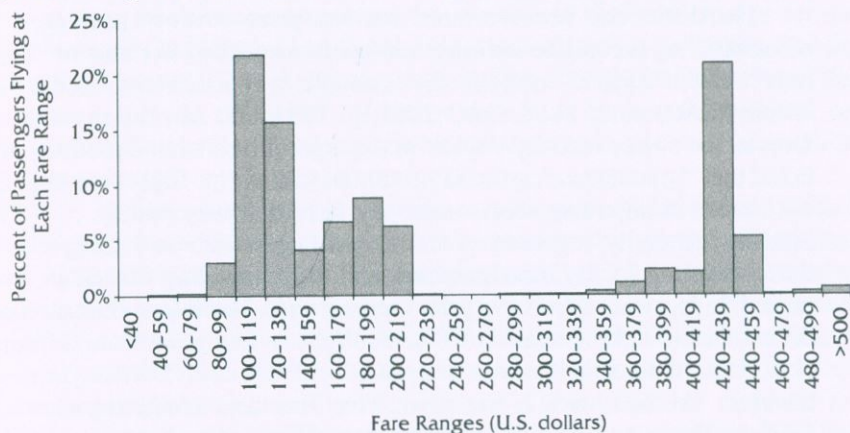
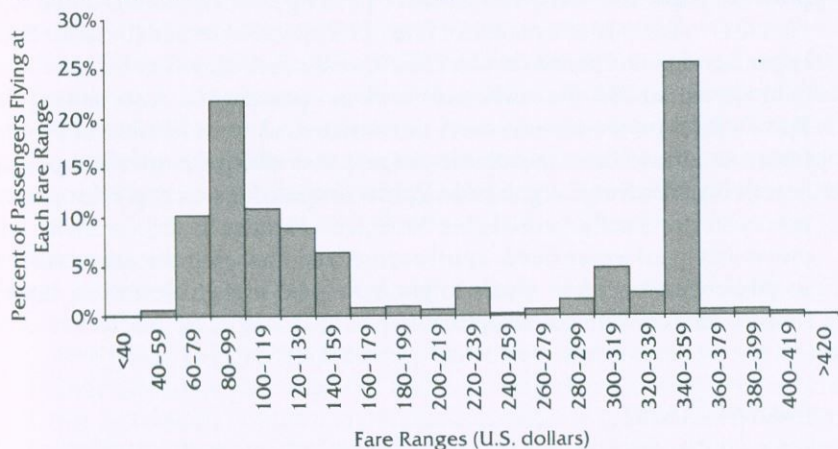


FIGURE 10-4 DTW-PHL: Northwest's Fare Distribution for Single-Coupon Local Passengers, Period Before the Alleged Predation, 1995Q3-1996Q2



DTW-BOS market during the pre-entry period bought tickets in a lower ticket price range. The remaining third were in a much higher price bracket. Figure 10-4 indicates that the same general pattern held for Northwest's fare structure in the DTW-PHL market.

Spirit claimed that Northwest's bimodal fare structure in these markets illustrated weak substitutability between ticket options and supported its position that there were separate product markets for price-sensitive and price-insensitive passengers. If all passengers were in the same product market, Spirit reasoned, one would expect the price differential to be

compressed or arbitrated away. The fact that the price differential was so large suggests that the same flight served at least two product markets.

The distinction between more and less price-sensitive passengers is recognized by the airline industry and is often couched in terms of "business" versus "leisure" travelers. For example, a U.S. General Accounting Office (GAO) study (U.S. GAO 2001, p. 17) found that the structure of fares in the airline industry depicts markets for differentiated products and noted that "[p]assengers on the same commercial airline flight—sometimes even those in adjoining seats—may pay fares that vary widely. . . . The industry generally segments potential passengers into two categories—those traveling for business purposes and those traveling for leisure purposes." In its own analysis in a prior antitrust case, Northwest characterized differences in ticket prices on the same flight as stemming from differing elasticities of demand that were associated with "business" versus "leisure" travelers. As Northwest's Executive Vice President-Marketing (Levine, 1993, p. 25) once testified in another matter, "The airline industry generally believes that business (basically non-discretionary) travelers constituted a somewhat distinct market. . . ."

Northwest disagreed that there were separate product markets for price-sensitive and non-price-sensitive passengers. In reference to the wide variation in the carrier's pre-entry fares, Northwest observed that after Spirit began service on the two routes, Northwest's fare structure became more compressed so that the carrier could retain passengers. Also, noting that Spirit's fares on these routes were unrestricted, as were Northwest's higher fares (i.e., those fares that Spirit claimed that non-price-sensitive passengers paid), Northwest argued that Spirit competed just as much for passengers who previously paid higher Northwest fares as it did for those who previously paid lower fares. Spirit recognized that a significant number of its passengers on these routes might have paid higher Northwest fares if Spirit's service were not an option.

Market Power

In their antitrust treatise, Areeda and Hovenkamp (2002, p. 341, footnote omitted) state, ". . . predation is usually assumed to be possible, if at all, only for a dominant firm with a very substantial market share. Given the variety of factors affecting the minimum size for plausible predation, no single market share number can be offered as a guaranteed minimum."²⁹ Spirit argued that Northwest's shares of the DTW-BOS and DTW-PHL markets were substantial enough to support its claim that Northwest possessed significant market power, regardless of how product markets are defined. In the year 1995, prior to Spirit's entry, Northwest had about 90

²⁹ Areeda and Hovenkamp (2002, p. 341) hazard "[n]evertheless, we suggest a strong presumption that Sherman Act predation is unreasonable at market shares below 60 percent."

percent of the DTW-BOS market and about 69 percent of the DTW-PHL market, as measured by the number of nonstop or one-stop local passengers flown. US Airways accounted for the rest of the local flights on these routes.³⁰ In 2000, after Spirit had entered and exited those markets, Northwest had a market share of about 86 percent in DTW-BOS and about 64 percent in DTW-PHL. Whether calculated by assets, revenues, seat-miles, or number of employees, Northwest's operations out of its Detroit hub dwarfed Spirit (and all carriers) during these years.

A large market share is a necessary but not a sufficient condition for the market power that is required to be a successful predator. Entry conditions are important as well because predatory pricing is unlikely to be successful in a market where entry or reentry is relatively easy.³¹ Spirit identified several barriers to entry in the DTW-PHL and DTW-BOS markets and argued that these barriers supported its claim that Northwest had significant market power in those markets. Some of these barriers stemmed from Northwest's size and incumbency. For instance, at that time Northwest enjoyed a degree of "brand loyalty" from many consumers because of the company's frequent flyer programs and promotional programs for business travelers and travel agents. Spirit or any other entrant into the relevant markets in this case would have to overcome these incumbency advantages in order to compete successfully with Northwest.³²

Even though the mobility of planes and crews from one route to another generally facilitates entry in the airline industry, a limited supply of ground-based facilities can be an economic barrier to entry even if planes and crews are readily available.³³ Important examples include ticket counter space, boarding gates, and takeoff and landing slots. Spirit claimed these limitations supported its claim that Northwest had significant market power in the relevant markets.

According to a GAO report (U.S. GAO 1996, p. 9), "In 1990, our survey of the 66 largest U.S. airports revealed that 85 percent of their gates were leased to established airlines under long-term exclusive-use leases. At some airports, every gate was under an exclusive-use lease. We concluded that such leases limited entry because, in order to gain access to the airport, a nonincumbent would generally have to sublease gates from the incumbent airlines—often at less preferable times and at a higher cost than the

^{30 30} Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Origin and Destination Data Bank 1A Superset. Other carriers than Northwest and US Airways accounted for less than four percent of the DTW-PHL market at the time.

³¹ This is because the absence of barriers to entry makes it possible for entrants, including the entrant that is the predator's target, to enter (reenter) the market when the predator raises prices to exploit its market power. This response on the part of entrants undercuts the predator's ability to recoup the losses that it incurs while charging low, predatory prices.

³² See Borenstein (1992) and Levine (1987).

³³ The scarcity of gates and takeoff and landing slots are generally recognized as barriers to entry in passenger airline markets. See, for instance, Morrison (1998, p. 166 ff).

incumbent pays on the master lease.”³⁴ The Transportation Research Board (1999, p. 120) observed that “[w]hen few or no extra gates are reserved by the airport operator for other airlines, recurrent gate scarcity can become an impediment to entry. To prevent a new rival from gaining a foothold, it is possible that an incumbent airline might withhold gates or offer unattractive terms.”

The GAO identified DTW as one of the most gate-constrained airports in the U.S. Of the 86 jet gates at this airport in 1990, 76 were under exclusive-use leases. And 64 of the gates at DTW were “leased to Northwest until the end of 2008, with all but 10 under exclusive-use terms (U.S. GAO, 1996, p. 10).” The Vice Chairman and General Counsel of Spirit Airlines (Kahan, 1998, p. 9) testified before the Transportation Subcommittee of the Senate Appropriations Committee in 1998 that “Spirit Airlines emplaned over 19,000 passengers from Detroit in December 1997 without a gate. We go from one carrier to the next seeking unused space for which we may contract at odd times of the day. Because we lack a gate . . . under the rules of the local airport authority . . . we are assessed a 25 percent surcharge over the rates charged to other carriers including, obviously, [Northwest]. The scarcity of gates at DTW, and Northwest’s dominance of existing gates, raised a barrier to entry into either of the relevant markets.”

In sum, Spirit argued that structural conditions in the relevant markets—Northwest’s market shares and entry conditions—indicated that Northwest possessed market power in those markets that was sufficient to warrant advancing the economic analysis of Northwest’s conduct to the second step.

Northwest did not challenge Spirit’s market share calculations and did not undertake a detailed structural analysis of the relevant product markets. But the carrier disputed that it possessed significant market power in those markets. It cited US Airways as a competitor that was sufficiently formidable to prevent Northwest’s exercising market power in either market, especially DTW-PHL.

Northwest also contested Spirit’s claims that entry barriers such as airport facilities were sufficient to impede the entry of rivals in either market. It argued that Spirit had demonstrated its ability to contract for airport facilities at DTW, PHL, and BOS and was in a position to expand service on DTW-PHL or DTW-BOS by substituting the airport facilities that Spirit used for serving other routes. Northwest noted that Southwest Airlines began operating at DTW in 1987, although it did not serve either of the relevant markets in this case. Also, in 2000 Pro Air started operations at a secondary Detroit airport and offered service to PHL until it was shut down by an order from the Federal Aviation Administration. Noting that neither PHL nor BOS were considered to be gate-constrained airports, Northwest reasoned that the Pro Air experience indicated that Spirit could have

³⁴ See also Transportation Research Board (1999, p. 88 ff).

expanded its service to those airports by using the secondary Detroit airport instead of, or in addition to, DTW (U.S. GAO 1996, p. 9).

Analysis of Northwest's Revenues and Costs

The second step in a predatory pricing investigation involves assessing whether Northwest's fares in the DTW-PHL and DTW-BOS markets were below the firm's average variable costs. Finding that Northwest charged fares below this benchmark would significantly raise the likelihood that its conduct in response to Spirit's entry was predatory. In its regular course of business, Northwest produces a monthly record of the company's financial and operational activity on specific flights and aggregates these data by city pairs.³⁵ Both Spirit and Northwest used these data in their analyses of Northwest's revenues and costs.

Spirit's Analysis of Revenues and Costs

A firm's variable costs, as distinguished from fixed costs, are those costs that vary as the firm's output level varies. Put differently, and in context, the relevant variable costs in a predatory pricing investigation are those that the alleged predator might avoid by curtailing production of that quantity of output that is associated with its challenged activity.³⁶ More descriptive names than "variable" for these costs are "avoidable costs" or "incremental costs." To assess Northwest's conduct in either of the relevant markets alleged by Spirit requires a comparison of the fares that Northwest charged the relevant passengers with the avoidable or incremental costs that were associated with Northwest's response to Spirit's entry.

Northwest classified its flight-specific costs into three categories: passenger variable expenses, nonpassenger variable expenses, and fixed expenses. Passenger variable expenses were costs that varied with the number of passengers on a given flight. These included, for example, the costs that were associated with issuing tickets, processing passengers through the gate, in-flight food and beverages, and insurance and other liability expenses. Nonpassenger variable expenses were those that Northwest incurred when it added an additional flight or substituted a larger plane on an existing flight. These included items like the cost of fuel, pilots, maintenance, and landing fees. While these items could not be adjusted as quickly or incrementally as passenger variable costs, they were not invariant to observed changes in passenger volume on a given route. Fixed expenses, like corporate overhead,

³⁵ The source of these data was Northwest's Flight Profitability System (FPS), which is "the primary means by which Northwest evaluates its financial performance. . . ." "Northwest Airlines, Inc.'s Motion for Summary Judgment," July 5, 2002, p. 11.

³⁶ See Baumol (1996).

were the costs of Northwest's operations that were unlikely to change when additional passengers and flights were added to the carrier's service on a given route.

Although Northwest aggregated its flight-specific costs across all passengers (e.g., connecting and local), Spirit reasoned that Northwest's per-passenger costs were the correct measures to use for local passengers since there was no material difference in the cost to Northwest of flying connecting versus local passengers on a given route. Northwest contested this assumption, noting that all flight-specific costs other than passenger variable costs were joint and common costs that should not necessarily be attributed pro rata to all passengers.

Spirit's incremental cost calculations included all of the variable expense items that were identified by Northwest's cost data. They also included certain items that Northwest classified as "fixed" costs. A critical item here was the cost of aircraft.³⁷ Northwest could add seats to its local service on a route in three ways: increase the number of local service seats on existing flights, switch to larger aircraft, and add flights and aircraft. Since Northwest used the same types of aircraft on other routes as it used on DTW-PHL and DTW-BOS, the company could and did consider alternative uses of those aircraft when it deployed them on flights in the DTW-PHL and DTW-BOS markets. This meant, in the short run, that the cost to Northwest of offering service in one market was not offering service in another market.

Accordingly, Spirit reasoned that the costs of aircraft used in Northwest's challenged activity were incremental *in the markets where this activity occurred*. That is, even though these costs may be fixed insofar as the airline as a corporate entity was concerned, Northwest could avoid incurring these costs in the DTW-PHL and DTW-BOS markets by using them in other markets instead.

Spirit used a similar line of reasoning to estimate and allocate the rental value of airport gates, counter space, and similar airport assets to the incremental cost category. All of these assets were fungible and could readily be switched to other flights that originated or ended in DTW, PHL, or BOS. Northwest's response to Spirit's entry in DTW-PHL and DTW-BOS involved significantly increasing its passenger capacity on those routes. Spirit reasoned that the opportunity cost of aircraft and other airport assets that were diverted from uses on other routes in order to increase capacity on DTW-PHL and DTW-BOS were incremental to Northwest's challenged activity. Northwest, by contrast, contended that these cost items were not incremental but fixed, because they were only avoidable in a longer time frame than were genuinely variable costs.

³⁷ For a discussion of how to treat aircraft and other capacity-related costs in predatory pricing analyses in the airline industry, see Kaplan (2000). Kaplan was a consultant to Spirit in this antitrust case.

TABLE 10-1
Comparison of Northwest's Revenues and Costs (\$/Passenger)

	DTW-PHL July—September 1996	DTW-PHL April—September 1996
Incremental Cost incl. Aircraft*	\$53.47–\$60.17	\$65.87–\$85.24
All Local Passengers Markets		
Incremental Revenue with \$49 Fare	\$44.29	n.a.
Incremental Revenue with \$69 Fare	\$58.31	\$61.98
Price Sensitive Local Passengers Markets		
Incremental Revenue	\$50.35	\$64.82

Source: *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 924 (2005).

* This excludes incremental facilities costs.

The period of time after Northwest expanded capacity and cut its fares in response to Spirit's entry in DTW-PHL was July to September 1996; in DTW-BOS it was April to September 1996.³⁸ Spirit's estimates of Northwest's incremental cost of passenger service in the DTW-PHL and DTW-BOS markets are reported in Table 10-1. In DTW-PHL, these costs ranged from \$53.47 to \$60.17 per passenger during the months of July, August, and September 1996.³⁹ These costs included Northwest-designated variable expenses plus aircraft expense. If other airport expenses related to increasing capacity on the route were included, Northwest's incremental costs would be higher. The corresponding monthly incremental costs in DTW-BOS during April to September 1996 ranged from \$65.87 to \$85.24.⁴⁰ These costs represented a substantial fraction of the company's average total costs in those markets during this time period. In previous litigation against American Airlines, Northwest had claimed that variable costs represented more than 95 percent of total costs.⁴¹

As shown in Table 10-1, Spirit compared Northwest's incremental costs in the DTW-PHL and DTW-BOS all-local-passenger markets with the carrier's incremental revenues in those markets. Spirit argued that the

³⁸ The fact that a predator does not react immediately to a new entrant or other competitive threat suggests that predation is a costly strategy. A rational predator will want to weigh carefully the expected consequences before incurring the costs of expanded output and below-cost pricing.

³⁹ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 940 (2005).

⁴⁰ *Ibid.*

⁴¹ *Northwest Airlines v. American Airlines*, US District Court for the Southern District of Texas, February 26, 1993.

appropriate fares to consider when calculating Northwest's incremental revenues in the all-local-passenger markets were the fares that were commonly paid by those Northwest passengers that were drawn to the carrier when it reduced fares and added capacity. In DTW-PHL, these fares were \$49 in July and part of August 1996, and \$69 in the remainder of August and September 1996. In DTW-BOS, these fares were \$69 from April through September 1996. These were not the fares that every Northwest passenger paid to fly on these routes, but most did: approximately 70 percent of DTW-PHL passengers and 75 percent of DTW-BOS passengers. Spirit reasoned that this was a sufficiently large share of the local traffic to justify assuming that Northwest's incremental capacity was added to accommodate these passengers as part of Northwest's alleged predation strategy.

Northwest's incremental revenues were less than these fares by the amount that the company paid travel agents to sell their tickets. Netting out these commissions (and making other small adjustments for minor sources of revenue linked to the number of passengers flown), Northwest's incremental revenues are shown in Table 10-1. The net revenue gained from the sale of a \$49 ticket in the DTW-PHL market was \$44.29. For a \$69 ticket in the DTW-PHL market, it was \$58.31. The net revenue gained from the sale of a \$69 ticket in the DTW-BOS market was \$61.98.

Comparing Northwest's incremental revenues and costs in the DTW-PHL market shows that incremental revenues fell short of incremental costs during the July to mid-August 1996 period when Northwest offered the \$49 ticket. Also, the incremental revenues from Northwest's \$69 ticket during mid-August through September 1996 period were less than the company's incremental costs of \$60.17 in September 1996. In DTW-BOS, Northwest's incremental revenues fell short of the company's incremental costs in every month from April to August 1996.

Spirit made a similar revenue-cost comparison for the price-sensitive local passenger markets. Because Northwest's financial and operational data did not distinguish price-sensitive from non-price-sensitive passengers (or even business versus leisure travelers), Spirit had to devise a method to identify price-sensitive passengers on the two routes so that their fares could be calculated. The conspicuously bimodal fare distributions in the two markets that are shown in Figures 10-3 and 10-4 enabled a plausible allocation of passengers to the price-sensitive and non-price-sensitive passenger categories for the pre-entry period in both markets. But during the post-entry months when Northwest was allegedly charging predatory fares, Northwest's bimodal fare structure collapsed, and many non-price-sensitive passengers took advantage of the widely available low Northwest fares.

To identify the fares that were paid by price-sensitive passengers in the two markets in the alleged predatory period, Spirit sought to identify non-price-sensitive passengers and remove the fares that they paid from the rest. Spirit identified the number of non-price-sensitive passengers in

the pre-entry period based on Northwest's bimodal fare structure in that period. Then it extrapolated that number to the alleged predatory period, making an adjustment because demand elasticity would draw more non-price-sensitive passengers into the markets in response to Northwest's low fares. Removing the high fares paid by these non-price-sensitive passengers left the fares paid by price-sensitive passengers.

Using this procedure, Spirit estimated the average fare that Northwest charged these non-price-sensitive passengers during the alleged predatory period in each market and adjusted them for commissions that were paid to travel agents as before. These values of Northwest's average net revenue per passenger are shown in Table 10-1. These revenues were \$50.35 in the DTW-PHL market during July to September 1996 and \$64.82 in the DTW-BOS market during April to September 1996. Comparing these revenues with Northwest's incremental costs shows that revenues fell short of incremental costs in both markets during the periods of alleged predatory pricing.

Spirit contended that the revenue-cost comparisons in Table 10-1 established that Northwest's pricing and capacity expansion measures were nonremunerative in the short run and created a presumption that Northwest's conduct in the two markets was predatory. Disputing the existence of a price-sensitive local passenger market, as noted earlier, Northwest maintained that Spirit's comparisons of revenues and costs for price sensitive local passengers were contrived and inappropriate for detecting whether Northwest's response to Spirit's entry was predatory.

Northwest's Analysis of Revenues and Costs

The major difference between Spirit's and Northwest's analyses stemmed from their different perspectives on market definition. Northwest did not exclude *connecting* passengers from the relevant product markets, as Spirit did. Nor did Northwest exclude those local passengers that Spirit designated as price-insensitive. Northwest's more expansive market definitions made comparing Northwest's revenues and costs significantly less complicated than Spirit's analysis.

All-passenger market definitions prompted Northwest to include "behind and beyond contributions" of the connecting passengers on the revenue side of its analysis. These were the net revenues that Northwest attributed to a given route because they were earned on other legs of connecting passengers' flights. Since each Northwest flight in and out of DTW was part of a network, the elimination of a connecting passenger on that flight would reduce the company's net revenues on other flights elsewhere in the network.

When connecting passengers were included in the product markets, together with their behind and beyond contribution to revenue, Northwest observed that it was no longer necessary to calculate average variable costs and compare them with revenue. This is because Northwest's revenue

exceeded even the carrier's fully allocated costs in the DTW-PHL and DTW-BOS markets in every month of the alleged predatory period. In fact, including connecting passengers in the product markets *without* including their behind and beyond contribution meant that revenues exceeded fully allocated costs in every relevant month but May 1996 (in DTW-BOS). In addition, setting aside behind and beyond revenues, Northwest's remaining all-passenger revenues in both markets always exceeded several incremental cost measures that Spirit relied on in its analysis.

For these reasons, Northwest maintained that the company's *entire* operations on the DTW-PHL and DTW-BOS routes remained profitable on a fully allocated cost basis throughout the alleged predatory period. Northwest also maintained that, even ignoring behind and beyond revenue, its operations were profitable on any plausible incremental cost basis. Northwest concluded that these findings showed that the company's response to Spirit's entry on these routes was profitable in the short run and therefore nonpredatory.

Recoupment

One can think of predatory pricing as being like an investment opportunity. This is because predatory pricing involves an incumbent firm's charging prices that are below otherwise prevailing prices to impose a loss on an entrant. If the predator's low prices are going to inflict a loss on an equally efficient entrant, the predator must incur a loss as well. The rational predator views this loss as an investment in a restored monopoly. The firm is willing to undertake this investment because it drives the entrant out of the market and subsequently yields an attractive return in the form of a monopoly profit during the hoped-for period of recoupment.

The insight that predatory pricing is an investment strategy is what lies behind the recoupment test.⁴² This test assesses the likelihood that the investment strategy that is implicit in the plaintiff's predatory pricing complaint would be remunerative for the defendant, based on the post-predation market conditions that the defendant anticipates. To implement the recoupment test, one must calculate the loss that the alleged predator reasonably would expect from charging prices that are low enough and that last long enough to force the entrant out of the market. Then one must gauge whether the monopoly profit that the alleged predator reasonably would expect to earn after the entrant withdraws or is beaten back is large enough and lasts long enough for the putative predator to recoup this loss.

Spirit's analysis of Northwest's fares and costs indicated that Northwest's fares were not remunerative in the short run and were unprofitable in the long run unless they served to drive Spirit from those markets, as

⁴² This perspective is more fully explained and illustrated using data from several prominent anti-trust cases in Elzinga and Mills (1989).

Spirit contended they did. Consequently, Spirit proceeded to the third and final step in the analysis: an assessment of the plausibility of Northwest's prospects for recouping the losses that were incurred in the DTW-PHL and DTW-BOS markets. Since Northwest's analysis of revenues and costs indicated that the carrier had no loss to recoup, Northwest did not offer a detailed recoupment analysis. Northwest contended that this step was not necessary to discredit Spirit's predatory claims because Northwest's revenue-cost analysis had already discredited them.

A recoupment analysis should take into account all of the alleged predator's prospective benefits and costs from an episode of predatory pricing, regardless of whether those benefits and costs occur inside the relevant product market. Spirit's implementation of the recoupment test only considered the all-local-passenger product markets in DTW-PHL and DTW-BOS. It did not offer a separate recoupment analysis for the price-sensitive local passenger markets. In Spirit's all-local-passenger markets, the main benefits and costs of the alleged predation would occur within those markets. In the price-sensitive local passenger markets, however, there may be benefits and costs that occur in adjacent markets. Spirit reasoned that the all-local-passenger markets analysis applied to the price-sensitive local passenger markets as well because it would be improper to disregard those financial implications of Northwest's alleged predation that fall outside the price-sensitive markets.

To implement the recoupment test in the DTW-PHL and DTW-BOS markets, Spirit made some assumptions about what Northwest reasonably might have expected to happen when it launched its response to Spirit's entry. These assumptions imputed to Northwest the ability to foresee what its likely future fares and passenger loads would be, whether or not Northwest launched its allegedly predatory response. Specifically, Spirit assumed that Northwest could reasonably anticipate what its fares and the number of passengers carried would be during the alleged predatory period and beyond (i.e., once Spirit exited) and that those expectations were accurate in retrospect. Similarly, Spirit assumed that Northwest could reasonably anticipate what those values would have been had it not responded as alleged. In other words, Spirit assumed that Northwest, based on its costs and the fares and passenger loads under both scenarios, could compare its anticipated loss during predation and the gain it anticipated during subsequent recoupment.

Spirit might have argued that Northwest expected that predatory pricing against Spirit in DTW-PHL and DTW-BOS would establish or strengthen Northwest's reputation for aggressive responses that would deter entrants (or capacity expansion by rivals) in other markets.⁴³ But Spirit did not explicitly impute a reputation-building motive to Northwest or base its analysis of recoupment on such prospects.

⁴³ See the earlier discussion on reputation effects.

Spirit used two approaches to estimate Northwest's otherwise prevailing fares: One (cost-based) approach estimated those fares using Northwest's fully allocated cost of service in the markets in question, and imputed the same relationship between Northwest's contemporaneous fares and costs that, on average, applied in all other DTW-based markets where conditions were similar and where there was no allegation of predation. To estimate the number of passengers that Northwest would have flown under the otherwise prevailing fares, Spirit extrapolated from actual passenger loads and fares using a range of plausible values for the price elasticity of demand for service. Northwest took issue with this approach because it relied on the relationship between Northwest's fares and costs on all of its DTW-based routes rather than just those routes that were similar in length, number of competitors, and other aspects. Northwest also contended that otherwise prevailing fares should not be projected from fully allocated costs in the first place.

The other approach that Spirit used to estimate Northwest's otherwise prevailing fares exploited the fact that Northwest and Spirit also competed with each other on flights between DTW and New York's LaGuardia Airport (LGA). This (comparable market) approach first projected Spirit's fares in the DTW-PHL and DTW-BOS markets based on Spirit's fares in DTW-PHL during the last three months of its single-flight operations (and before adding a second flight and precipitating Northwest's alleged predatory response). Northwest's otherwise prevailing fares in the markets in question were then estimated by imputing the same relationship between the two airline's fares as the one that was observed during the same time period on the DTW-LGA route.⁴⁴

Spirit used these estimates of Northwest's (actual and hypothetical) fares and passenger loads to calculate the month-to-month loss and gain that Northwest might anticipate from predatory pricing. An annual discount rate of 15 percent was used to put these gains and losses on a comparable basis.⁴⁵

On the assumption that the price elasticity of demand for service in these markets is -0.65 , Table 10-2 indicates how many months of recoupment Northwest would have required in order to break even on its investment in predatory episodes of two-to-four months in the DTW-PHL market and four-to-six months in the DTW-BOS market.⁴⁶ These numbers of

⁴⁴ Corresponding estimates of the number of passengers that Northwest would have flown under these fares were constructed in the same way as before.

⁴⁵ Ibbotson's Cost of Capital Quarterly information for the months of March, June, September, and December 1996 for the airline industry (SIC Code 4512) assigns a range of 11.68 to 12.90 percent for the industry composite weighted average cost of capital. Based on this, using 15 percent kept the analysis on the conservative side.

⁴⁶ Spirit used alternative estimates of the price elasticity of demand for service ranging from -0.3 to -1.0 . These values were taken from the testimony of a Northwest executive. See *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 924 (2005). Table 10-2 assumes that the price elasticity of demand is the mid-point of this range.

TABLE 10-2
Northwest's Months to Recoupment in DTW-BOS and DTW-PHL

Basis for Estimating Otherwise Prevailing Fares	DTW-BOS	DTW-PHL
Cost Based		
Anticipated 2 Months Predation*	n.a.	1
Anticipated 4 Months Predation*	3	2
Anticipated 6 Months Predation*	4	n.a.
Comparable Market Based		
Anticipated 2 Months Predation*	n.a.	3
Anticipated 4 Months Predation*	6	5
Anticipated 6 Months Predation*	9	n.a.

Sources: Northwest Airlines, Spirit Airlines, DB1A data.

*These estimates assume that the price elasticity of demand for service in DTW-BOS and DTW-PHL is -0.65 .

months of anticipated predatory pricing in the two markets bracket the number of months that actually passed between the onset of Northwest's low prices and Spirit's exit: three months in DTW-PHL and (almost) five months in DTW-BOS.

Based on these estimates, Spirit maintained that the entry (and reentry) barriers cited previously—especially the scarcity of gates at DTW and Northwest's dominance of existing gates—meant that once Spirit withdrew from either market, Northwest would be unlikely to face another entrant in that market for much longer than the company needed to recoup its predatory sacrifice. As a result, it was reasonable for Northwest to expect that its alleged investment in predatory pricing would pay off. Spirit bolstered this conclusion by observing that, in retrospect, no significant entry took place in DTW-BOS for many years after Spirit withdrew from the market. The only significant entry event in DTW-PHL since Spirit withdrew from the market occurred in May 1998 when Pro Air introduced service between a secondary Detroit airport and PHL. This happened 19 months after Spirit's withdrawal, which left ample time for Northwest to recoup its investment in predatory pricing before Pro Air challenged Northwest's dominance in the market.

Northwest disputed Spirit's assessment of entry (and reentry) barriers that purportedly facilitated recoupment on the two routes. Citing the Pro Air experience and Spirit's continuing operations to other cities at DTW, Northwest claimed that entry conditions in DTW-PHL and DTW-BOS would not provide the necessary shelter for Northwest to recoup alleged predatory losses. The carrier also contended that, barring evidence of collusion, competition from US Airways would prevent Northwest from

recouping alleged predatory losses in the DTW-PHL market. Northwest cited two reasons why it might expect Spirit to remain in the DTW-PHL and DW-BOS markets in spite of Northwest's response to Spirit's entry. First, Northwest reasonably might have assumed that, having entered the two markets with low fares, Spirit would remain in those markets charging those low fares. Second, if Spirit genuinely believed that Northwest's fares were nonremunerative, the entrant would remain in the two markets until Northwest raised fares to remunerative levels.

Conclusion

Ever since the Supreme Court's opinions in *Matsushita* (1986) and *Brooke Group* (1993), plaintiffs in predatory pricing cases have had a difficult time prevailing in court. The *American Airlines* case underscored that this difficulty extended to the airline industry. In *Spirit v. Northwest*, the district court's initial opinion was in the *Matsushita* and *Brooke Group* grain: Northwest won on summary judgment.⁴⁷ However on appeal, the 6th Circuit Court of Appeals found that a reasonable trier of fact could find Spirit's analysis of Northwest's conduct credible and remanded the case to the district court for a full trial.⁴⁸

Spirit v. Northwest affords a timely opportunity for courts to reconsider how the stringent *Brooke Group* approach to deciding predatory pricing cases should be applied in the airline industry. Unlike *Matsushita* and *Brooke Group*, where alleged predatory pricing episodes did not cause the demise of efficient rivals followed by higher prices, the facts in *Spirit v. Northwest* featured the exit of a viable competitor and a subsequent increase in prices. Antitrust should not stand in the way of a new cohort of efficient producers' displacing less efficient incumbents (*Matsushita*), or of incumbents introducing new products to compete with those pioneered by a rival (*Brooke Group*). Whether antitrust should stand in the way of an incumbent airline's losing money by dropping its fares to match or undercut a low-fare entrant in a market, and flooding the market with enough capacity to reduce the entrant's load factors to unsustainable levels, was the question that *Spirit v. Northwest* sought to decide.

Because airlines typically operate in many markets and because they can easily redeploy inputs from one market to another, the economic analysis required in a predatory pricing case in the airlines industry is complicated. Mastering the subtleties of airline market definition, price-cost analysis, and recoupment is a lot to ask of a trial court. In reference to *Spirit v. Northwest*, Kahn (2006, p. 174) recently wrote: "One can only hope that the jury to which the Circuit Court has consigned the case will be presented

⁴⁷ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 2003 WL 24197742 (E.D.Mich.), 2005-2 Trade Cases, ¶ 75,002 (March 31, 2003).

⁴⁸ *Spirit Airlines Inc. v. Northwest Airlines Inc.*, 431 F.3d 917, 924 (6th Cir. 2005).

with the question in plain English of which side represented preservation of the competitive process.” But Professor Kahn’s hope will not be met.

Werden (2003) concluded that the much-watched predatory pricing trial in *American* ended with a “whimper.”⁴⁹ Notwithstanding the economic analysis that was developed in the case, *Spirit v. Northwest* also ended with a whimper, but for a different reason. In 2005, the same year in which Spirit Airlines was successful before the Circuit Court of Appeals, Northwest Airlines filed for bankruptcy. Northwest was not the only major carrier to do so. During this period, Delta, United, and US Airways also were “flying bankrupt.”

During the pendency of its lawsuit with Northwest, Spirit was recapitalized under new ownership and implemented a change in its business model. Seeking injunctive relief that would have prohibited Northwest from engaging in predatory pricing was no longer critical to the viability of Spirit. To press its claims for treble damages based on Northwest’s past pricing conduct was problematic because Spirit would have to vie with other creditors for recovery in the bankruptcy proceeding. For these two reasons, Spirit elected not to pursue further action against Northwest.

In 2008, Northwest merged with Delta, forming what is now the largest airline in the world. But in the merger the Northwest name disappeared. DTW, the focal point of the *Spirit* airlines case, is now a Delta hub. Relative to Northwest, Spirit has soared. The carrier never again attempted to serve the DTW-BOS and DTW-PHL markets, but began offering service to multiple destinations in the Caribbean and Latin America, often from smaller airports (like Plattsburgh, NY, and Latrobe, PA).

Spirit bills itself as the “Ultra Low Cost Carrier of the Americas” and is known for its low ticket prices and its edgy ads. Spirit also is known for the application of marginal cost pricing. The airline has incremental charges for checked luggage, for luggage placed in the overhead bins, for the printing of boarding passes by the agent, for all of the beverages that are served during a flight, and for aisle seats relative to middle seats. As of this writing, Spirit has yet to charge for the use of the rest-room on its planes! But in antitrust circles, Spirit Airlines is best known as the plaintiff that won a victory (albeit a pyrrhic one) in a predatory pricing case against a once-dominant rival.

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⁴⁹ See also Edlin and Farrell (2004).

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