

Predatory Pricing and Strategic Theory*

Kenneth G. Elzinga
David E. Mills
Department of Economics
University of Virginia
Charlottesville, VA 22904

Elzinga at 804-9246752; kge8z@virginia.edu
Mills at 804-9243061; mills@virginia.edu
Fax: 804-9822317

* The authors would like to thank Steven Trost for research assistance and Luke Froeb, Charles J. Goetz and Sam Peltzman for comments.

INTRODUCTION

Several years before the U.S. Supreme Court's decision *Brooke Group Ltd. v Brown & Williamson Tobacco Corp*¹ established a recoupment requirement for proving predatory pricing, Franklin M. Fisher anticipated the Court's reasoning: "Whenever predatory actions are alleged, it pays to analyze how the type of predation alleged could have been successful."² In *Predatory Pricing: Strategic Theory and Legal Policy*, Patrick Bolton, Joseph F. Brodley, and Michael H. Riordan lament that "[p]laintiffs' dismal success rate" in predatory pricing cases since *Brooke Group* stems from unwarranted judicial skepticism about the plausibility of predatory pricing schemes.³ They attribute this skepticism about predation to reliance on out-of-date economic analysis and to "judicial neglect of modern strategic theories of predatory pricing."⁴ According to the authors "strategic theory" promises judicial redemption to predatory pricing plaintiffs

because it offers, “more sophisticated theories of how recoupment may be achieved consistent with rational behavior.”⁵

Bolton, Brodley, and Riordan provide a useful entry point for assessing the contribution of strategic theories to antitrust policy. However, they are overly optimistic. Although strategic theories of predatory pricing are exemplary in their coherence and rigor, their value added to antitrust policy is much more modest than the authors admit.

I. ANTITRUST AND THE THEORY OF PREDATORY PRICING

Bolton, Brodley, and Riordan distinguish theories of predatory pricing based on “modern economic analysis” from theories based on earlier economic analysis.⁶ The difference between these modes of analysis boils down to whether they incorporate applied game theory. The authors chide the courts for failing to heed modern theories of predation and continuing to rely on “earlier theory no longer generally accepted.”⁷ The authors discredit this early theory as the “static, non-strategic view of predatory pricing”⁸ and propose to remedy its deficiencies by means of strategic theory.⁹ For shorthand purposes, we will refer to the mode of economic analysis the authors discredit as “price theory” and to the analysis they advocate as “strategic theory.” -. Price theory and strategic theory are not competing theories in the ordinary sense. Economists use both of them to understand economic events and business practices, although some events and practices are better understood using one than the other.¹⁰ Both of them proceed from the twin principles of economic thinking: optimization and equilibrium.

A. OVERVIEW OF THE PRICE THEORY APPROACH TO PREDATORY PRICING

The price theory point of view about predatory pricing generally is associated with scholars in the Chicago school tradition.¹¹ Their contribution was to challenge the interpretation of several prominent price wars, which held that predatory pricing had been used successfully as a monopolizing tactic. The basis of the challenge was that legal analysis had come to rely on loose-fitting theories of predatory pricing (for example, the deep pocket theory) that were incomplete and implausible when viewed through the lens of price theory. Moreover, price theory offered alternative explanations for price wars that were not anticompetitive. The eventual acceptance by the courts of this perspective led to the view that predation occurs less frequently than was previously thought.¹²

While this development was a major advance in the application of economic analysis to an important antitrust issue, it did not go so far as to disprove the possibility of predatory pricing as a monopolizing tactic. Scholars in the Chicago school tradition did not argue that predatory pricing never happens. For instance, Robert Bork wrote, “[T] here seems to be nothing inherently impossible in the theory (of predatory pricing). The issue is the probability of the occurrence of predation and the means available for detecting it.”¹³ Frank Easterbrook stated that it “[it] is conceivable that predation could be profitable. Short-run sacrifice for later reward often is a rational way to maximize profits . . . The question, though, is whether profitable predation is probable.”¹⁴ Richard Posner concluded, “that predatory pricing cannot be dismissed as inevitably an irrational practice . . . [However, it] at most likely to delay, rather than prevent, the entry of new competitors.”¹⁵

The influence of price theory on antitrust law, with its skepticism toward predatory pricing claims, strongly affected the views of mainstream economists. Paul Milgrom and John

Roberts summarized this influence by observing that “ large fraction of the economics profession would argue that . . . predation is an irrational strategy for attempting to gain or maintain a monopoly position and that it is, therefore, unlikely to be adopted in practice.”¹⁶ However, according to Bolton, Brodley, and Riordan, developments in modern economic analysis that bring strategic considerations into play invite a reconsideration of these views.

B. STRATEGIC THEORY OF PREDATORY PRICING AND ITS ASSUMPTIONS

Strategic theory of predatory pricing is a component of the game theoretic research program that ascended within the economics profession during the years when price theory was raising judicial skepticism about predatory pricing. The contribution of strategic theory was to reformulate the discredited, loose-fitting theories of predation to see whether and when episodes of predatory pricing might be credible. Specifically, strategic theory sought to pinpoint conditions that would be sufficient for complete and internally consistent economic theories in which a firm with monopoly power may use predatory pricing to exclude rivals and expand or prolong its monopoly power.

Bolton, Brodley, and Riordan decry strategic theory’s lack of influence on antitrust. However, given the factual specificity of strategic theory and the sensitivity of its predictions to underlying assumptions, any attempt it mounts to rescue predatory pricing from the current judicial skepticism would be limited to factual situations that fit the theory’s stringent requirements.¹⁷

The foundational assumption upon which most strategic theories of predation rest is either “asymmetric information” or “asymmetric access to financial resources”.¹⁸ Informational asymmetry means the predator and the prey are differently situated with regard to information

that is critical to both firms' decision making. Differently situated, however, does not mean that each firm has private information the other lacks. Invariably, strategic theories of predatory pricing based on asymmetric information assume the predator has all the information the prey has and more. The additional information may be about production costs, demand conditions, or the predator's intentions. Similarly, financial resource asymmetry means the predator is significantly less dependent on outside financing than the prey. The essence of strategic theories of predatory pricing is to mislead other economic agents about what the future holds for the prey. The prey may be a new entrant, an aspiring entrant, or a fringe firm poised to expand. In these theories, the predator's superior informational or financial endowment underpins the firm's ability to mislead, and this ability to mislead underpins its ability to exclude the prey (or thwart its expansion).

Before the authority of a strategic theory can be invoked in a particular dispute, it must be established that the informational or financial resource conditions in the market square with the theory. Two practical considerations combine to limit the implementation of strategic theory in antitrust law. First, the standard for judging whether a strategic theory illuminates a particular low-price episode must be high because strategic theories are notably fragile: The equilibria they predict are extremely sensitive to slight variations in the models' assumptions. Second, the highly qualified assumptions about informational or financial resource considerations are not readily observable. As a practical matter, invoking strategic theory in predatory pricing litigation depends critically upon unobservables.

Even when information or financial resources are observable, strategic theories of predatory pricing often are not a good fit. These theories typically assume an extremely simple market structure. Either the predator is a monopolist and its prey is a potential entrant or the

predator is the dominant firm in a duopoly and its prey is the smaller rival. Entry (or reentry) usually is assumed away. These market structures maximize the disparity in the two firms' size and stature in the market, and to some extent rationalize the assumed asymmetry between the firms' situations. While this stylized market structure yields sufficient conditions to sustain the plausibility of predatory pricing, this plausibility does not transfer automatically to other, generally more complex market structures.

The structural settings in which price wars erupt are not limited to the canonical cases of an incumbent monopolist and an entrant or of a duopoly with a dominant firm. In fact, predatory pricing cases almost always arise in oligopoly markets where the alleged predator's position is markedly different from the incumbent monopolist of strategic theory. In some cases, as in *Matsushita*, the alleged predator is actually an entrant.¹⁹

Although strategic theory has had considerable success in isolating sufficient theoretical conditions for predatory pricing to occur, Bolton, Brodley, and Riordan's statement that "... it is now the consensus view in modern economics that predatory pricing can be a successful and fully rational business strategy"²⁰ is misleading. This statement is like saying the consensus view among modern sportswriters is that a basketball player can score sixty-five points in a single game. Scoring sixty five points has happened, and it will happen again, but the conditions that lead to so extraordinary a scoring performance are not commonplace in basketball.²¹ Similarly, predatory pricing has arises in special circumstances, but it is not a commonplace occurrence.

Strategic theory answers the question: When, as a matter of economic theory, can predatory pricing occur? The relevant question for antitrust law, however, is very different: Under market conditions actually observed, is predatory pricing the most plausible explanation

for an episode of low prices? And just as important: Are these conditions distinguishable from legitimate competition in the market? Remember: if you are hunting for a predator and mistakenly shoot a competitor, you injure consumers.

II. IMPLEMENTING STRATEGIC THEORY

Bolton, Brodley, and Riordan advocate an antitrust enforcement prescription for predatory pricing litigation that has five elements. To prove a case, the government, or a private plaintiff, must demonstrate: “(1) a facilitating market structure; (2) a scheme of predation and supporting evidence; (3) probable recoupment; (4) price below cost; and (5) absence of a business justification or efficiencies defense.”²² . Notwithstanding the authors’ enthusiasm for strategic theory, their prescription is no elixir for judicial skepticism about predation.

A. FACILITATING MARKET STRUCTURE

The conventional approach to establishing whether market structure is conducive to predation gauges three factors: The alleged predator must have a significant share of the market, barriers to entry (and reentry) must be high, and supply elasticities of existing rivals must be low. Price theory advises that if any of these three factors is absent, the market structure does not invite predation. Bolton, Brodley, and Riordan invoke strategic theory to augment the recognized class of entry barriers by conferring entry barrier status upon “the incumbent’s past reputation as a predator.”²³ They advocate presuming the existence of high entry and reentry barriers “ if the incumbent is able to significantly raise prices after the prey’s exit without inducing new entry or reentry.”²⁴

This is an ill-advised presumption. If a new firm enters an oligopoly and subsequently drops out, owing, say, to the post-entry discovery that its costs are too high for survival,²⁵ it is all but certain that prices will fall when the firm enters and rise when it retreats. This would happen even if no incumbent acts strategically. It would happen if interactions among the firms were as competitive as is reasonable to expect in an oligopoly. If entry attempts subside for a while after such an event, this does not imply that an incumbent has bolstered its reputation by behaving strategically; it may only be that prospective entrants have revised their own cost priors in light of developments. There is no basis in this scenario for presuming that an incumbent is sheltered by a strategically obtained reputation. The incumbent's reputation may be due its superior efficiency.

Even if an incumbent has engaged in strategic behavior to establish a reputation as a predator, it is not helpful to tag the reputation effect as a barrier to entry. The appropriate place to consider a reputation effect would be in the second element of Bolton, Brodley, and Riordan's prescription for proving predation.

B. A SCHEME OF PREDATION AND SUPPORTING EVIDENCE

Bolton, Bradley, and Riordan's second element –the inquiry into whether the alleged predatory scheme is plausible - is the place where strategic theory holds the most promise for predatory pricing litigation. Financial market predation and signaling theories of predation are, on the theoretical side, coherent and rigorous. But while these theories have been honed to precision, and the assumptions that underpin them have been painstakingly constructed, comparatively little thought has been given to their application in antitrust law. What would be the distinguishing marks of price wars, failed entry attempts, and other such episodes that would

best be explained by strategic predation theories? Especially, what marks would distinguish these episodes from seemingly similar episodes in which there is no anticompetitive conduct? Bolton, Brodley, and Riordan appear to invite the courts to presume, on the strength of strategic theory's internal consistency and rigor, that events adverse to an entrant or a fringe firm were touched off by a predator just as long as the facts of the case bear a fuzzy resemblance to sufficient theoretical conditions.²⁶

As an illustration, the theory of test market predation rests completely on the assumption that the incumbent firm can thwart the efforts of a new entrant to gauge the demand for its product and thereby deter entry. Bolton, Brodley, and Riordan concede that this theory is less well developed than other theories that they discuss, but they present it as their primary example of a demand-signaling strategic theory.²⁷

The theory of test market predation implicitly requires more than just experience and superior demand information by the incumbent. It implicitly requires that there are no outside channels (for example, market research, consultants, prospective customers, and so forth) are available for acquiring useful information about demand to which an entrant may resort to match the information held by the incumbent. It is not uncommon in many markets for new entrants to withdraw when they learn that demand for their product is insufficient. But that by itself should not implicate surviving incumbents in a predatory scheme. If a disparity of information were such that an incumbent could thwart one entrant via test market predation, then the incumbent could thwart all entry attempts by similarly positioned rivals. Test market predators should never face a successful entrant. This is not the entry and exit experience of most markets.

Skol was a Dutch beer that tried to enter the United States market, but failed.²⁸ Heineken, another Dutch beer, entered successfully and is now the eleventh leading brand of

beer in America.²⁹ Bitburger was a German beer that entered the U.S. market and floundered³⁰ but Beck's, another German beer, entered the U.S. market successfully. Magna Carta is a Mexican beer that entered the U.S. market and has yet to catch on; Corona, currently the tenth leading brand of beer in the United States, has been a successful Mexican entrant -- the only import to crack the top ten.³¹ These contrasting results raises the question: If some foreign entrants failed for the lack of inside information about the demand for beer in the U.S., what accounts for Heineken, Beck, and Corona's entry and survival against much larger incumbents?

The successful entrants had no better access to the marketing information at Anheuser-Busch than the failures had, and the marketing information that successful entrants utilized would have been available for the failed entrants as well. By Occam's razor, the most likely explanation for failed entry in the U.S. beer market lies elsewhere: Some potential entrants simply are more efficient (that is, lower costs or better products) than others who failed. Strategic theory should not be an excuse for confusing market failure with market discipline.

The example of test market predation Bolton, Brodley, and Riordan cite does not generate much confidence in their policy prescription. As we show in Part IV, developments in the coffee market subsequent to the Federal Trade Commission's (FTC) refusal to interrupt General Food's "test market predation" against entrant Folgers vindicate the FTC's skepticism about that interpretation of events.

The danger of invoking fragile and highly qualified predation theories without thorough factual support extends to other strategic theories. The theory of cost signaling assumes that "a predator drastically reduces price to mislead the prey into believing that the predator has lower costs, inducing the prey to exit the market."³² This theory assumes that the new entrant infers that the incumbent's costs decline because its prices decline in the aftermath of entry. What

enables one to make such an inference? One of Bolton, Brodley and Riordan's indicators is particularly problematic: "[A]n event, or series of events, known by the victim, has occurred which could have enabled the predator to significantly reduce its variable costs."³³ In other words, if there were an event that credibly insinuates a reduction in the incumbent's costs, the court should presume that the incumbent is a predator. But this is a scenario where one would not want antitrust enforcement to deter or punish price cuts lest it interfere with cost reductions being passed on to consumers.

The incumbent-knows-best assumption lies at the heart of the predatory pricing theories that Bolton, Brodley, and Riordan would thrust upon the courts. This assumption calls for explicit empirical support. It should never be merely presumed that the incumbent holds the informational upper hand. Indeed, there is a measure of hubris in the assumption, as if a new entrant could never have superior private information, never be more creative, or never be better equipped to exploit an opening than an incumbent. Yet successful entrants often discover some facet of technology or characteristic of consumer demand that incumbents overlook. Xerox did this in 1959 with its model 914 photocopier, to IBM's surprise.³⁴ In 1975, Savin surprised Xerox when it introduced its higher quality and smaller footprint line of copiers.³⁵

C. PROBABLE RECOUPMENT

The third element in Bolton, Brodley, and Riordan's five-part enforcement prescription is the legacy of *Brooke Group*. A successful predatory pricing scheme must, after discounting, pay out more during the recoupment phase than it costs the predator during the preceding low-price phase. The longer the duration of the first phase, and the greater the volume of sales during this phase, the greater must be the pay-off during recoupment.³⁶

The essentiality of recoupment for a predatory scheme is one of price theory's contributions to the legal analysis of predation. Strategic theory also acknowledges the recoupment requirement. As Bolton, Brodley, and Riordan point out, "[A]nticipated recoupment is intrinsic in [strategic] theories, because without such an expectation predatory pricing is not sensible economic behavior."³⁷ Indeed, they claim that taking cognizance of recoupment is one of the main ways strategic theory improves on earlier, discredited predation theories. Because the recoupment principle is "intrinsic" to strategic predation theory, the authors claim that the "evidentiary standard for probable recoupment should be less demanding when proof of the predatory scheme rests on a coherent strategic theory supported by evidence of market structure and conduct."³⁸ Of course, no proposed scheme of predation is credible unless it embodies a plausible means of recoupment, but this does not justify taking shortcuts in analysis. In particular, it is unwise to presume that a plausible means of recoupment exists just because facts supporting other features of a strategic theory, such as asymmetric information, are evident. Facts conducive to probable recoupment ought to be established independently.

D. PRICE BELOW COST

Bolton, Brodley, and Riordan's proposed enforcement prescription contains cost-benchmarks, although these benchmarks owe little to strategic theory.³⁹ Citing the wide influence Phillip Areeda and Donald F. Turner have had on predatory pricing litigation, the authors note that "since at least 1975, U.S. courts have uniformly followed a cost standard in evaluating predatory pricing."⁴⁰ Although there is some variation in interpretation among the circuits⁴¹, current law follows Areeda and Turner by presuming that a price below a firm's

average variable cost (AVC) is predatory and that a price above the firm's average total cost (ATC) is not predatory.⁴²

Bolton, Brodley, and Riordan favor William J. Baumol's proposed refinement of the Areeda-Turner test that substitutes the firm's average avoidable (AAC) cost for AVC.⁴³ Avoidable costs are those that could have been avoided had the firm not produced the predatory increment of output. AAC is avoidable costs divided by the predatory increment of output. AAC is a short run cost measure. Bolton, Brodley, and Riordan also advocate a substitution of long run average incremental cost (LAIC) for ATC. The LAIC benchmark "is the per unit cost of producing the predatory increment of output whenever such costs were incurred."⁴⁴ Prices below LAIC would not always be predatory in authors' enforcement agenda, but they could be depending on whether the defendant's "evidence of efficiency or legitimate business purpose"⁴⁵ is sufficient to counter the plaintiff's evidence, aided and abetted by strategic theory.

Adopting Bolton, Brodley, and Riordan's LAIC standard would be inconsistent with the generally accepted view that predatory pricing means pricing that would not be remunerative except for its exclusionary effect. The difference between LAIC and AAC consists of unavoidable (that is, sunk) costs the alleged predator incurred before the episode in question was contemplated. At the time those costs were shouldered, the firm expected to recoup them and make a profit via remunerative pricing.⁴⁶ But why should unavoidable costs have any weight in determining whether the firm's (subsequent) low prices are predatory? Prices above AAC would be remunerative regardless of whether they are exclusionary. These prices cannot be predatory by definition.

Bolton, Brodley, and Riordan endorse the LAIC standard out of concern that it would be hard to prove predation in markets with large sunk costs absent the standard. But the LAIC

benchmark creates formidable cost imputation problems and puts a weighty burden on a defendant with significant sunk costs. In high technology industries where firms spend enormous sums on research and development, the authors' proposed rule could discourage price-cutting that would be beneficial to consumers.

E. BUSINESS JUSTIFICATION AND EFFICIENCIES DEFENSE

The fifth and final element in Bolton, Brodley, and Riordan's enforcement prescription addresses the potential procompetitive effects of low prices. Their discussion of procompetitive effects is a welcome reminder that economists are not preoccupied exclusively with the strategic theory of predatory pricing. Many of the twists and turns competition takes in actual markets depend on economic phenomena that were not widely understood by economists until recently. Certainly some of these phenomena, and their implications for antitrust law, have not yet been thoroughly absorbed by the courts. But the courts do understand, correctly, that most price wars have nothing to do with predation.

Bolton, Brodley, and Riordan distinguish between defensive business justifications and market-expanding efficiencies for below-cost prices. A firm's low prices are defensive if they come in response to a rival's low prices or to adverse, exogenous shocks to costs or demand. While these provocations may warrant a firm's dropping its prices below LAIC temporarily, the authors' would never allow them to excuse prices below AAC for defensive purposes.

Market-expanding efficiencies are the benefits that accompany new entry or new product introduction, generally after an initial period of low prices. Market-expansion activities can justify prices even below AAC in some circumstances. Bolton, Brodley, and Riordan cite promotional pricing, pricing to accelerate learning-by-doing, or network effects as circumstances

in which low prices would be procompetitive. Our model of price wars triggered by entry provides another example when temporary low post-entry prices would be procompetitive: where buyers incur set-up or switching costs when they deal with new suppliers.⁴⁷ In this model, the entrant must discount its price below AAC to induce buyers to absorb set-up costs. The incumbent drops its price simultaneously to retain some of its buyers. Once the entrant has locked in its buyers, prices rise, albeit not to pre-entry levels. This procompetitive scenario exhibits plunging prices, but there is no predation.

Innocuous incidents where prices fall temporarily and then rise because of demand or cost shocks, or because of entry or new product introductions, are common in most markets. Therefore, continuing judicial skepticism about the frequency of predatory pricing is warranted given how many predatory pricing complaints turn out to be grievances against competition or shocks to the market rather than grievances against a predator.

III. AN EX POST PERSPECTIVE

A prominent theme in Bolton, Brodley, and Riordan's article is that the infrequency of judgments for plaintiffs in predatory pricing cases indicates excessive judicial skepticism about predation. The authors prescribe a strong dose of strategic theory to cure this malady. Another prominent theme is that a plausible predatory scheme supported by strategic theory and ex ante evidence should be sufficient to prove a predatory pricing case. It ought not be necessary, they argue, for a court to have ex post evidence to render a decision in favor of a plaintiff. Even so, ex post evidence never hurts. With the benefit of hindsight, it should be possible to detect the anticompetitive effects of predatory pricing incidents, if any, in markets in which false acquittals

have occurred – that is, when the courts have found in favor of defendants despite evidence of predatory pricing under the proposed strategic theories.

Below, we take a backward look at three of the most prominent episodes where the courts declined to accept a predatory explanation: *In re General Foods Corp.*,⁴⁸ the most recent opinion of the Federal Trade Commission on predatory pricing, and the two most recent predation opinions of the Supreme Court *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*⁴⁹, and *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*⁵⁰. In each of these cases the defendant was exonerated of predatory pricing charges.

Bolton, Brodley, and Riordan give more credence to the plaintiffs' charges than the courts did and attribute the plaintiffs' failure at trial to judicial skepticism and the lack of supporting strategic theory. That is, by relying exclusively on price theoretic analyses, the authors' suggest that the courts may have overlooked more subtle forms of predatory pricing. With respect to *General Foods*, they write that “[w]hile the Federal Trade Commission ultimately found the low pricing to be lawful . . . the facts nevertheless provide a useful scenario to illustrate application of our proposed approach to test market predation.”⁵¹ With respect to *Matsushita*, they comment that the Supreme Court “thought the predatory scheme was implausible . . ., even though it involved alleged agreement between the alleged predators, because of the inherent difficulties of orchestrating a coordinated predatory pricing and recoupment strategy among competing firms.”⁵² They speculate that predatory schemes based on strategic theory would be more plausible than the scheme advanced by the *Matsushita* plaintiffs. In their discussion of the Supreme Court's decision in *Brooke Group*, which focused on the implausibility of recoupment under the plaintiff's predation theory, the authors conjecture

that “under a strategic approach, counsel could have demonstrated that a reputation effect or other predatory theory, such as financial market predation, enabled probable recoupment.”⁵³

If a real predator eludes detection by the courts and sticks to a predatory scheme, then we may assess the consequences of that scheme by examining the “post-predation” structure and performance of the industry. As it turns out, in each of these prominent cases, post-predation structure and performance do not support the inference of injury to competition. Even though the FTC and the Court did not rely on strategic theory in these cases, the judicial outcomes are vindicated by ex post developments.

A. THE *GENERAL FOODS* COFFEE CASE

General Food’s Maxwell House was the leading brand of coffee in the eastern United States in the early 1970s; Procter & Gamble’s Folgers was the best selling brand in the West⁵⁴. But Folgers was not distributed in the East. When Procter & Gamble (P&G) began to market Folgers to customers in the East, General Foods (GF) adopted a number of practices to defend its business in eastern cities⁵⁵.

In 1976, the FTC investigated coffee sales in the eastern U.S. and charged GF with engaging in predatory acts to thwart the entry of Folgers in the East⁵⁶. The gravamen of the case was GF’s allegedly pricing Maxwell House below average variable cost in particular eastern regions as Folgers endeavored to establish itself there⁵⁷. The - FTC, in 1984, held that the geographic extent of the coffee market was national, not regional, and that GF’s pricing was not predatory⁵⁸. The passage of time reveals what happened after the FTC gave Maxwell House a green light in its price war with Folgers.⁵⁹ First, GF was not able to prevent its alleged prey from becoming a national brand. The Folgers’ rollout in the East was a success.

Second, national market share data show that GF was not able to parlay its pricing strategy into anything like a monopoly position for coffee. Between 1972 and 1981, GF's share of coffee sales in the United States averaged 32.8%.⁶⁰ The Maxwell House brands' share alone averaged 23.7%⁶¹. The market share of Folgers' averaged 23.1%⁶². As Table I reveals, in 1984 (the year of the FTC's decision), Folgers had 26.2% of the national sales of regular coffee; Maxwell House had 18.6%. By 1998, the last year for which estimates are available, Maxwell House had a share of market of 18.4% and Folgers had 29.3%⁶³. This is not an outcome suggesting that Maxwell House preyed its way to market dominance. In the period 1984-1998, P&G's total brand portfolio for coffee went from 26.2 to 37.4% of the nation's market⁶⁴. During this time frame, all of GF's regular coffee went from a national share of 33.8% to 31.3%.⁶⁵ The situation is similar for instant coffee. From 1984 to 1998, Maxwell House Regular declined from 22.9% to 19.2%; P&G's Folger Regular instant coffee went from 13.0% to 24.6%.⁶⁶

Third, neither GF nor P&G (nor any of the other major coffee producers) foresaw - nor would they have been able to control - the major development in the coffee market since the GF-P&G price war: the "Starbucks revolution" and the dramatic growth in specialty coffees. Consumption of regular coffee has trended downward in the 1980s and 1990s. Demand for specialty coffee, on the other hand, has been growing at over 5 percent per year.⁶⁷ Espresso bars have heightened tastes for specialty coffees that are then increasingly consumed at home. Indeed, Starbucks' revenues now exceed coffee revenues for both GF and P&G.⁶⁸

The *General Foods* coffee case has become the poster child for the game theoretic approach to analyzing episodes of alleged predation.⁶⁹ Bolton, Brodley, and Riordan use the General Foods coffee case as an illustration of test market predation.⁷⁰ Milgrom and Roberts also cite the case as an illustration of the reputation theory of predation in their seminal paper.⁷¹

But had game theoretic interpretations persuaded the FTC to restrain GF's aggressive pricing, coffee drinkers and competition would have been injured, not the other way around.

B. THE *MATSUSHITA* TELEVISION CASE

In *Matsushita*, two U.S. television producers (Zenith and Emerson) charged that several Japanese manufacturers of consumer electronic products conspired to prey upon the American television industry.⁷² The strategy alleged by the plaintiffs entailed charging monopoly prices in Japan (because of trade barriers and a home market conspiracy) and using the derivative monopoly profits to subsidize below-cost pricing in the United States. Plaintiffs claimed that in the short-run they were financially harmed and would be driven from the market; they claimed U.S. consumers would be injured in the long-run when they faced a monolith of Japanese sellers.⁷³

Because the Court refused to interrupt the defendants' aggressive pricing in the United States, it is now possible to evaluate the long-term consequence of the Japanese defendants' conduct in the U.S. television market.⁷⁴ The U.S. television industry remains remarkably unconcentrated for a mass-produced consumer durable. Table II contains share figures of U.S. color television sets for the period 1986-1998.⁷⁵ Individual market shares of the defendants in *Matsushita* remain modest indeed.

During the post-*Matsushita* period covered in Table II, the market share of Matsushita's Panasonic brand averaged less than 4%. Sony's share remained under 8% until 1996 and did not exceed 10% until 1998. Toshiba's market share grew from under 2% to just over 5%, but Hitachi's fell during this time. Sharp and Sanyo's market shares trended upward but never went above 12% collectively. Mitsubishi's never exceeded 4%. All of the *Matsushita* defendants

combined never managed to gain more than 40% of the market during the 1986-and 1998 . These firms, neither collectively - nor individually, ever gained dominance in the U.S. market.

There is no evidence that aggressive marketing of television sets by the Japanese producers excluded the plaintiff firms from the U.S. market.⁷⁶ Moreover, the real price of televisions continued to decline in the post-*Matsushita* period. From 1986 to 1999, the Consumer Price Index of televisions fell from eighty-three to fifty-five .⁷⁷ Had strategic theory been invoked by the Court in *Matsushita*, in a way that ended or reduced price-cutting by the Japanese manufacturers, competition in the U.S. television market would have been injured, not improved.

C. THE *BROOKE* GROUP CIGARETTE CASE

According to Bolton, Brodley, and Riordan, the facts in *Brooke Group*⁷⁸ illustrate the “discipline of rivals” type of exclusionary conduct⁷⁹. The defendant Brown & Williamson (B&W) was alleged to have entered the generic segment of the U.S. cigarette industry by selling generic and private label cigarettes below cost to discipline or exclude Liggett - a small producer of cigarettes, but the largest seller in this category.⁸⁰ B&W’s putative intent was to gain control of and then “dial down” the discount segment of the U.S. cigarette market in order to nudge consumers back to full-price cigarette brands. Full-price brands allegedly were sold at monopoly prices because of a tacit cartel among all the major cigarette producers (including the plaintiff Liggett).

Bolton, Brodley, and Riordan mislead readers when they claim “Brown & Williamson held prices below AVC for eighteen months, sustaining losses of millions of dollars.”⁸¹ Whether discount cigarette prices were above or below AVC was contested in *Brooke Group* at great

length. The direction of the inequality pivoted upon the technical question of costing layers of aging tobacco inventory, among other things. When all was said and done, there was no finding of below-cost pricing.⁸²

With the benefit of hindsight, it is difficult to interpret the generic cigarette price war as a predatory episode.⁸³ Certainly the incident did not catapult the alleged predator B&W into anything resembling a monopoly position in the cigarette market. As Table III indicates, B&W's market share has declined since its legal victory in 1993⁸⁴. Nor was there any exclusion in the aftermath of these events; Liggett continues to manufacture and sell cigarettes in the United States. Finally, and most significantly, the price war was not effective in curtailing the sale of discount cigarettes. During the price war, in 1985, discount cigarettes comprised 7.3% of the market⁸⁵. As Table III indicates, discount cigarette sales have constituted over 25% of the market in the years since *Brooke Group* was decided. All of the major cigarette manufacturers sell discount brands today. Both B&W and Liggett's best selling brands are discount brands. R. J. Reynolds' entry in the discount segment, Doral, has been that company's number one brand since 1996, outselling its prominent Winston, Camel and Salem brands.⁸⁶

We agree with Bolton, Brodley, and Riordan that *Brooke Group* is "the most important predatory pricing decision in modern times."⁸⁷ But unlike them, we do not think strategic theory would have illuminated the issues in the case. As in *Matsushita*, the ex post evidence vindicates the Court's *Brooke Group* decision.⁸⁸

IV. CONCLUSION

Strategic theories of predatory pricing are pristine theoretical existence proofs. Their value lies in identifying sufficient theoretical conditions for predatory pricing to arise as an

equilibrium outcome. Bolton, Brodley, and Riordan invite the antitrust community and the courts to invoke the authority of these theories prescriptively. To implement these theories in antitrust responsibly, however, requires more factual support than the authors admit. Factual support is crucial because strategic theories are so fragile. The theories the authors advocate for implementation are balanced precariously on factors that are difficult, if not impossible, for courts to observe. Bolton, Brodley, and Riordan's response to this dilemma is to counsel presumption in favor of the anticompetitive interpretations of price wars. They do not acknowledge that proving a more demanding theory calls for a more discriminating factual inquiry.

Because it is willing to presume so much, Bolton, Brodley, and Riordan's policy prescription favors false convictions over false acquittals in predatory pricing enforcement (that is, erring on the side of plaintiffs rather than defendants). Implementing their prescription will increase firms' antitrust risks and therefore will deter procompetitive price-cutting and other value-increasing behavior. Paradoxically, the firms most likely to escape the authors' antitrust net will be oligopolists who adopt a live-and-let live attitude toward their two or three rivals. These firms will never be charged with predatory pricing. An oligopolist who competes aggressively on price for customer patronage might be a candidate for antitrust action if Bolton, Brodley, and Riordan's agenda prevails. Stodgy oligopolists will be in their own safe harbor.⁸⁹

Bolton, Brodley, and Riordan begin their article with the assertion that "[p]redatory pricing poses a dilemma that has perplexed and intrigued the antitrust community for years."⁹⁰ The only real dilemma is that those who want antitrust law to assume an aggressive posture against price-cutting have been unable to assemble a theoretical and empirical case that has persuaded the antitrust community or the courts. For this consumers can be grateful.

Table 1
U.S. Regular Coffee Market Shares by Leading Brand and Company: 1984 - 1998
(Percentages)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998 (E)
Procter & Gamble															
Folger Regular	26.2	27	19.9	22.8	22.8	23	22.7	18.2	19.6	22.5	22.3	25.4	26.3	27	29.3
Total Brand Portfolio	26.2	27	28.2	31.3	31.8	32.2	32.7	31.6	31.8	32.2	32.2	34.9	34.9	34.9	37.4
General Foods															
Maxwell House Regular	18.6	18.8	18.3	18.1	16.7	16	16.3	16.3	13.6	14.3	15.2	15.8	17.2	18	18.4
Total Brand Portfolio	33.8	34.8	35.9	34.5	33	32.1	32.8	30.5	30.3	29.7	29	28.7	30.3	30.8	31.3
Nestle (3)															
Hills Brothers	7.7	7.8	7.9	7.5	7.7	7.8	8.9	9.1	8.3	7.6	7.3	6.9	5.8	5	4.8
Total Brand Portfolio	7.7	7.8	11.3	11.5	13	13.5	16	16.5	16.7	15.9	15.2	11.5	10.3	9.2	8
Chock Full O' Nuts (1) (2)															
Chock Full O' Nuts	5.8	5.4	4.6	5.1	3.4	3.4	3.4	3.4	3.3	3.2	3	3.9	4	4.1	4.2
Total Brand Portfolio	5.8	5.4	4.6	5.1	3.4	3.4	3.4	3.9	3.8	3.7	3.4	4.3	4.4	4.4	4.5
Subtotal	75.9	77.5	82.2	84.4	82.8	82.5	84.9	82.5	82.6	81.5	79.8	79.4	79.9	79.3	81.2
Others	24.1	22.5	17.8	15.6	17.2	17.5	15.1	17.5	17.4	18.5	20.2	20.6	20.1	20.7	18.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) Prior to 1990, activity for Chock Full O' Nuts was reported through Arbitron's SAMI system which tracked warehouse movement. With the merger of Arbitron and SAMI in 1990 and 1991 reflects the change from warehouse estimates to retail scanning.

(2) Chock Full O'Nuts acquired two additional brands in 1992; Cain's Coffee Company and Private Brands, Inc.

(3) In 1999, Sara Lee purchased Hills Brothers, Chase & Sanborn and MJB from Nestle as well as Chock Full O' Nuts. Nestle retained Taster's Choice and Sarks.

Source: The Maxwell House Consumer Report, Davenport & Company LLC. Data based on value of goods sold, not on weight.

Table 2
U.S. Color TV Market Shares: 1986 - 1998
(Percentages by Parent Company)

Company	Share of Market by Brand												
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Thomson (RCA/Proscan+GE)	23.8	23.0	22.2	22.2	22.3	21.5	21.0	21.3	22.3	22.5	22.9	21.6	21.4
Magnavox/Philips	5.0	5.0	6.4	7.1	8.4	8.6	9.5	10.8	12.5	13	13.3	13.2	12.4
Zenith	15.8	14.5	12.8	12.0	11.7	11.0	10.3	10.0	10.0	11	11.5	12.6	10.9
Sony	6.0	6.0	6.5	6.4	6.5	6.9	7.0	6.6	7.0	7.2	8.4	8.8	11.1
Sharp	3.2	3.9	4.4	4.8	5.0	5.2	5.5	5.5	5.5	5.5	4.6	5.1	4.8
Toshiba	1.8	2.2	3.0	3.5	4.0	4.6	4.8	4.6	4.6	4.5	4.9	5.5	5.3
Emerson	1.5	2.7	3.3	3.5	3.8	3.6	4.0	4.0	3.8	3.9	2.9	1.4	1.1
Panasonic	4.2	4.0	3.8	3.2	3.2	3.2	3.8	3.5	3.5	3.5	4	4.9	5.4
Sanyo	1.6	1.5	1.5	1.4	1.5	1.9	2.0	2.1	2.5	3.3	4.5	6.1	7.1
Mitsubishi	2.8	3.0	3.5	3.6	3.5	3.5	3.0	2.6	2.5	2.3	2.9	2.6	1.9
Samsung	1.6	1.6	1.7	1.8	1.8	2.0	2.4	2.3	2.4	2.7	3	2.4	2.9
JVC	0.5	0.6	1.0	1.0	1.5	2.0	2.0	2.0	2.0	2	1.9	2.6	3.5
LXI (Sears)	6.1	6.0	5.5	5.0	4.9	4.0	3.0	2.5	2.0	2	1.4	0.7	0.5
Goldstar	1.5	2.0	2.0	2.1	2.0	2.0	1.8	1.7	1.7	1.8	1.7	0.4	0.5
Montgomery Ward	2.5	2.5	2.5	2.5	2.4	2.0	1.9	1.7	1.7	1.7	1.2	0.8	0.5
Hitachi	3.0	2.9	2.5	2.5	2.5	2.4	1.7	1.5	1.5	1.3	1.6	1.9	1.6
Quasar	3.9	3.0	2.5	2.0	1.9	1.8	1.5	1.2	1.0	0.7	0.9	1.1	0.7
Sylvania	3.8	3.5	3.3	3.3	3.2	2.8	2.0	1.5	1.0				
Philco	1.0	1.0	1.0	0.8	0.7	0.5	0.5	0.5	0.9				
Symphonic/Funai			0.2	0.2	0.3	0.2	0.3	0.5	0.7	0.7	0.8	1.4	0.9
Daewoo	0.5	0.5	0.5	0.5	0.3	0.3	0.4	0.5	0.8	0.8	1.3	2	2.1
Fisher	0.5	0.7	0.6	0.5	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.5	0.2
KTV	0.2	0.2	0.2	0.2	0.2	0.4	0.6	0.6	0.5				
J.C. Penny			1.0	1.0	0.9	0.5	0.5	0.5	0.5				
Memorex (Realistic)					0.5	0.5	0.5	0.5	0.5				
Orion												1.7	2.2
Radio Shack					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.5
Curtis Mathes	1.0	1.0	1.0	1.0	0.9	0.8	0.5						
Others	8.2	8.8	7.4	8.2	5.6	7.2	8.6	10.7	7.8	8.6	5.2	2	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All Matsushita Defendants (1)	22.6	23.5	25.2	25.4	26.2	27.6	27.8	26.4	27.0	27.6	30.9	34.9	37.2

Source: Television Digest, Vol 32, No. 32 (Aug. 10, 1992) and Vol 34, No. 36 (Sept. 5, 1994) and Consumer Electronics Dec. 2, 1996 and Oct. 26, 1998

(1) Panasonic, Sony, Sharp, Toshiba, Hitachi, Sanyo and Mitsubishi

Table 3
 U. S. Cigarette Market Shares: 1994-1999
 (Percentages)

Producer	1994	1995	1996	1997	1998	1999
Philip Morris	44.8	46.1	47.6	48.7	49.4	49.6
RJ Reynolds	26.7	25.7	24.6	24.2	24.0	23.0
Brown & Williamson	18.7	18.0	17.2	16.0	15.0	13.4
Lorillard	7.5	8.0	8.3	8.7	9.1	10.4
Liggett	2.3	2.2	1.8	1.3	1.3	1.2
Others	na	na	0.4	1.0	1.2	2.3
Total	100.0	100.0	99.9	99.9	100.0	99.9
Discount Segment as % of Total	32.5	30.0	28.7	27.6	27.1	26.8

na = Not Available.

Source: The Maxwell Report, Fourth quarter and year-end sales estimates for the cigarette industry, 1996, 1998, 1999, and 2000. Sales are measured by quantity of cigarettes.

ENDNOTES

¹ 509 U.S. 209 (1993)

² Franklin M. Fisher, *On Predation and Victimless Crime*, 32 The Antitrust Bulletin 85, 86 (1987).

³ Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 Georgetown Law Journal (2000), p. 13., At times we refer to Bolton, Brodley and Riordan collectively as “the authors”.

⁴ *Id.*,

⁵ *Id.*, at 2263

⁶ *Id.*, at 2241

⁷ *Id.*,

⁸ *Id.*, at 2242

⁹ *Id.* at 2249

¹⁰ See Franklin M. Fisher, “Games Economists Play: a Noncooperative View,” 20 RAND Journal of Economics 113 (1989) and Carl Shapiro, “The Theory of Business Strategy,” 20 RAND Journal of Economics 125 (1989) for contrasting views about the role of game theory in industrial organization.

¹¹ The Chicago School label reflects its genesis in the work of John S. McGee and his teacher Aaron Director. See generally John S. McGee’s “Predatory Pricing Revisited,” 23 Journal of Law & Economics 289 (1980). The taproot article is John S. McGee’s “Predatory Price Cutting: The Standard Oil (N.J.) Case,” 1 Journal of Law & Economics 137 (1958).

¹² See, e.g. *Matsushita Elec. Ind. Co. v. Zenith Radio*, 475 U.S. 574, 590 (1986).

¹³ ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 145 (1978)

¹⁴ Frank H. Easterbrook “Predatory Strategies and Counterstrategies,” 48 University of Chicago Law Review 263, 268 (1981).

¹⁵ Robert A. Posner, Antitrust Law: An Economic Perspective, 186 (1976),

¹⁶ Paul Milgrom & John Roberts, “Predation, Reputation and Entry Deterrence,” 27 Journal of Economic Theory 280, 280 (1982).

¹⁷ Strategic theory has been criticized because it overlooks counterstrategies which rivals and customers

can adopt to reduce the predator's payoff. The seminal paper in this area is Easterbrook, *supra* note 14. For a recent critique of strategic theories of predation based on economic incentives faced by management, see JOHN R. LOTT, ARE PREDATORY COMMITMENT CREDIBLE? WHO SHOULD THE COURTS BELIEVE? (1999). Lott suggests that government agencies are more likely to be predators than private firms are. *Id.* at 61-73 .

¹⁸ Not all recent theories of predatory pricing assume asymmetric information or asymmetric resources. See, -e.g., Luis M. B. Cabral and Michael H. Riordan, "Learning Curve, Predation, Antitrust and Welfare," 45 Journal of Industrial Economics 155 (1997).

¹⁹ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 578 (1986)

²⁰ Bolton, Brodley & Riordan, *supra* note 3 at 2241

²¹ To be precise, there have been 20 games in NBA history in which a single player scored 65 points or more. <http://www.nba.com/history/50point_games.html>

²² Bolton, Brodley & Riordan *supra* note 3 at 2264

²³ *Id.* at 2265

²⁴ *Id.* In fact, they advocate presuming the existence of all aspects of a facilitating market structure in the incumbent significantly raises prices after the exit. *Id.*

²⁵ See generally Boyan Jovanovic, "Selection and the Evolution of Industry," 50 Econometrica 649 (1982) ; Stephen A. Lippman and Richard P. Rumelt, "Uncertain Imitability: An Analysis of Interfirm Differences in Efficiency Under Competition," 13 Bell Journal of Economics 418 (1982).

²⁶ To be sure, the authors never advocate using theory without factual support. On the contrary, they always insist that strategic theories must be factually supported to "sustain the plausibility of a predatory scheme". Bolton, Brodley & Riordan, *supra* note 3 at 2267. Our concern is that they are too eager to give the benefit of the doubt to an anticompetitive theory just because the court may not have encountered the theory previously.

²⁷ *Id.* at 2311

²⁸ Compare MODERN BREWERY AGE, MODERN BREWERY AGE BLUE BOOK 146 (42d ed. 1983) (listing Skol under "Imported Berr Brands by Country and Importer") with MODERN BREWERY AGE, MODERN BREWERY AGE BLUE BOOK 148 (43d ed 1984) (delisting Skol.)

²⁹ BEER MARKETER'S INSIGHTS, INC., 2000 BEER INDUSTRY UPDATE 116 (2000)

³⁰ Bitburger make inconsistent appearances in the annual editions of the MODERN BREWERY AGE BLUE BOOK.

³¹ 2000 Beer Marketer's INSIGHTS, INC., *supra* note 29 at 116.

³² Bolton, Brodley & Riordan *supra* note 3, at 2318

³³ *Id.* at 2330

³⁴ David T. Kearns & David A Nadler, *Prophets in the Dark* 28-36 (1992)

³⁵ *Id.* at 88-90

³⁶ Take, for example, the following numerical illustration. If a predator with a ten percent discount rate lost \$10 million for 20 years, the firm would have to make annual profits of \$57.3 million forever just to break even. Roger D. Blair et al., "An Economic Analysis of Matsushita," 36 The Antitrust Bulletin 355, 364-365 (1991). We have demonstrated elsewhere that under the contentions made by the plaintiffs in *Matsushita*, recoupment never could have taken place Kenneth G. Elzinga & David E. Mills, "Testing for Predation: Is Recoupment Feasible?" 34 The Antitrust Bulletin 869, 878 (1989).

³⁷ Bolton, Brodley & Riordan *supra* note 3 at 2267

³⁸ *Id.* at 2270

³⁹ Indeed, strategic theories of predation typically are not contingent on prices being below cost. See Paul Milgrom and John Roberts, "New Theories of Predatory Pricing," in Industrial Structure in the New Industrial Economics. 1990, 112, 133 (G. Bonnano and D. Brandolini eds.. 1990).

⁴⁰ Bolton, Brodley & Riordan *supra* note 3 at 2271

⁴¹ *Compare* Int'l Travel Arrangers v. NWA, Inc. 991 F.2d 1389 (8th Cir 1993) *with* Barry Wright Corp v. ITT Grinnell Corp. 724 F.2d 227 (1st Cir. 1983)

⁴² See 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW 242 (rev. ed 1996) ("Prices under average total cost but over average variable cost ordinarily turn out to be lawful"). There is a difference of opinion surrounding what is to be presumed when the firm's price is in between these two benchmarks. All such presumptions are subject to rebuttal at trial; their main function is to streamline litigation by assigning burdens of proof to the parties.

⁴³ See William J. Baumol, "Predation and the Logic of the Average Variable Cost Test," 39 Journal of Law & Economics 49 (1996).

⁴⁴ Bolton, Brodley & Riordan *supra* note 3 at 2272

⁴⁵ *Id.* at 2273

⁴⁶ Otherwise, we must assume that the firm is a congenital predator: every decision it ever made was predatory, beginning with its own entry. Notice that if an incumbent makes an irreversible commitment to build production capacity or to reduce its variable costs with the sole purpose of deterring a prospective entrant, that investment would be an avoidable cost in the present context.

⁴⁷ See Kenneth G. Elzinga and David E. Mills, "Price Wars Triggered by Entry," 17 International

⁴⁸ 103 F.T.C. 204 (1984).

⁴⁹ 475 U.S. 574 (1986)

⁵⁰ 509 U.S. 209 (1993)

⁵¹ Bolton, Brodley & Riordan, *supra* note 3 at 2314

⁵² *Id.* at 2267

⁵³ *Id.* at 2258

⁵⁴ *In re* General Foods Corp. 103 F.T.C. 204, 333 (1984)

⁵⁵ *Id.* at 336-37

⁵⁶ *Id.* at 332

⁵⁷ *Id.* at 340

⁵⁸ *Id.* at 332-33, 356

⁵⁹ We have argued elsewhere that GF could not have expected to recoup its losses from the alleged below-cost pricing of Maxwell House. Elzinga & Mills, *supra* note 36, at 882-89

⁶⁰ *General Foods*, 103 F.T.C. at 337-39.

⁶¹ *Id.* at 335

⁶² *Id.*

⁶³ *Id.*

⁶⁴ DAVENPORT & CO., THE MAXWELL CONSUMER REPORT: The Coffee Industry in 1998, at tbl.7 (1999). It should be noted that *The Maxwell Consumer Report* is not connected to the Maxwell House brand.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ Kalorama Academic “Coffee and Tea Market “(1996), *available* at <http://academic.market-research.com/product/display.asp?productid=137291> (last visited June 28, 2001)

⁶⁸ Kraft (now the parent company of GF) recently elected to distribute and market Starbucks coffee in

retail stores under a licensing agreement. See Starbucks Corp 1999 Annual Report 21 (2000)

⁶⁹ The reason lies partly in the promotion of the case by John C. Hilke and Philip B. Nelson, two economists associated with the case at the FTC. See generally John C. Hilke and Philip B. Nelson, *Caveat Innovator: Strategic and Structural Characteristics of New Product Introductions*, 8 J. Econ. Behav. & Org. 213 (1987); John C. Hilke and Philip B. Nelson, *Diversification and Predation*, 37 J. Indus. Econ 107 (1988); John C. Hilke and Philip B. Nelson, *Noisy Advertising and the Predation Rule in Antitrust Analysis*, 74 Am. Econ. Rev. Papers & Proc. 367 (1984); John C. Hilke and Philip B. Nelson, *Strategic Behavior and Attempted Monopolization: The Coffee (General Foods) Case*, in *The Antitrust Revolution* 208 (John E. Kwoka, Jr. & Laurence J. White, eds., 1st ed. 1989)

⁷⁰ Bolton, Brodley & Riordan *supra* note 3 at 2314-18

⁷¹ Milgrom and Roberts, *supra* note 16, at 281-82 Their use of the coffee case as an illustration of predation was based on cursory analysis. Milgrom reports that he “read about it in news reports (in the *Wall Street Journal*, I think).” Letter from Paul Milgrom to Kenneth G. Elzinga (Oct. 9, 1989)(on file with the authors.)

⁷² Zenith’s complaint referred to a “predatory invasion and seizure of the United States market.” Complaint at 17, *Zenith Radio Corp. v. Matsushita Elec. Indus. Co.* 529 F. Supp. 866 (E.D. Pa. 1981) (Not. 74-2451).. This was not the first predation case in the television industry. In the 1950s, in the early days of color television, RCA halved the price of its color sets and was sued by Philco for charging, “unreasonably low prices.” See Thomas K. McCraw, *American Business, 1920-2000: How It Worked*, 2000, 110-45 (2000), for this episode and an account of how RCA fumbled its leadership in color television production.

⁷³ For an economic analysis of the case, see Blair et al. *supra* note 36 and Kenneth G. Elzinga, “Collusive Predation: *Matsushita v. Zenith* (1986),” in *The Antitrust Revolution: Economics, Competition, and Policy* 220, 220-38 (John E. Kwoka, Jr. & Larry E. White (eds. 3d ed. 1999). For an opposing view, see David Schwartzmann, *The Japanese Television Cartel* (1993); and Rene Belderbos & Peter Holmes, *An Economic Analysis of Matsushita Revisited*, 40 *Antitrust Bull.* 825 (1995)

⁷⁴ There was ample evidence of Japanese sellers seeking additional sales, even below check-prices negotiated between the respective governments. See *Elzinga, supra* note 73 at 229-30. Indeed, the *Matsushita* defendants regularly sought to sell additional output to buyers outside their regular customer base. *Id.*

⁷⁵ *Matsushita* also pertained to black & white television sets, but by the time the case was decided, consumer preferences clearly had shifted to color sets.

⁷⁶ Zeniths’ market share remained at 10% or more, and Emerson’s grew to between 4% and 5%.

⁷⁷ Bureau of Labor Statistic, Consumer Price Index-all Urban Consumers, http://146.142.4.24/servlet/SurveyOutputServlet?output_type=default&years_option=specific_years&from_year=1986&to_year=1999&output_view=data&periods_option=all_periods&output_format=html&jr_unsessionid=100050636008485603&reformat=true (last visited July 11, 2001)

⁷⁸ 509 U.S. 209 (1993)

⁷⁹ Bolton, Brodley, & Riordan, *supra* note 3, at 2268-69

⁸⁰ For an account sympathetic to Bolton, Brodley and Riordan's view of the case, see William B. Burnett, *Predation by a Nondominant Firm: The Liggett Case*, in "The Antitrust Revolution: Economics, Competition, and Policy", *supra* note 73, at 239, 239-63. The Brooke Group Acquired Liggett in the course of the litigation.

⁸¹ Bolton, Brodley & Riordan *supra* note 3 at 2257

⁸² The District Court argued it would be "inappropriate" to apply an average variable cost test only to generic cigarettes since that segment alone was not a relevant market, *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 748 F. Supp. 344, 363 (M.D.N.C. 1990) B & W clearly had not violated the Areeda-Turner test with regard to all cigarettes, which was the relevant market in the case (stipulated to by both parties). The fourth Circuit referred to "alleged below cost pricing" in its opinion, but never concluded below-cost pricing took place. *Liggett Group Inc. v. Brown & Williamson Tobacco Corp.*, 964 F.2d 335, 339 (4th Cir. 1992). The Supreme Court said a reasonable jury might have concluded B&W engaged in below-cost pricing, but considered that question irrelevant since recoupment by B&W was implausible. *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 231-32 (1993).

⁸³ A non-predatory explanation of events is given in Elzinga & Mills, *supra* note 47, at 191-93

⁸⁴ See *infra* tble.3

⁸⁵ DAVENPORT & CO., THE MASXWELL REPORT: REVIED 1985 YEAR-END SALES ESTIMATES FOR THE CIGRETTE INDUSTRY 2 (1986).

⁸⁶ DAVENPORT & CO. THE MAXWELL REPORT: 1996 YEAR-END SALES ESTIMATES FRO THE CIGARETTE INDUSTRY (1997)

⁸⁷ Bolton, Brodley & Riordan *supra* note 3 at 2241

⁸⁸ Our argument is not that none of the price wars Bolton, Brodley & Riordan cite involved predatory pricing. For instance, we have not examined the telephone service, cable television, and airline price wars they mention. In each of these markets, entry and capacity expansion are circumscribed by regulation.

⁸⁹ The Financial Times recently announced an investigation of price-cutting by Wal-Mart in Europe. The news account reads: "An inquiry has been launched as a result of the fierce price war that has erupted in German retailing since Wal-Mart's arrival in 1997 . . ." *Walmart at Centre of prices Probe in Germany*", *Fin. Times* (London), June 28, 2000 at 19. Opposition to Wal-Mart's prices come from competitors who do not have every day low prices. There is no mention of consumers complaining to the antitrust authorities in Berlin. If Bolton, Brodley, Riordan's view of predation ever carries the day, litigation such as that against Wal-Mart will become more common and firms will learn to keep the weapon of price competition safely sheathed.

⁹⁰ Bolton, Brodley & Riordan *supra* note 3 at 2241