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TOWARD A DYNAMIC ANTITRUST ANALYSIS OF STRATEGIC MARKET BEHAVIOR

RUDOLPH J.R. PERITZ*

I. INTRODUCTION

The antitrust mandate in the United States for more than a century has been to evaluate aggressive commercial conduct and then judge its purposes and effects in order to determine whether to allow it or forbid it, whether to pronounce it competitive or predatory. But before evaluation and judgment must come understanding. And antitrust understanding of commercial purposes and effects has changed over the years. It has changed largely because antitrust economics has changed in response to new market conditions and behaviors.

Antitrust economics since passage of the Sherman Act of 1890 can be aggregated into roughly four approaches or paradigms. But each new approach has not replaced its predecessor, unlike, for example, the oxygen theory's replacement of the phlogiston paradigm of combustion. Rather, antitrust policy has adopted each new approach to market economics as a supplement to its predecessors. In consequence, modern antitrust economics has incorporated four overlapping frameworks for market analysis.

Nonetheless, the cumulative coverage of new approaches has always left gaps in the antitrust understanding of commercial conduct. It has left gaps because commercial strategies evolve over time and space. As a result, some aggressive conduct has always slipped under the radar of even the newest antitrust analysis. A good example is the Justice Department Antitrust Division's refusal to pursue litigation against Nintendo in 1989 for aggressive and highly successful strategies that were quite similar to the conduct at the core of the Antitrust Division's monopolization case against Microsoft some ten years after.¹ What happened? Lots of things,

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1. For a brief account, see ADAM M. BRANDENBURGER & BARRY J. NALEBUFF, *CO-OPERATION* 102-03, 156-57 (Doubleday 1996).

including changes in attitude at the federal enforcement agencies, informed and influenced by ten years of scholarly research and writing about innovation economics, with a focus on information industries and their characteristics, including system effects, tipping, and customer lock-in. Antitrust economics in the Antitrust Division and the Federal Trade Commission finally caught up with business strategy in markets for information goods.

My paper begins with an historical sketch of antitrust economics, which is the peculiar form of market economics that has found its way into antitrust policy. Antitrust economics is particularly odd when its tenets appear to contradict those of mainstream microeconomics, as some have persuasively argued is currently the case with the antitrust economics of predatory pricing.²

The section following the historical sketch takes a closer look at game theory or the study of strategic behavior, which has captured the business school imagination and has deeply influenced mainstream microeconomics as well, but has not yet succeeded in the market for antitrust policy.³ I investigate its promise for antitrust analysis by applying the teachings of strategic marketing theory to a well-known case. Together with innovation economics,⁴ game theory can provide a better framework for what might be called a dynamic antitrust analysis. I conclude the paper with some remarks about the antitrust implications of a dynamic approach to understanding commercial purposes and competitive effects.

II. A BRIEF HISTORY OF ANTITRUST ECONOMICS

Four approaches to market economics have influenced antitrust policy since the congressional debates. In the same year Congress passed the Sherman Act of 1890, Alfred Marshall launched the "marginalist revolution" with his *Principles of Economics*. But Marshall's market economics of marginal cost and marginal revenue did not begin to influence antitrust doctrine until some thirty years

2. See, e.g., Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239 (2000).

3. Although game theory has influenced scholarship in economics and marketing strategy for many years, it remains the subject of intense scholarly debate. See, e.g., Jacob K. Goerece & Charles A. Holt, *Ten Little Treasures of Game Theory and Ten Intuitive Contradictions*, 91 AMER. ECON. REV. 1402 (2001).

4. I leave discussion of innovation economics to another day.

later. In the intervening years, lawyers argued and judges judged within the framework of classical economics. Classical economics is not market economics as we know it, but rather, a political economy of competition founded on freedom of contract. According to this view, competition follows freedom of contract as a logical inference – the more freedom of contract, the more competition. The less freedom of contract, the less competition. Thus, the antitrust question for classicists was whether a particular practice unreasonably restrained freedom of contract. At the turn of the 20th century, the common law of trade restraints and then a comparable Sherman Act jurisprudence sought to answer that question.⁵

When the first great antitrust case reached the Supreme Court in 1896, lawyers for the Trans Missouri Freight Association insisted that their cartel was a reasonable restraint of trade.⁶ In support of their claim, they made two arguments, one which the Justices addressed and one which they did not. All nine Justices dealt with the common law argument about reasonable restraints of trade; five rejected the argument and the railroad cartel lost the case. But none of the Justices responded to an economic argument about charging reasonable prices in the face of ruinous competition. They treated it as an argument either about common law restraints or about the applicability of the Interstate Commerce Act. The cartel's economic argument about ruinous competition was founded on what we today would call high sunk costs, steady or declining marginal costs, and declining average total costs in the railroad industry. The cartel attorneys' arguments about the commercial pressures of the railroad business were informed by market studies begun some ten years earlier, even before Marshall's book. In the 1880s, members of the new American Economics Association and others were publishing articles about the cost structure of American industry and its significance. But the Court did not have the economic framework for making sense of arguments outside the classical paradigm.⁷

5. *See generally* RUDOLPH J.R. PERITZ, *COMPETITION POLICY IN AMERICA: HISTORY, RHETORIC, LAW* 156-57 (Oxford Univ. Press 2001) (hereinafter PERITZ, *COMPETITION POLICY IN AMERICA*).

6. *United States v. Trans-Missouri Freight Ass'n*, 166 U.S. 290 (1897).

7. Even when a federal judge mentioned market share, as Judge William Howard Taft did his discussion of direct and ancillary restraints, the analysis remained common

They thought of competition, within the framework of classical political economy, as a logical inference from freedom of contract.

By 1920, federal judges had begun to apply the new market economics, especially the tenet that market share reflects economic power. But their early understanding of market share was surprisingly bifurcated. That bifurcation can be illustrated by their approach to monopolies. In the *United States Steel* case, the Supreme Court treated competition and monopoly as mutually exclusive market conditions.⁸ In short, markets that included more than one firm were deemed competitive. There was nothing between the extremes. Even an eighty percent market share did not amount to monopoly power. During the decade of the 1920s, antitrust policy began to reflect a more developed sense of market economics and the Supreme Court began to recognize the importance of the market as a price mechanism — not surprising, given the emergence of the neo-classical price theory approach to market economics. In the 1940s, Justice William O. Douglas's *Socony-Vacuum* opinion for the Court declared competitive pricing the "central nervous system" of the economy.⁹ Price fixing cartels were the economy's worst affliction and, thus, antitrust's greatest sin — a view that still holds in the United States. It was only a few years later that Judge Learned Hand produced the first genuine attempt at market definition in the *ALCOA* case.¹⁰

While price theory reigned supreme in the federal courts, most market economists had already shifted their analytical framework, based largely on the work of Harvard economist Edward Chamberlin. By the late 1930s, his book, *The Theory of Monopolistic Competition* (1932), had persuaded market economists that neo-classical price theory was inadequate. It was inadequate because in two respects its assumptions were too confining to apply to the workings of most markets. Chamberlin's theory can be understood as the relaxation of two counter-factual assumptions underlying neo-classical price theory — one assumption that price is the sole motivation for market transactions and the second that markets are either monopolis-

law. See *United States v. Addyston Pipe & Steel Co.*, 85 F. 271 (6th Cir. 1898), *modified & aff'd*, 175 U.S. 211 (1899).

8. *United States v. United States Steel Corp.*, 251 U.S. 417 (1920).

9. *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 224 n.59 (1940).

10. *United States v. Aluminum Co. of Am.*, 148 F.2d 416 (2d Cir. 1945).

tic or competitive, with nothing in between. As to the first assumption, his concept of product differentiation offered a language and an analytical structure for understanding the everyday behaviors of buying and selling for reasons other than price, behaviors seen in most markets but unseen through the lens of neo-classical price theory.¹¹ Second, Chamberlin's oligopoly theory recognized that most markets were neither perfectly monopolistic nor competitive but a third species. His theory showed why market structure should be an important part of determining the full range of incentives and strategies available to firm managers. In retrospect, oligopoly theory is best understood as a primordial game theory that preceded the mathematic models of von Neumann and Morgenstern, and the later work of John Nash. Together, Chamberlin's twin theories opened approaches to understanding concentrated markets and to thinking about competition in terms other than price.

Each of Chamberlin's two post-classical theories of market economics has had an odd history in antitrust policy. I will give one example for each theory: First, an example reflecting the odd antitrust history of product differentiation and, with it, non-price competition. As early as the *Dr. Miles* case, attorneys for manufacturers had been arguing that restraints on product distribution were intended to encourage retailers to promote the manufacturer's branded products.¹² Exclusive territories and minimum retail prices were incentives for dealers to engage in non-price competition against other brands. The Supreme Court disregarded the argument, analogizing the practice instead to a dealer cartel. The Court did not comprehend the argument about intra-brand restraints to strengthen inter-brand competition because its antitrust jurisprudence was still founded on classical economics – on common law restraints, freedom of contract, and private property rights. The Court in *Dr. Miles* lacked the conceptual framework for evaluating *Dr. Miles*'s claims in terms of what we today would call intra-brand and inter-brand competition. The analysis was confined to the common law relations of classical economics.

11. It was taken up by MICHAEL E. PORTER in *COMPETITIVE STRATEGY: TECHNIQUES FOR ANALYZING INDUSTRIES AND COMPETITORS* (Free Press 1980).

12. *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

To Dr. Miles, price discounters were villains intent on misappropriating value from dealers who promoted its patent medicines. Long before Chamberlin theorized it, Dr. Miles (and other branded manufacturers) understood that effective restraints on dealer competition stopped potential price discounters from free-riding on the efforts of those dealers who promoted Dr. Miles's patent medicines over other branded products. Chamberlin's theory of product differentiation would open a conceptual doorway to understanding and evaluating such distributional restraints in a new way. Some fifty years later, the Court, in another opinion written by Justice Douglas, would acknowledge the theoretical underpinnings of inter-brand and non-price competition in the *White Motor* case.¹³ In this new light, the Douglas opinion provisionally approved White Motor's non-price restraints on its dealers as defensible strategies to strengthen dealer competition against the then-Big Three truck makers.

When neo-classical price theory returned with a vengeance to dominate antitrust policy in the mid-1970s, Chicago Schoolmen such as Robert Bork and Richard Posner insisted that antitrust policy should rest on the single value of efficiency, in particular that restraints should be judged solely by their effects on price and output. In this light, the *per se* illegality of minimum resale price maintenance seemed to make good sense. After all, orthodox price theory told us that those restraints raised prices and lowered output. But the Chicago Schoolmen found virtue in the practice. Taking instruction from Chamberlin's work, they argued that manufacturers should be permitted to restrain their dealers' pricing practices as part of strategies to compete against other manufacturers. These strategies benefitted consumers, according to the new Chicago Schoolmen, because manufacturers set resale prices only high enough to allow dealers to spend on promotional efforts at the levels that manufacturers wanted.

But there were a number of indefensible assumptions underlying this approach, each one of them affecting their conclusions about the effects on price and output. One of the assumptions ignores what economist Robert Steiner has termed the dual-stage na-

13. *White Motor Co. v. United States*, 372 U.S. 253 (1963).

ture of consumer goods industries in actual markets.¹⁴ The Chicago Schoolmen have taken a single-stage approach, which simply assumes that downstream markets are perfectly competitive. In consequence, they have ignored the motivation behind the manufacturer's logic of vertical restraints, the very purpose articulated by Dr. Miles almost a century ago. In short, the importance of promotional efforts by retailers calls for better margins for retailers as incentives to promote. At the same time, manufacturers want to minimize retail margins in order to maximize their own. Thus, manufacturers and retailers compete against one another for each marginal dollar. To complicate matters even more, there is also a significant incentive for cooperation — the prospect of increasing total marginal dollars to be divided. Taking seriously the market realities of distribution, antitrust policy makers can no longer hold to the Chicago Schoolmen's presumptive conclusion that vertical restraints improve consumer welfare.

As I suggest later in the paper, the game theory strategies currently taught in business schools and practiced in the marketplace can provide a useful framework for coming to grips with this mixture of horizontal and vertical competition and cooperation. Moreover, Harvard Business School economist Michael Porter and other business strategists have written for many years that price competition is a second best alternative to differentiating products and adding value — and then only for those who are lowest cost producers willing to invest in aggressive strategies to acquire and maintain such a reputation.

The second half of Chamberlin's post-classical framework, oligopoly theory, has also had an uneven journey through the corridors of antitrust policy. In 1935, the Justice Department persuaded a federal trial court judge that members of the Sugar Institute, an industry trade association, were using advance announcements of new price lists as signaling devices to coordinate pricing. The court found that rounds of announcements and reactions allowed them to measure the responses of rivals to price increases, much as Edward Chamberlin described in his theory. The court determined

14. See, e.g., Robert L. Steiner, *The Third Relevant Market*, 45 ANTITRUST BULL. 1719 (2000); Robert L. Steiner, *How Manufacturers Deal with the Price-Cutting Retailer: When Are Vertical Restraints Efficient?*, 65 ANTITRUST L.J. 407 (1997).

that the course of conduct reflected a tacit agreement to fix prices in violation of the Sherman Act. The Supreme Court reversed, stating that the conduct was information exchange, which only enhances price competition. Who was right? The answer depends in significant part on the questioner's analytical framework. Within neo-classical price theory, the Supreme Court was right in assuming that each firm would use the information to make independent pricing decisions. In this light, there was no basis for inferring an agreement. But within oligopoly theory and its logic of coordination, the trial court was right in its inference of collusive purposes and anticompetitive effects.¹⁵

The influence of oligopoly theory grew after the Second World War, in step with congressional concerns expressed in the Celler-Kefauver amendment to the Clayton Act's merger provision in 1950, concerns about increasing industrial concentration. The Supreme Court's subsequent merger jurisprudence would carry forward those policies. Today, the increased likelihood of tacit collusion in more concentrated markets continues to supply the primary theoretical foundation for the current federal merger guidelines.

By the 1960s, it was a caricature of Chamberlin's oligopoly theory, together with its connection to a special solicitude toward small business long expressed in antitrust discourse, that provided a springboard for the Chicago School's revival of price theory, which would emerge to dominate antitrust jurisprudence during the Reagan presidency.

In the mid-1970s, then-Chicago law professor Richard Posner attacked oligopoly theory, more particularly the structuralist version portrayed by Harvard law professor Donald Turner in his influential article about the nature of agreement under the Sherman Act § 1.¹⁶ Turner argued that consciously parallel conduct such as the signaling in the old *Sugar Institute* case should not be an anti-trust violation because the defendants were acting as economically rational oligopolists. That is, it made no sense for firms in oligop-

15. *Sugar Institute v. United States*, 297 U.S. 553 (1936), *modifying & reversing*, 15 F. Supp. 817 (S.D.N.Y. 1934).

16. Donald F. Turner, *The Definition of Agreement under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655 (1962).

oly markets to compete on price because a lower price by one firm would immediately be recognized and matched by the others. Market prices would fall and everyone would be worse off. An injunction against this economically rational behavior made no sense. The only sensible solution, according to Turner, was to deconcentrate the industry, to change the structure and, with it, the economic logic. In his view, however, the antitrust laws were not intended to restructure concentrated industries.

Posner attacked Turner's structural logic, insisting that there remained the same natural incentives to compete on price, regardless of market structure, unless there was a "tacit agreement" not to compete. Posner then offered an unmanageable twenty-one factor analysis to determine the existence of such an agreement.¹⁷ But both Turner and Posner got it wrong. Turner got it wrong because Chamberlin never posited a structural logic, asserting instead the importance of gauging reactions to strategic choices in concentrated markets. Sometimes price competition would make sense. Sometimes it would not. The answer was not a matter of structural logic but one of strategic choices based on expectations informed by experience. Market structure is important but it is not controlling. Posner got it wrong because the incentives to compete on price were indeed different in concentrated industries and implied agreements do not require a twenty-one factor analysis to prove them. The answer is not a matter of some natural urge to compete but a factual question of oligopolists' expectations informed by experience. Hence, for example, the signaling behavior of Sugar Institute members. Moreover, just like concentrated markets, trade associations, computerized airline reservation systems, and B2B websites can facilitate information exchange and, in consequence, decrease the costs of coordination, thereby improving conditions for anti-competitively parallel conduct. Still, of the two stories, Posner's was not only more appealing but more consistent with actual markets. After all, there was price competition in some concentrated markets. Nonetheless, Posner's failure lay, first, in the unjustified assumption of an overpowering natural urge to compete and, second, in the unmanageably large array of factors whose adoption

17. See, e.g., RICHARD A. POSNER & FRANK H. EASTERBROOK, *ANTITRUST: CASES, ECONOMIC NOTES AND OTHER MATERIALS* 336-40 (2d ed. 1981).

as a methodology would amount to de facto legality of strategic coordination.¹⁸

Oligopoly theory also became the economic language for the Supreme Court's special solicitude toward small businesses, most often associated with its merger jurisprudence of the 1960s and 1970s. The jurisprudence followed the 1950 Celler-Kefauver amendment to the Clayton Act's merger provision, which was intended to nip in its incipiency the perceived growth of industrial concentration. This impulse toward Jeffersonian entrepreneurialism was attacked by price theorists, particularly Robert Bork and Richard Posner, as anti-efficiency and, thus, as against the greater public good. By the late 1970s, the rhetoric of efficiency and consumer welfare (a technical term misunderstood by many to refer to Ralph Nader's consumerism) had convinced the Supreme Court, newly staffed with Nixon appointees, that oligopoly theory and its Jeffersonian sentiments were bad economics and, thus, bad public policy. A few years later, the Carter and Reagan Administrations would embark on deregulation programs intended to allow businesses to cut costs and compete more freely. Price theory was seen as the best way to produce a less intrusive antitrust policy that would encourage firms to increase output, reduce costs, and lower prices. Reagan appointees to the federal agencies and federal bench were largely adherents to the neo-classical price theory renaissance. In consequence, agency enforcement policies and court opinions typically evaluated market strategies by examining commercial purposes and effects through the rather narrow lens of price and output. Neo-classical price theorists called upon antitrust policy makers to think more narrowly and, thus, more pointedly about competitive purposes and consequences.

But competition has long been understood as involving more than price competition. Certainly Alfred Marshall recognized it

18. The doctrine of interdependent conscious parallelism can be seen as reflecting a more nuanced view that is consistent with the tenor of Chamberlin's theory of oligopoly. For an example of its potential, albeit in other circumstances, see *Todd v. Exxon Corp.*, 275 F.3d 191 (2d Cir. 2001). I discuss a strategic marketing approach to interdependent conscious parallelism in Section III. Moreover, there is an entirely different, non-cooperative theory of oligopoly behavior, based on the so-called residual demand analysis of Augustin Cournot first developed in the mid-19th Century. See generally Carl Shapiro, *Theories of Oligopoly Behavior*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 329 (Richard Schmalensee & Robert D. Willig, eds. 1989).

and Edward Chamberlin conceptualized it. Furthermore, since the early 20th century, Austrian economist Joseph Schumpeter had been arguing that the static economics of price competition missed the larger point. By the 1960s, his view would gain some notoriety.¹⁹ It was dynamic competition by innovation, he insisted, that truly improved social welfare. It was “perennial gales of creative destruction” that uprooted monopoly and improved society. Industrial organization economists were particularly interested in testing Schumpeter’s subsidiary claim that innovation called for large, dominant firms which were not at risk from the day to day pressures felt by firms in competitive markets. In his view, large, dominant firms were better situated to invest in research and development for the longer haul. The research, I might mention, has been inconclusive.²⁰ Nonetheless, it is Schumpeter’s view that dominates antitrust economics even though there is something to be said for competing views of innovation. I reserve discussion of innovation economics in antitrust to another day.²¹

II. GAME THEORY AND BUSINESS STRATEGY TEACHINGS

Attempts to understand, model, and evaluate strategic behavior are not entirely new to antitrust policy or to market economics. As mentioned earlier, Edward Chamberlin’s oligopoly model, rightly understood, is not a structuralist logic of causation but a dynamic approach to modeling strategic marketing in concentrated markets with fungible products. Unfortunately, the overlay of static price theory has obscured the strategic kernel of Chamberlin’s ap-

19. In the most influential antitrust policy book of its time, CARL KAYSER & DONALD TURNER’S, *ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS* (Harv. Univ. Press 1959) included progressiveness, a measure of innovation, as an important factor in evaluating the quality of competition.

20. For sources compiling empirical research about the relationship between firm size and innovation, and industry concentration and innovation, see Rudolph J.R. Peritz, *Essay: Some Realism about Economic Power in a Time of Sectorial Change*, 60 *ANTITRUST L.J.* 247, 264 n.55 (1997).

21. See Rudolph J.R. Peritz, *Discussion Paper for the American Antitrust Institute’s Network Access Project Workshop: Tipping and Related Market Dynamics*, Discussion Paper Presented at the American Antitrust Institute’s Network Access Project Workshop presented at Northeastern University, Department of Economics, Boston, MA, 17 (May 17, 2002) (on file with author); see generally Rudolph J.R. Peritz, *Annotated Bibliography for Dynamic Antitrust Analysis*, available at <http://www.antitrustinstitute.org> (last modified June 2002).

proach, which requires a temporal dimension. A temporal dimension is required to comprehend Chamberlin's view that oligopolists' mutual trust and the resulting interdependence are the products of experience and, thus, take time to develop.²²

The unsatisfying implication for antitrust, of course, is that stable markets, especially oligopolies, are likely to produce cooperating firms who act in their common interests and seek to avoid price competition. The prediction is familiar to students of antitrust but the analysis is not. Game theory, in its broadest sense, calls for a particular state of mind, an approach to transactions founded on the fundamental importance of predicting and seeking to shape the other parties' reactions to one's actions. A game theoretic approach apparently dominates marketing and management scholarship, and suffuses mainstream microeconomics, both inside and outside the academy. But in antitrust economics, it is barely visible.²³

How might a game theoretic approach improve antitrust analysis? How might it extend antitrust economics to commercial conduct whose purposes and effects are not well understood? An example would be useful in considering these questions. For example, look at the *Kodak* case, which opened antitrust economics to the ideas of customer lock-in and switching costs.²⁴ The claims arose out of Kodak's refusal to supply patented replacement parts

22. Even attempts to apply the prisoner's dilemma game to antitrust or to law more generally have failed for much the same reason. These attempts, seen in law reviews and casebooks, have typically shaped the dilemma as a single, ultimatum game—that is, a game in which two prisoners cannot communicate at all with one another and only once with their captors. Adding a temporal dimension would allow for communication and negotiation, as well as the possibility of iterative games. Not only would that approach resemble actual markets more closely. It would also change the expected equilibrium points. Studies of iterative games, beginning with Robert Axelrod's influential work, clearly show that the cooperation equilibrium with tit-for-tat enforcement strategies prevails, not the single-game equilibrium of distrustful individuals with zero-sum mentalities competing against one another. In short, repeated games tend to produce cooperation and retaliation to encourage group solidarity consistent with Chamberlin's oligopoly model. ROBERT AXELROD, *THE EVOLUTION OF COOPERATION* (1984).

23. See, e.g., Patrick Bolton, et al., *supra* note 2.

24. *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451 (1992); see Rudolph J.R. Peritz, *Theory and Fact in Antitrust Doctrine: Summary Judgment Standards, Single-Brand Aftermarkets and the Clash of Microeconomic Models*, 45 ANTITRUST BULL. 887 (2000).

to independent service providers. Kodak announced a new policy that it would sell parts only in conjunction with its own repair services. The Supreme Court determined that plaintiffs stated a cause of action for monopolization of an aftermarket for Kodak replacement parts, including a plausible claim that Kodak had monopoly power in such a market, even though Kodak had less than twenty percent of the market for photocopiers.

Kodak has been roundly criticized and honored more in the breach than in the observance. Most federal courts have limited its doctrine because judges do not understand the likelihood of harm to consumers that can result from aftermarket strategies. In particular, most federal courts have limited the *Kodak* decision to refusals to sell which change prior policy, changes that harm locked-in customers. For example, in a case involving a similar refusal to deal, the Federal Circuit Court of Appeals found no potential antitrust violation when Xerox refused to sell replacement parts for its copiers to independent service organizations, parts that it had never sold except in conjunction with its own repair services.²⁵ Thus, the court reasoned, there was no harm to locked-in customers and new customers could decide for themselves about Xerox's aftermarket policies.

How might game theory illuminate Kodak's and Xerox's strategic practices and their potential for harm to both consumers and competitors in aftermarkets? First, one can examine aftermarket practices within the context of two influential trade books that have popularized game theoretical strategies for managers. One is longer and more earnest in tone than the other, but both are quite serious-minded about the value of game theory for business decision-makers. And both have enjoyed not only great praise but great success. The first is *Co-opetition* (1996), a glib yet useful book by Harvard Business School's Adam Brandenburger and Yale School of Management's Barry Nalebuff.²⁶ The second is *Information Rules* (1999), a more sedulous guide to the network economy written by Carl Shapiro and Hal Varian, both of whom have joint appoint-

25. *In re Independent Service Orgs. Antitrust Litigation*, 203 F.3d 1322 (Fed. Cir. 2000); see Robert Pitofsky, *Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy*, 16 BERKELEY TECH. L.J. 535 (2001).

26. ADAM M. BRANDENBURGER & BARRY J. NALEBUFF, *supra* note 1.

ments in UC Berkeley's economics department and business school.²⁷

In *Kodak*, the Court recognized the oligopoly structure of the retail market for copiers. Kodak, Xerox, and IBM together had almost 100% of the market. Oligopoly theory tells us that pricing coordination is likely in concentrated markets. But even in less concentrated markets, "bidding for customers" makes little sense. Why? Because, according to the authors of *Co-opetition*, there are eight hidden costs to price competition. Here are two of them: First, the other firm might retaliate. In other words, price competition might break out. Second, win or lose, lowering price sets a bad precedent. Other customers will want the same lower price.²⁸ In short, the author's counsel, don't compete on price. If each loss of revenue in price competition is seen as an investment, there are better things to do with time and money. For starters, lost revenues are akin to sunk costs. Second, it is a zero-sum game. That is, among price competitors, there are always both winners and losers. Thus, price competition is the worst kind of imitative behavior.

Did price competition break out in the copier market under scrutiny? And if so, did the competition discipline conduct in aftermarkets? Or did Kodak, Xerox, and IBM try to avoid price competition like the plague? Marketing strategy inspired by game theory suggests the latter.

In sharp contrast, various tactics present the possibility of positive-sum games in which Kodak and Xerox and IBM could all be better off. *Co-opetition* advises: "Lowering your competitor's profits isn't necessarily smart. . . . If you lower your rival's profits, he then has less to lose and every reason to become more aggressive. . . . In contrast, the more money your rival is making, the more he has to lose from getting into a price war."²⁹ What is smart strategy? *Co-opetition* gives numerous examples of marketing strategies that invite "good" imitation rather than the "bad" imitation of price competition. One is the airline frequent flyer and credit card programs to develop a base of loyal customers. Another is meeting-competi-

27. CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY (1999).

28. BRANDENBURG & NALEBUFF, *supra* note 1, at 86.

29. *Id.* at 88.

tion clauses. According to *Co-opetition*, the presence of such clauses actually lowers the pressure to cut prices and, if adopted industry wide, prices tend to rise. The Court in *Kodak* observed a similar dynamic of imitation: "To inform consumers about Kodak, the competitor must be willing to forgo the opportunity to reap supracompetitive prices in its own service and parts markets. . . . Thus, in an equipment market with relatively few sellers, competitors may find it more profitable to adopt Kodak's service and parts policy than to inform consumers."³⁰ Clearly, these tactics do not depend on Kodak's lock-in. Rather, they depend on "good" imitation of Kodak's practices. In the end, the *Kodak* and *Xerox* cases, taken together, look more like interdependent conscious parallelism under the Sherman Act § 1 than separate monopolization offenses under § 2.

In fact, the *Kodak* Court's reference to interdependence was extended beyond oligopoly markets: "Even in a market with many sellers, any one competitor may not have sufficient incentive to inform consumers. . . ."³¹ We all recognize that aftermarket strategies are adopted in the sale of complementary products from razors and razor blades to computer printers and printer cartridges. From Microsoft Windows and Internet Explorer to peanut butter and jelly. Customer lock-in has become an art form. *Information Rules* devotes two lengthy chapters to recognizing and managing lock-in. "Recognizing" is a euphemism for creating lock-in. Certainly informational asymmetry and switching costs can lock in customers and allow sellers to charge high prices for complementary products and services. But effective lock-in does not require high switching costs or expensive information. Shapiro and Varian's *Information Rules* maintains that "[e]ven small switching costs can be critical . . .".³² Inconvenience may be enough. Habit and familiarity may deter change. Simply the disruption of replacing a firm's Kodak copiers and familiarizing personnel with the new touch and feel of a Xerox or IBM machine might have an effect much greater than the differences would seem to merit. Trade relations can produce customer loyalty and switching costs. Outside the strategic marketing litera-

30. *Image Technical Services, Inc.*, 504 U.S. at 474 n.21.

31. *Id.*

32. SHAPIRO & VARIAN, *supra* note 27, at 116.

ture, however, analysts tend to assume that there is a smooth positive correlation between switching costs and lock-in—the lower the costs, the weaker the lock-in. In the *Kodak* and *Xerox* cases: if the copier market exhibited strategic behaviors such as price leadership, meeting competition clauses, most favored customer clauses, lease incentives to renew, or exaggerated differences in copier touch and feel, together with a common set of after-market strategies to charge high aftermarket prices for repair and replacement, then “good” imitation was likely the industry norm. And interdependent conscious parallelism under the Sherman Act § 1 was an appropriate cause of action.

In sum, strategic analysis inspired by game theory and, thus, understood in those terms provides a new framework for antitrust that seems obvious once it is understood. This new framework does not even require new antitrust doctrine. Rather, the well-known Sherman Act § 1 doctrine of interdependent conscious parallelism,³³ the antitrust analogue to contracts implied in fact, would have been a better fit than Sherman Act § 2 monopolization. But neither plaintiff’s attorneys nor federal courts have understood *Kodak* and *Xerox* in those terms because the marketing strategies fall outside the economic frameworks that currently make up antitrust economics despite the *Kodak* opinion’s apparent references to strategic conduct. Customer lock-in, refusals to sell to independent service providers, and other aftermarket marketing conduct are still understood as single-firm strategies that are either examples of monopolization or conduct subject to competition. Industry-wide positive-sum strategies of imitation are not well understood unless they look like old-fashioned horizontal agreements.

The Court’s opinion in *Kodak* was informed by a new market economics that recognizes the anti-competitive dangers of customer lock-in and information asymmetry. Adding a few additional insights from the strategic marketing literature enhanced our understanding of likely purposes and effects that otherwise elude antitrust scrutiny. That understanding opened the market analysis to a new view of the multi-firm doctrine of interdependent conscious parallelism.

33. See, e.g., *Theatre Enters., Inc. v. Paramount Film Distrib. Corp.*, 346 U.S. 537 (1954); *Interstate Circuit v. United States*, 306 U.S. 208 (1939).

III. CONCLUDING REMARKS

Now that we have a slightly but significantly different understanding of *Kodak* and *Xerox*, we can turn to the remaining question of whether that understanding should have antitrust consequences. Should heightened understanding of imitation-seeking strategies in both the retail and after markets lead to greater antitrust liability? That is a difficult question whose full treatment requires the close attention that I must leave to another day.

For now, I offer two modest proposals. First, the industry-wide "good" imitation that business strategists counsel increases the anti-competitive dangers of concentrated industries, where monitoring is easier and, thus, the collective action problem declines. At the same time, the conduct is more difficult to fit into the Sherman Act category of "contract, combination. . . or conspiracy, in restraint of trade. . .".³⁴ It is more difficult, not in theory, but in practice because most federal courts since the 1980s have been loathe to find antitrust liability when proof of agreement is entirely circumstantial.³⁵ Some of those cases were litigated under the FTC Act § 5, the provision that empowers the Commission to enjoin "unfair methods of competition."³⁶ At the very least, it is time to revisit the boundaries of the FTC Act § 5 and reconsider its application to practices that fall outside the Sherman Act as currently conceived, especially to conduct that suggests interdependent conscious parallelism. Indeed, that broader reach is precisely what Congress intended for the FTC Act and its amendments. The intention is reflected in the remedial structure of the FTC Act: Firms are subject only to cease and desist orders, and there is no private cause of action under the statute.³⁷ In stronger cases, including, in my view,

34. Sherman Act, 15 U.S.C. § 1 (2000).

35. *But see Todd*, 275 F.3d 191, in which the Second Circuit found that plaintiff stated a cause of action under Sherman Act § 1 by pleading that an agreement to exchange price information only among defendants was a facilitating device to set prices and, thus, itself an unreasonable restraint of trade.

36. The Federal Trade Commission Act § 5, 15 U.S.C. § 45 (2000) (hereinafter FTC Act).

37. *See also* legislative history of Wheeler-Lea Act of 1938 amendment to FTC Act, discussed in PERITZ, *COMPETITION POLICY IN AMERICA* 156-57. Recently, the FTC has sought disgorgement of profits in a small number of cases. In such cases, the standard should be the more limited one for Sherman Act § 1. Most notably the FTC went beyond its usual practice of seeking only cease-and-desist orders in its investigation of a

Kodak and *Xerox*, Sherman Act § 1 liability and damages are appropriate.

My second proposal calls for stricter enforcement of Clayton Act § 7 and the Horizontal Merger Guidelines ("Guidelines"), both of which stem from concerns about increasing market concentration. Even if the kinds of practices mentioned are not themselves subject to antitrust prohibition, they typically harm consumers. Like oligopoly structure, the effects are frequently undesirable even when they do not carry antitrust liability. After all, the purpose of the merger provision is to control market concentration by acquisition.³⁸ Joint venture analysis also merits increased scrutiny, whether under the merger rubric or the enforcement agencies' guidelines for collaboration among competitors. In particular, greater attention should be paid to the potential for customer lock-in and strong brand differentiation, inelasticity of demand in undifferentiated product markets, and pervasive consciously parallel conduct, even when market concentration does not reach the levels drawn in the landmark *Philadelphia National Bank* case³⁹ or the danger zones in the Guidelines' Herfindahl-Hirschman Index.⁴⁰

These modest proposals, if adopted, would allow policy makers to investigate commercial strategies that are not well understood and whose competitive effects are unclear, although their purposes seem clear enough. At the very least, antitrust enforcers and policy makers should begin to take seriously the large body of work that influences the ways that business management is both taught and practiced. Only then can they make better sense of the purposes and effects of strategic marketing and management conduct.

conspiracy among pharmaceutical manufacturers. As part of its request for equitable relief under FTC Act § 13(b), the FTC sought "disgorgement of ill-gotten profits." In July 2000, the FTC announced that Mylan Laboratories agreed to pay almost \$150 million to settle the price-fixing case. Press Release, *Federal Trade Commission, FTC Reaches Record Financial Settlement to Settle Charges of Price-fixing in Generic Drug Market* (Nov. 29, 2000), available at <http://www.ftc.gov/opa/2000/11/mylanfin.htm>. FTC Act § 13(b) requires a serious violation of the antitrust laws, a substantial injury, and an ability to identify and return a substantial amount of the funds to injured consumers.

38. For discussion of the Celler-Kefauver Amendment of 1950 as a compromise on the question of industrial concentration, see PERITZ, *supra* note 5, at 195-99.

39. *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321 (1963).

40. For an example, see Judge Posner's opinion in *Hospital Corp. of America v. FTC*, 807 F.2d 1381 (7th Cir. 1986), *cert. denied*, 481 U.S. 1038 (1987).