

## IMPROVING THE ECONOMIC FOUNDATIONS OF COMPETITION POLICY

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I am delighted to speak at a symposium dedicated to my teacher, mentor, and colleague, Jim Liebler. Every day I spend at the Federal Trade Commission is another step on a career path Jim opened for me thirty years ago. Antitrust anchored Jim's professional life, and he would have been proud to be celebrated by this gathering. Thank you for allowing me to honor him.

Today, I will address a subject that often occupied Jim Liebler's formidable intellect: How can we improve the economic foundations of competition policy? Finding good answers to this question is vital to the success of antitrust enforcement. More than any other body of U.S. law, economics plays a central role in guiding courts and enforcement agencies about the proper design and application of legal rules.<sup>1</sup> If the economic foundations of antitrust analysis are infirm, competition law topples.

Policy discourse no longer focuses on *whether* economics should guide antitrust policy; that debate was settled long ago. The pressing question today is *how*. Which theories from the vast, diverse body of industrial organization economics should courts and enforcement agencies use to address antitrust problems? What hypotheses best explain business behavior in an increasingly complex and fast-changing business environment? How are economic ideas to be translated into operational rules?

In discussing how we can improve the economic foundations of antitrust, I will first identify several normative propositions about integrating economic ideas into antitrust policy. Part I, thus, focuses on the importance of regularly reassessing the economic assumptions of current policy, of distilling economic insights into workable rules and analytical techniques, and of doing empirical research to test the economic effects of judicial decisions and public enforcement activities.

Part II of the paper discusses the application to antitrust analysis of the New Institutional Economics ("NIE"). For antitrust, NIE teaches that the nature of industry organization (e.g., the type and extent of vertical rela-

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<sup>1</sup> See William E. Kovacic, *The Influence of Economics on Antitrust Law*, 30 ECON. INQUIRY 294, 295-96 (1992) (describing features of the U.S. competition policy system that gives economists a major role in shaping antitrust rules).

tionships and the level of horizontal concentration) and of competition in a specific industry are not a black box to be analyzed only through the lens of industry structure and market power-based theories. A broader set of tools and presumptions is required to enforce the antitrust laws in the public interest. One of my messages today is that antitrust analysis, if done correctly, uses the NIE approach—that is, a careful, fact-based economic analysis grounded in a thorough understanding of the relevant institutions. Especially through its emphasis on transaction costs, NIE is a most promising strand of economic research, both for its theoretical elegance and for its ability to explain real-world phenomena.

Part III identifies issues for future research that could benefit antitrust policy, enforcement, and litigation. This section also highlights what the FTC, with one of the world's largest teams of industrial organization economists, is doing to advance empirical knowledge.

To provide some context for my remarks, let me acknowledge an intellectual debt. The origins of this talk reach back to the early 1970s when I enrolled at UCLA. There, I not only studied under Jim Liebler but also began a lasting acquaintance with Armen Alchian, Harold Demsetz, and Ben Klein—all luminaries in UCLA's remarkable constellation of industrial organization economists.<sup>2</sup> As you will see, the echoes of their ideas have carried from Westwood to Washington.

#### I. INTEGRATING ECONOMICS INTO ANTITRUST POLICY: THREE NORMATIVE PROPOSITIONS

At UCLA, and during my professional life, I have learned three basic propositions about integrating economics into antitrust law that have deeply influenced my views about formulating competition policy:

\* *Reassessment*. Antitrust agencies should engage in continuing efforts to assess the validity of existing hypotheses about the economic impact of business conduct in light of new developments in economic theory and the business environment.

\* *Administrability*. The suitability of an economic hypothesis for shaping antitrust doctrine should be measured by whether the hy-

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<sup>2</sup> Since leaving UCLA, I have enjoyed many opportunities to learn from and work with these economists. For example, when I was part of the University of Miami's Law and Economics Center, I had long discussions with Armen Alchian and worked extensively with one of Armen's pupils, Louis DeAlessi, who also taught at Miami.

prothesis lends itself to the development of standards that courts and enforcement agencies can administer effectively.

\* *Empirical Testing.* The soundness of doctrine and enforcement policy over time depends heavily on the strength of empirical research that evaluates the economic effects of judicial rulings and enforcement decisions.

#### A. *Continuing Reassessment and Adjustment*

My professional career began in the mid-1970s at the FTC as an assistant to Jim Liebler, who headed the Office of Policy Planning and Evaluation. The FTC was then expanding an already ambitious effort to reshape the American economy. Before I arrived, the Commission had begun cases to restructure the breakfast cereal, petroleum, and photocopier sectors.<sup>3</sup> To many observers, this was merely a good start.<sup>4</sup>

In August 1976, the Commission began a formal investigation of the automobile industry.<sup>5</sup> The decision to begin the highly publicized investigation followed an extensive preliminary inquiry by the agency's staff. In a critique covering nearly 100 single-spaced pages, the staff argued that there was widespread evidence justifying a fundamental restructuring of the U.S.

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<sup>3</sup> Kellogg Co., [1970-1973 Transfer Binder] Trade Reg. Rep. (CCH) No. 8883 ¶ 19,898 (Apr. 26, 1972) (issuing complaint alleging maintenance of highly concentrated, noncompetitive market structure and shared monopolization in ready-to-eat breakfast cereal industry; seeking divestiture and other structural relief), *complaint dismissed*, [1979-1983 Transfer Binder] Trade Reg. Rep. (CCH) ¶ 21,864 (Sept. 10, 1981), *dismissal affirmed*, 99 F.T.C. 8 (1982); Exxon Corp., [1973-1976 Transfer Binder] Trade Reg. Rep. (CCH) No. 8934 ¶ 20,388 (July 17, 1973) (issuing complaint alleging agreement to monopolize and maintenance of highly concentrated market structure in petroleum refining; seeking divestiture and other structural relief), *complaint dismissed*, 98 F.T.C. 453 (1981); Xerox Corp., 86 F.T.C. 364 (1975) (consent decree imposing mandatory patent licensing and restrictions on conduct; settling complaint alleging monopolization, attempted monopolization, and maintenance of a noncompetitive market structure in dry paper copier sector).

<sup>4</sup> In the Fall of 1974, FTC Chairman Lewis Engman appeared before the Joint Economic Committee of the U.S. Senate to discuss the Commission's antitrust program. The FTC already had initiated the cereal and petroleum shared monopolization cases and the photocopier monopolization case against Xerox. For some committee members, these measures only scratched the surface of the industry concentration problem. Senator William Proxmire told Engman that "the FTC, like a number of other regulatory agencies, seems to concern itself with minor infractions of the law, and to spend much of its time on cases of small consequences." *Market Power, The Federal Trade Commission, and Inflation: Hearing Before the Joint Economic Comm. of Congress*, 93d Cong., 2d Sess., 58-59 (1974).

<sup>5</sup> See *FTC Focuses on Detroit*, BUS. WK., Aug. 16, 1976, at 62 (reporting FTC's opening of automobile industry investigation).

industry. The staff endorsed the horizontal and vertical dismemberment of the industry leader (General Motors) and indicated that the second and third members of the American “Big Three” (Chrysler and Ford) might be worthy candidates for divestiture as well.

A crucial analytical basis for the staff’s critique was the simple market concentration doctrine—the belief that concentration and economic performance were closely and inversely correlated. Had the year been 1966, a Commission decision to embrace this belief would have been more understandable. In 1966, the view that high levels of concentration inevitably degraded economic performance commanded considerable academic support.<sup>6</sup> Many commentators saw the American automobile industry, dominated by General Motors for decades, as the paradigmatic example. Ten years later, however, there was serious reason for the FTC to doubt the validity of the simple market concentration hypothesis or to presume the invincibility of U.S. producers.

By 1976 the academic consensus condemning market concentration was crumbling. As discussed in more detail below, changes in economic theory and, more importantly, empirical research had undermined the simple concentration hypothesis. At least three specific developments concerning the auto industry also undermined the FTC’s staff approach. The first was John McGee’s 1973 article, *Economies of Size in Auto Body Manufacture*,<sup>7</sup> which persuasively argued that much of GM’s success derived from its ability to spread the enormous costs of setting up dies to stamp out auto body parts across a much larger volume than its competitors.<sup>8</sup>

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<sup>6</sup> One of the most influential scholarly works of this period was Carl Kaysen’s and Donald Turner’s *ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS*, which appeared in 1959. CARL KAYSEN & DONALD TURNER, *ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS* 110 (1959). Kaysen and Turner wrote that “[t]he principal defect of present antitrust law is its inability to cope with market power created by jointly acting oligopolists.” *Id.* They urged Congress to adopt new legislation compelling the deconcentration of various sectors of the economy. *Id.* at 110-19, 261-66. In 1969 a blue ribbon presidential task force, headed by Dean Phil Neal of the University of Chicago, recommended deconcentration variants of the Kaysen and Turner proposals. See *WHITE HOUSE TASK FORCE REPORT ON ANTITRUST POLICY*, reprinted in 2 *ANTITRUST L. & ECON. REV.* 11, 14-15, 65-76 (1968-69). Task force members who endorsed the deconcentration measure included such prominent academics as Dean Neal, William Baxter, William K. Jones, Paul MacAvoy, James McKie, Lee Preston, and James Rahl. A number of Task Force members who endorsed the deconcentration proposals later withdrew their support from such policies; see, e.g., *Panel Discussion*, 54 *ANTITRUST L.J.* 31, 31-33 (1985) (discussing changes in the views of William Baxter).

<sup>7</sup> John S. McGee, *Economies of Size in Auto Body Manufacture*, 16 *J. L. & ECON.* 239 (1973).

<sup>8</sup> I knew of McGee’s article in part because it was based upon the rate/volume effect that Armen Alchian first had identified. See Armen Alchian, *Reliability of Progress Curves in Airframe Production*, 31 *ECONOMETRICA* 679 (1963). McGee’s view of the source of the superiority of General Motors was itself beginning to lose its relevance as he wrote. By 1983, when the Commission investigated the General Motors-Toyota joint venture, it had become clear that it was the Japanese, not Detroit, who were the masters at manufacturing automobiles. The success of Japanese producers in pioneering low

A second real world phenomenon that undermined the rationale for the auto industry inquiry was that the FTC proponents of restructuring U.S. producers had dismissed foreign suppliers as likely to have little competitive impact. Having grown up in California, where foreign cars were increasingly prominent, I found this conclusion bizarre. At that time, I owned a Toyota Corolla; like many other baby boomers, I did not own an American-made car until I discovered the SUV in the 1990s, when I also purchased a Saturn. A third phenomenon that undercut the case for conducting an investigation was uncertainty over gasoline prices. The crude oil price shock of 1973-74 increased gasoline prices dramatically and gave an enormous boost to sales of fuel efficient vehicles. This spurred imports, particularly from Japan.

The auto industry investigation collapsed from its own weight and marketplace realities in May 1981.<sup>9</sup> Although one can take some satisfaction that the investigation ended, it is sobering that the agency did not perceive fundamental flaws in the inquiry when it began in 1976. Contemporary economic learning raised grave doubts about the simple market concentration doctrine. The rapidly changing market environment also should have induced caution in dismissing the entry and expansion by foreign suppliers.

This cautionary tale from my youth contains important lessons. Both economic theory and industry circumstances are ever changing. The prevailing consensus must be tested in the face of new theory and evidence. Good antitrust policymaking requires getting the model right and doing the hard slogging necessary to apply economics to what I have called the “stubborn” facts.<sup>10</sup>

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cost production methods is documented in JAMES P. WOMACK ET AL., *THE MACHINE THAT CHANGED THE WORLD: THE STORY OF LEAN PRODUCTION* (1990).

<sup>9</sup> See A.O. Sulzberger, Jr., *F.T.C. Ends Car Maker Inquiries*, N.Y. TIMES, May 14, 1981, at D1 (reporting Commission decision to end investigation; quoting Richard Rosen, an FTC staff attorney with the Bureau of Competition, as stating: “We have a hard time finding any monopoly profits being earned. Monopoly losses maybe, but not profits.”).

<sup>10</sup> Timothy J. Muris, *Antitrust Enforcement at the Federal Trade Commission: In a Word—Continuity*, Address before the American Bar Association Antitrust Section Annual Meeting, Chicago, Illinois (Aug. 7, 2001), available at <http://www.ftc.gov/speeches/muris/murisaba.htm>. John Adams discussed the importance of facts in a manner directly relevant to us today. In 1770, Adams defended the British officer and soldiers accused of murder in the Boston Massacre. He said: “Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passions, they cannot alter the state of facts and evidence.” DANIEL B. BAKER, *POLITICAL QUOTATIONS: A COLLECTION OF NOTABLE SAYINGS ON POLITICS FROM ANTIQUITY THROUGH 1989* 52 (1990).

B. *Administrability: Distilling Economic Concepts into Workable Rules and Analytical Techniques*

Our most influential law and economics scholars have realized a fundamental principle concerning the link between economic analysis and competition policy. The insights of economics have their greatest impact on antitrust law and policy when they are embodied in *workable* rules and analytical techniques for evaluating business conduct. For economics to have a more important role in antitrust, economists need to pay much more attention to how the sausage is made rather than to the theory of the perfect sausage.

The importance of administrability is evident in those who have played a central role in shaping antitrust doctrine and policy in my professional lifetime. Many of the strongest contributions have come from scholars who realized the importance of translating economic concepts into practical rules and analytical techniques that courts and enforcement agencies could apply successfully. In this cohort I include my UCLA mentors<sup>11</sup> and such figures as Phillip Areeda, William Baxter, Betty Bock, Robert Bork, Frank Easterbrook, Ernest Gellhorn, Richard Posner, and Donald Turner.<sup>12</sup>

The evolution of the U.S. merger guidelines provides an example. Donald Turner's 1968 Guidelines<sup>13</sup> took a formative first step toward rationalizing merger policy that faced a danger of becoming completely detached from any sound conception of economics. Though modest in retrospect, Turner's self-limiting guidelines were revolutionary when adopted, in part because they refused to push enforcement policy to the court-established limits.<sup>14</sup> The most significant breakthrough came in 1982, when

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<sup>11</sup> Armen Alchian was unequalled in teaching economics to lawyers. He often presented economics Socratically—a technique familiar to lawyers. For years Armen was one of the most popular instructors in Henry Manne's programs for teaching economics to lawyers. In short courses, he taught literally hundreds of federal judges and law professors.

<sup>12</sup> See William E. Kovacic & Carl Shapiro, *Antitrust Policy: A Century of Economic and Legal Thinking*, J. ECON. PERSPECTIVES, Jan. 1, 2000 at 43, 53 (describing role in modern era of economically astute attorneys and legally sophisticated economists who have taken economic concepts and "translated them into operational principles that judges readily could apply"); see also Andrew I. Gavil, *Sylvania and the Process of Change in the Supreme Court*, 17 ANTITRUST 8, 11-12 (2002) (based on examination of papers of Supreme Court Justice Lewis Powell, discussing prominent role played by views of William Baxter, Robert Bork, Richard Posner, and Donald Turner in shaping Justice Powell's analysis in *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977)).

<sup>13</sup> U.S. Department of Justice, *Merger Guidelines* (1968), reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,101.

<sup>14</sup> See Oliver E. Williamson, *The Merger Guidelines of the U.S. Department of Justice—In Perspective* (June 4, 2002) (paper prepared for the 20th Anniversary of the Department of Justice Merger Guidelines) (analyzing the 1968 Justice Department Merger Guidelines as precursor to the 1982 Merger Guidelines and underscoring Donald Turner's role in formulating the 1968 Merger Guidelines), avail-

Bill Baxter issued new DOJ Merger Guidelines.<sup>15</sup> Baxter's guidelines presented an economically sound and administrable approach to market definition and competitive effects analysis for merger control.<sup>16</sup> Although the hypothetical monopolist had antecedents in economics,<sup>17</sup> it took a lawyer like Bill Baxter, with a solid understanding of economics, to craft a sound and administrable approach to market definition.

Since the 1970s and the structure-conduct-performance ("SCP") debate, the number of industrial organization ("IO") economists and their research have soared. During the 1980s and into the 1990s, industrial organization attracted many of the best young economists. Although IO was once a largely empirical discipline, in recent decades empirical research has lost much of its market share. The lure of IO for most young economists was to apply modern mathematical economics to the relatively undeveloped turf of industrial organization.

There have been important advances in this mathematical literature that have been distilled into useful operational principles. For example, modern oligopoly theory built on the work of George Stigler<sup>18</sup> to provide a more rigorous approach to the analysis of tacit coordination that provides useful guidance for policy and the law.<sup>19</sup> The enhancement by DOJ and

able at <http://www.usdoj.gov/atr/hmerger/11257.pdf>.

<sup>15</sup> U.S. Department of Justice, Merger Guidelines (1982), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,102.

<sup>16</sup> See William Blumenthal, *Clear Agency Guidelines: Lessons from 1982*, 68 ANTITRUST L.J. 5, 17-20 (2000) (emphasizing how 1982 Guidelines made skillful tradeoffs between simplicity and flexibility and presented useful operational framework); Thomas B. Leary, *The Essential Stability of Merger Policy in the United States*, 70 ANTITRUST L.J. 105, 114-21 (2002) (discussing contributions of 1982 Guidelines and subsequent refinements).

<sup>17</sup> See Gregory J. Werden, *The 1982 Merger Guidelines and the Ascent of the Hypothetical Monopolist Paradigm* (June 4, 2002) (paper prepared for the 20th Anniversary of the 1982 Department of Justice Horizontal Merger Guidelines), available at <http://www.usdoj.gov/atr/hmerger/11256.pdf>.

<sup>18</sup> See George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. (1964).

<sup>19</sup> See Carl Shapiro, *Theories of Oligopoly Behavior*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 329, 356-57 (Richard Schmalensee & Robert D. Willig eds., 1989) (calling Stigler's *Theory of Oligopoly* a "classic paper" and observing: "Stigler's view of oligopoly as a problem of policing a tacitly collusive industry configuration is now the norm."); Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 ANTITRUST BULL. 143, 150 (1993) ("Stigler profoundly changed the way economists understand coordination among oligopolists; and his analysis has also influenced antitrust law."). Stigler's insights about the conditions for effective coordination resonate in modern cases; see, e.g., *Airtours v. Commission*, Case T-342/99, Judgment of the Court of First Instance (Fifth Chamber, Extended Composition) of June 6, 2002, available at [http://europa.eu.int/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61999A0342](http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61999A0342) (discussing requirements that must be satisfied to prove collective dominance under the European Union's merger regulation).

other competition authorities of leniency programs employs the basic intuition of the prisoner's dilemma to induce individual cartel participants to reveal their unlawful collaboration.<sup>20</sup> Despite these accomplishments, there have been relatively few successful efforts to translate the mathematically elaborate, game theoretic models into administrable antitrust rules or analytical techniques to support enforcement.<sup>21</sup>

### C. *Centrality of Empirical Research*

Economics tells us that monopoly can be “bad,” but that is the “easy” part. How do we know when we have a monopoly? How do we know which conduct by a monopolist is “bad”? Even when we know it is “bad,” what can we do about it? The efficient administration of statutes against monopolies, or trusts, requires presumptions, preferably ones with sound empirical support. The contribution of economics in this regard is improving. Especially over the past few decades, economics had a critical role in correctly characterizing the state of competition in the U.S. economy and, therefore, in guiding the presumptions used in antitrust policy and litigation.

#### 1. Statistical Analysis

During the first few decades after World War II, economists spent considerable effort seeking to determine whether the U.S. economy was rife with market power that could be cured through antitrust enforcement or whether remediable market power problems were relatively rare. The fundamental presumptions about the competitive health of the U.S. economy were resolved in one of the finest hours of industrial organization economics—the debate between Joe Bain and his “disciples” and those who came to be called “Chicago school” economists and lawyers.<sup>22</sup>

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<sup>20</sup> The evolution of the Justice Department's leniency program is traced in Donald C. Klawiter, *Corporate Leniency in the Age of International Cartels: The American Experience*, 14 ANTITRUST 13 (2000). The incentive effects of leniency programs are analyzed in Bruce H. Kobayashi, *Antitrust, Agency, and Amnesty: An Economic Analysis of the Criminal Enforcement of the Antitrust Laws Against Corporations*, 69 GEO. WASH. L. REV. 715 (2001).

<sup>21</sup> This was a major theme expressed by the participants in the FTC's Empirical Industrial Organization Roundtable in September 2001. *See, e.g.*, Federal Trade Commission, *Empirical Industrial Organization Roundtable* 93-100 (Sept. 11, 2001) (comments of Michael Whinston), available at <http://www.ftc.gov/be/empiricaliorroundtabletranscript.pdf>.

<sup>22</sup> The large body of statistical work performed by industrial organization economists associated with the University of Chicago was especially important. *See, e.g.*, YALE BROZEN, CONCENTRATION, MERGERS, AND PUBLIC POLICY (1982) (questioning “link” between concentration and prices and pro-



The cutting edge of this debate was empirical—theory alone could not resolve the issues. Many today probably do not know that George Stigler called for economy-wide industrial deconcentration in the early 1950s.<sup>23</sup> Stigler’s recommendation was based on existing empirical economic research on economies of scale at the plant level in manufacturing that appeared to indicate that American industry was concentrated far beyond “efficiency requirements.” Stigler changed his position when he learned of various analytical flaws in the research and of empirical work inconsistent with deconcentration.<sup>24</sup>

Major support for deconcentration also came from statistical analyses of the relationship between market structure and measures of “performance.” These studies produced the SCP approach to industrial organization economics popularized in Mike Scherer’s text, which first appeared in 1970.<sup>25</sup> This was the first major debate in IO economics in which statistical analysis was central. For many antitrust lawyers and industrial organization economists, the debate turned at the 1973 Airlie House conference memorialized in *Industrial Concentration: The New Learning*,<sup>26</sup> among the most influential volumes ever written for antitrust policy. That book showed that the SCP paradigm had theoretical flaws and lacked empirical support. This new learning fundamentally changed the antitrust community’s view about the American economy’s competitiveness.

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viding evidence of alternative, efficiency-related reasons for observed prices); *see also* Harold Demsetz, *Two Systems of Belief about Monopoly*, in *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* 164 (Harvey J. Goldschmid et al. eds., 1974) (criticizing preoccupation of antitrust policy with market concentration and private exclusionary conduct).

<sup>23</sup> In a much-read magazine article in 1952, Stigler said “[w]hen a small number of firms control most or all of the output of an industry, they can individually and collectively profit more by cooperation than by competition . . . . These few companies, therefore, will usually cooperate.” George J. Stigler, *The Case Against Big Business*, *FORTUNE*, May 1952, at 123. Decades later, Stigler said in his memoirs that “[u]ntil the 1950s I accepted the prevailing view of my profession that monopoly was widespread . . . . I was an aggressive critic of big business.” GEORGE J. STIGLER, *MEMOIRS OF AN UNREGULATED ECONOMIST* 97 (1988). Stigler noted that in 1950 he “believed monopoly posed a major problem in public policy . . . and that it should be dealt with boldly by breaking up dominant firms and severely punishing businesses that engaged in collusion.” *Id.* at 99. In the early 1950s Stigler advocated breaking U.S. Steel, which then accounted for 30% of steel production, into several smaller firms. Explaining this position, Stigler said: “Economists (including me) generally believed that this level of industry concentration [a four-firm steel industry concentration ratio of 60%] allowed a substantial amount of noncompetitive behavior, but the belief rested more upon consensus than upon evidence.” *Id.* at 99-100.

<sup>24</sup> Stigler himself created the “survivorship” analysis for identifying efficient firm size. *See* George J. Stigler, *The Economies of Scale*, 1 *J. L. & ECON.* 54 (1958) (introducing “survivor principle”).

<sup>25</sup> F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* (1970).

<sup>26</sup> *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* (Harvey J. Goldschmid et al. eds., 1974).

The SCP paradigm was overturned because its empirical support evaporated. Re-estimation of structure-performance equations accounting for efficiency explanations and data problems made the results “go away.”<sup>27</sup> Further, various case studies, particularly involving antitrust cases and investigations, indicated that although some industries appeared to have market structures favorable for the existence and exercise of substantial market power, the industries were, nonetheless, quite competitive. This research made clear that sound theory *plus* the details of markets and institutional factors are necessary to understand competition.<sup>28</sup>

## 2. Case Studies

As suggested above, one foundation for competition policy has been statistical analyses across industries that reduce market and institutional factors into a relative few variables. Though useful for some purposes, broad statistical studies may provide only limited help in understanding competition in a *specific* industry. Broad statistical analysis typically cannot provide the perspective a detailed examination of important institutional factors offers.

What the FTC routinely does in antitrust enforcement and litigation is to analyze specific industry details and institutional arrangements. The agency’s methodology is analogous to case studies and, in its finest form, pays proper attention to institutions that influence competition. Beyond the context of individual enforcement matters, careful case studies have enriched our understanding of such issues as market power and efficiencies, contributing to improvements in antitrust policy.<sup>29</sup>

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<sup>27</sup> In this regard, perhaps the most significant contribution was that of Harold Demsetz. See Harold Demsetz, *Two Systems of Belief About Monopoly*, *supra* note 22 at 164-84; see also Timothy J. Muris, *Economics and Antitrust*, 5 GEO. MASON L. REV. 303, 303-06 (1997) (describing role of Airlie House Conference in focusing attention on Demsetz and other researchers whose empirical work undermined assumptions of SCP model).

<sup>28</sup> Hundreds of Hart-Scott-Rodino Act pre-merger investigations confirm this observation, explaining why structure remains, at best, a crude screen, not a dispositive tool.

<sup>29</sup> Noteworthy examples of this type work can be found in FEDERAL TRADE COMMISSION, IMPACT EVALUATIONS OF FEDERAL TRADE COMMISSION VERTICAL RESTRAINTS CASES (Ronald N. Lafferty et al. eds., 1984).

## II. EXPLORING THE BLACK BOX: NEW INSTITUTIONAL ECONOMICS AND TRANSACTION COSTS

Economics is neither monolithic nor static. In its modern manifestation, researchers have devised theories to condemn or praise virtually any business practice. The challenge for courts and enforcement agencies is to identify methodologies for the most accurate diagnosis of the competitive consequences of business behavior.

One of the most promising developments for antitrust in modern economic analysis is the New Institutional Economics (“NIE”).<sup>30</sup> In general terms, this body of work seeks to extend and enrich understanding of the microanalytic details of business behavior and the industry settings that shape firm conduct.<sup>31</sup> The most impressive recent competition policy work I have seen reflects the NIE’s teachings about the appropriate approach to antitrust analysis. Much of the FTC’s best work follows the tenets of the NIE and reflects careful, fact-based analyses that properly account for institutions and *all* the relevant theories, not just market structure and market power theories.

In horizontal cases, the largest element of the FTC’s enforcement program, the important institutions usually are not the government or property rights regimes.<sup>32</sup> Rather, the key institutions are the determinants of the specifics of competition in each industry. For example, how do transactions

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<sup>30</sup> Douglass North defines “institutions” as “the rules of the game in a society or . . . the humanly devised constraints that shape human interaction.” He adds that “[i]n the jargon of the economist, institutions define and limit the set of choices of individuals.” DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE, AND ECONOMIC PERFORMANCE 3-4 (1990). Modern economics uses the concept of institutions to examine a wide range of phenomena that shape the behavior of individuals and organizations. See MASAHIKO AOKI, TOWARD A COMPARATIVE INSTITUTIONAL ANALYSIS 1-29 (2001) (surveying literature on definition of “institutions”); Christopher Clague, *The New Institutional Economics and Economic Development*, in INSTITUTIONS AND ECONOMIC DEVELOPMENT 13, 18 (Christopher Clague ed., 1997) (Institutions “can be organizations or sets of rules within organizations. They can be markets or particular rules about the way a market operates. They can refer to the set of property rights and rules governing exchanges in a society. They may include cultural norms of behavior. The rules can be either formally written down and enforced by government officials or unwritten and informally sanctioned.”).

<sup>31</sup> See Oliver E. Williamson, *The New Institutional Economics: Taking Stock, Looking Ahead*, 38 J. ECON. LIT. 595 (2000) (surveying the modern NIE literature). The predecessor to the “New” Institutional Economics was the institutionalist school of the early 20th century. The literature of the original institutionalist school often included fact-intensive, historical accounts of specific industries, but without applying the microanalytic tools and theory employed by NIE scholars. See Kenneth J. Arrow, *Reflections on the Essays*, in ARROW AND THE FOUNDATIONS OF THE THEORY OF ECONOMIC POLICY 727, 734 (George Feiwel ed., 1987).

<sup>32</sup> In some of the FTC’s non-merger matters, other institutions (including patent law and the operation of the Hatch-Waxman statute) that are external to the specific market have been important.

occur, and what are their determinants? Can the process be properly approximated as an auction, and, if so, what kind? Are transactions negotiated? Are suppliers “qualified,” and what does this qualification involve? What is the nature of supplier/buyer relationships? How important are long-term relationships? What information do the transacting parties possess that is relevant to the transaction’s outcome?

#### A. *Coase and the Black Box*

To understand the NIE’s contributions, it is useful to consider some of the weaknesses in economics this body of work has addressed. In his 1991 Nobel Prize Lecture, Ronald Coase discussed the explanatory power of modern neoclassical economic theory.<sup>33</sup> Coase described this theory as “a state of the world that lives in the minds of economists, but not on earth.”<sup>34</sup> Coase went on to consider how traditional price theory fails to account for “non-market” parameters that significantly influence market outcomes and specific exchange relationships. Describing the mainstream theory as “blackboard economics,” Coase explained:

The firm and the market appear by name but they lack any substance. The firm in mainstream economic theory has often been described as a ‘black box,’ [a]nd so it is. This is very extraordinary given that most resources in a modern economic system are employed within firms, with how these resources are used dependent on administrative decisions and not directly on the operation of a market. Consequently the efficiency of the economic system depends to a very considerable extent on how these organizations conduct their affairs, particularly, of course, the modern corporation. Even more surprising, given economists’ interest in the pricing system, is the neglect of the market or more specifically the institutional arrangements which govern the process of exchange. As these institutional arrangements determine to a large extent what is produced, what we have is a very incomplete theory.<sup>35</sup>

This is sharp criticism from one of the giants of 20th century economics. What we learned from the SCP debate and, of course, from the work of Coase himself and the research that he inspired in others is that institutions and facts matter. Unfortunately, the typical IO theory article contains little description or analysis of institutions and factual details. Of course, I do not claim that theoretical, mathematically-oriented economics lacks any value. Improving theory strengthens any discipline, and important theoretical de-

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<sup>33</sup> By “neoclassical” economic theory, I mean theory that is based primarily on downward sloping demand curves and highly stylized models of competition not firmly grounded in any specific institutional setting.

<sup>34</sup> Ronald H. Coase, *The Institutional Structure of Production* (Alfred Nobel Memorial Prize Lecture in Economic Sciences, Dec. 9, 1991), reprinted in Ronald H. Coase, *ESSAYS ON ECONOMICS AND ECONOMISTS* 3, 5 (1994) [hereinafter *Nobel Lecture*].

<sup>35</sup> *Id.* at 5-6.

velopments in economics often come through mathematical modeling. Nonetheless, I am struck that, despite the enormous recent volume of theoretical, highly mathematical IO literature, its effect on antitrust policy and law has been quite small.

The fundamental reason for this modest influence is that, although empirical work overturned the SCP paradigm, too much of modern IO theory adopts the SCP approach by making market structure the only important market feature in the model. Put differently, although the SCP debate reveals that there is no systematic relationship between market structure and the competitiveness of the market, much of modern IO theory allows *only* market structure and *assumed* market power to be important determinants of the competition.

The mathematical IO literature illuminates how substantial market power might be exercised, *assuming* it exists. Undoubtedly, this question is important. But it identifies and considers few bases for business decision-making other than market power, thereby greatly overemphasizing the importance of such power. As Coase said in 1972, “One important result of this preoccupation with the monopoly problem is that if an economist finds something—a business practice of one sort or another—that he does not understand, he looks for a monopoly explanation. And as in this field we are very ignorant, the number of understandable practices tends to be rather large, and the reliance on a monopoly explanation, frequent.”<sup>36</sup>

Thus, literature of antitrust economics abounds with theoretical models that go far beyond horizontal mergers and cartelizing conduct and “simple” theories of vertical foreclosure. Because they start with the assumption of market power and then ask how that market power might be exercised, you can find theoretical support for, among other things, predatory pricing at prices above costs, tying as a monopolizing device, and *even* the Robinson Patman Act.<sup>37</sup>

A visitor from Mars reading this literature would infer that the U.S. economy is rife with monopoly power. However, unlike 1972, there is con-

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<sup>36</sup> Ronald H. Coase, *Industrial Organization: A Proposal for Research*, in POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION 59, 67 (Victor R. Fuchs ed., 1972).

<sup>37</sup> See, e.g., Aaron S. Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941 (2002) (discussing how a monopolist with a cost advantage over its potential rivals might deter entry despite its high pre-entry price); Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194 (2002) (discussing how firms can use the tying of complementary products to create or protect monopoly power); Michael L. Katz, *The Welfare Effects of Third-Degree Price Discrimination in Intermediate Goods Markets*, 77 AM. ECON. REV. 154 (1987) (finding possible benefits of forbidding third-degree price discrimination when bargaining power of chain stores comes from their ability to credibly threaten to integrate backward into the supply of intermediate goods); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837 (1990) (discussing possible exclusionary effects of certain tying arrangements).

sensus today—especially among empiricists—that significant market power “problems” are special cases, not the norm. Compared to 1972, major contributions to empirical research have improved our understanding of competition. Antitrust litigation (for example, the monopolization cases of the 1970s) and the wealth of data collected from hundreds of Hart-Scott-Rodino pre-merger filings and investigations created or inspired much of the relevant empirical work.

Of course, market structure and market power are important. The federal merger guidelines and the FTC’s enforcement decisions use these variables and sometimes accord them great weight. Nonetheless, the trend of analysis for the past 20 years under the federal merger guidelines and in other areas of antitrust has been to use market structure and market power as two elements of a broader, fact-based analysis of potential competitive effects. My point is that having a theoretical paradigm that largely can explain business conduct *only* by market structure and assumed market power is flawed. Fortunately, there are important alternative theories and analyses that are richer in their examination of business conduct and its effects.

#### B. *An Example Outside the Black Box: Auctions*

Auction theory and empirical research based on it probably have made the greatest contribution to merger enforcement. The work on auctions provides explicit empirical analyses relevant to assessing a merger’s potential effects *if* an auction structure adequately approximates the market setting.<sup>38</sup> The adequacy of the approximation requires close study of the specifics of the nature of competition—that is, proper attention to market institutions. The key to the success of auction theory is that, when appropriate, it actually fits how parties carry out transactions rather than an ad hoc, simplistic model based on market structure and assumed market power. As with the NIE, institutional knowledge is critical.

#### C. *An Example Inside the Black Box: One-Shot Bertrand/Unilateral Effects Analyses*

The approach to unilateral effects analysis that many economists follow ignores the basic tenets of NIE. Econometric analyses of retail scanner data and highly simple simulation models are used, based on what econo-

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<sup>38</sup> See Serdar Dalkir et al., *Mergers in Symmetric and Asymmetric Noncooperative Auction Markets: The Effects on Prices and Efficiency*, 18 INT’L J. INDUS. ORG. 383 (2000); Steven Tschantz et al., *Mergers in Sealed versus Oral Auctions*, 7 INT’L J. ECON. BUS. 201 (2000). For many years the federal antitrust agencies have applied auction theories in antitrust investigations.

mists call a “one-shot Bertrand” model. This approach has at least two major problems that proper attention to NIE would have identified. First, the data are at the *retail* level, while the mergers are between *manufacturers*.<sup>39</sup> The applicability of even properly estimated retail level demand systems to mergers of manufacturers is only now beginning to be addressed, even though the models in question have been used for a decade. Second, the Bertrand model is imposed with virtually no analysis of its actual ability to explain competition in the market. Theory cannot perfectly replicate reality, but applying a highly simplistic theory without any empirical basis that the theory adequately approximates reality is not sound economics.

I am not implying that careful empirical work that involves econometric modeling lacks value in merger investigations—quite the opposite. Certainly, the work of our Bureau of Economics, along with that of outside economists, in connection with last year’s Cruise Ship investigation reveals that empirical work can be crucial in Commission decisions. For empirical work and modeling to be useful, however, they must be based firmly in the institutions and the less quantitative evidence about an industry.

#### D. *Deciphering the Black Box: The Role of NIE and Transaction Costs*

Much of the NIE literature has significant potential to improve anti-trust analysis and policy. In particular, one branch of the NIE considers the implications of “transactions costs” on economic behavior. This analysis specifically accounts for the institutional arrangements in which the actors participate.<sup>40</sup> As first developed by Coase, this “transactions cost economics” (“TCE”) originally focused on demystifying the “black box” firm and on clarifying important determinants of vertical relationships. TCE builds on the insights of Coase’s classic 1937 article on the firm<sup>41</sup> and shifts the analysis toward exchange relationships.<sup>42</sup> Coase taught us that the transac-

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<sup>39</sup> Various data and econometric issues arise in the estimation of demand systems using scanner data. These issues are the subject of a recent Bureau of Economics working paper. See Daniel Hosken et al., *Demand System Estimation and its Application to Horizontal Merger Analysis* (April 2002) (FTC Bureau of Economics Working Paper #246), available at <http://www.ftc.gov/be/workpapers/wp246.pdf>.

<sup>40</sup> My UCLA instructors contributed extensively to this literature. Armen Alchian was an important developer of the transaction costs approach, as were Harold Demsetz and Ben Klein. Although Demsetz may be best known for his criticism of the market concentration doctrine, he also wrote important articles involving transaction costs analysis. Several of his most influential works, including *Toward a Theory of Property Rights*, AM. ECON. REV., May 1967, at 347 and *When Does the Rule of Liability Matter?*, 1 J. LEGAL STUD. 13 (1972), elaborated on Coase’s initial work.

<sup>41</sup> Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937).

<sup>42</sup> Perhaps the seminal example of this effort is OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975).

tions costs arising from problems of contracting and coordination will determine a firm's organization, particularly its degree of vertical integration. The profit-maximizing firm will weigh the costs, risks, and efficiencies associated with performing functions via market-based transactions against the like parameters associated with performing the functions by internal integration, and it will choose the cost-minimizing alternative. Modern TCE builds on this foundation and attempts to explain and better understand the consequences of market-based exchanges by placing them within their specific institutional context. In this sense, modern TCE enhances and complements traditional neoclassical economics.<sup>43</sup>

Two early illustrations of the insights from TCE come to mind. First, antitrust rules based on initial market-power screens typically relied on the textbook definition of market or monopoly power; that is, evidence that prices exceed marginal cost. Such a test is not particularly useful. In the textbook perfect competition model, firms face flat demand curves—they are price-takers. In the real world, when virtually any firm raises its price, it retains some sales. Consider hot dog vendors on the Mall in Washington, D.C. and on street corners in other major cities. Any vendor that raises its price would be unlikely to lose all of its sales. In other words, the demand curve is sloped downward, not flat. Few persons, however, would claim that the hot dog vendor has the degree of market power that courts or enforcement agencies should regard as important for antitrust. The demand curve is sloped because of positive transactions costs. When purchasing a hot dog, most consumers will simply not find it cost-effective to survey available prices first.<sup>44</sup>

Second, scholarly research on the value for advertising in reducing transactions costs has transformed the way antitrust policy makers think about the competitive implications of advertising.<sup>45</sup> George Stigler was an early contributor to this research. In typically blunt fashion, he said advertising is “an immensely powerful instrument for the elimination of igno-

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<sup>43</sup> Early assessments of the empirical support for TCE are favorable. See Howard A. Shelanski & Peter G. Klein, *Empirical Research in Transaction Cost Economics: A Review and Assessment*, 11 J.L. ECON. & ORG. 335, 336 (1995) (finding that “a remarkable amount of the empirical work we have examined is consistent with TCE predictions—much more so, perhaps, than is the case with most of industrial organization”); see also Bruce Lyons, *Empirical Relevance of Efficient Contract Theory: Inter-Firm Contracts*, 12 OXFORD REV. ECON. POL'Y 27 (1996); Keith Crocker & Scott Masten, *Regulation and Administered Contracts Revisited: Lessons from Transaction Cost Economics for Public Utility Regulation*, 9 J. REG. ECON. 5 (1996).

<sup>44</sup> Timothy J. Muris, *The Federal Trade Commission and the Rule of Reason: In Defense of Massachusetts Board*, 66 ANTITRUST L. J. 773, 779-780 (1998). For an excellent discussion of this concept, see Benjamin Klein, *Market Power in Antitrust: Economic Analysis After Kodak*, 3 SUP. CT. ECON. REV. 43, 47-63 (1993).

<sup>45</sup> J. HOWARD BEALES & TIMOTHY J. MURIS, STATE AND FEDERAL REGULATION OF NATIONAL ADVERTISING (1993).



rance.”<sup>46</sup> In other words, advertising can reduce search costs significantly and thereby foster competition. Ads inform consumers about the availability of new products, new features, or new information about existing products. Such information is vital to competition.<sup>47</sup>

TCE can also shed light on the validity of the anticompetitive stories that market power theories emphasize. TCE enriches existing theory by considering such factors as the efficiencies of contracting given the institutional setting within which trading partners interact and the uncertainties trading partners have about each other. TCE also stresses the importance of an *ex ante* perspective in evaluating the efficiency of conduct and judging whether legal intervention is useful.

Ben Klein’s case studies in this area have been especially illuminating. Focusing on transactions costs, the elimination of opportunistic behavior, and the impossibility of drafting fully-contingent legally-enforceable contracts, Klein argues that distributional restraints are best understood not as means to harm consumers<sup>48</sup> or as mechanisms to avoid consumer free riding,<sup>49</sup> but instead to compensate dealers optimally for an increased supply of product promotion services and to prevent price competition that would eliminate the desired marketing plan. In the typical case, manufacturers induce the desired services through sharing of profits, active monitoring, and the threat of termination, which would cause the dealers to lose the compensation stream.<sup>50</sup>

By emphasizing the specific institutional settings in which contracting parties operate, the TCE framework provides an enriched means for antitrust enforcers to evaluate specific behavior. Unless we are evaluating con-

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<sup>46</sup> George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213, 220 (1961).

<sup>47</sup> A large empirical literature demonstrates the pro-competitive benefits of advertising. I review this literature in Timothy J. Muris, *California Dental Association v. FTC: The Revenge of Footnote 17*, 8 SUP. CT. ECON. REV. 265, 293-304 (2000).

<sup>48</sup> The hypothesis that vertical contractual restraints commonly injured consumers motivated federal antitrust enforcement policy in the 1960s and 1970s. See Donald F. Turner, *Some Reflections on Antitrust*, in N.Y. STATE BAR ASS’N ANTITRUST LAW SYMPOSIUM 1, 1-2 (1966) (comments by Donald Turner, Assistant Attorney General for Antitrust; remarking that he approached vertical “territorial and customer restrictions not hospitably in the common law tradition, but inhospitably in the tradition of antitrust law”); Wesley J. Liebeler, *Bureau of Competition: Antitrust Enforcement Activities*, in THE FEDERAL TRADE COMMISSION SINCE 1970: ECONOMIC REGULATION & BUREAUCRATIC BEHAVIOR 65, 75-84 (Kenneth W. Clarkson & Timothy J. Muris eds., 1981) (discussing FTC vertical restraints enforcement in 1970s).

<sup>49</sup> Compare Lester G. Telser, *Why Should Manufacturers Want Fair Trade?*, 3 J.L. & ECON. 86 (1960) (arguing that in many instances manufacturers imposed vertical restraints to cure free rider problems).

<sup>50</sup> The theory and evidence are summarized in Benjamin Klein & Kevin M. Murphy, *Vertical Restraints as Contract Enforcement Mechanisms*, 31 J.L. & ECON. 265 (1988); Benjamin Klein, *The Economics of Franchise Contracts*, 2 J. CORP. FINANCE 9 (1995).

duct for which adverse competitive effects are almost certain,<sup>51</sup> anticompetitive effects in antitrust cases must be proven with hard facts.<sup>52</sup> The theory supporting enforcement must either be consistent with the hard facts or must explain them away convincingly. Inconvenient facts cannot be ignored; we must deal with them. Traditional market power theories, based solely on generalized, non-case-specific modeling, are rarely helpful. TCE and other applications of the new institutional economics, by contrast, can illuminate the meaning of facts—particularly in the context of complex contractual relations—that otherwise cannot be explained, or worse, are explained incorrectly.

Complex contractual settings are pervasive in our economy.<sup>53</sup> This is particularly apparent to those of us who have taught and written about contract law as well as antitrust. For other academics and myself who cover both fields, the process of reading hundreds of contract cases, old and new, has underscored the value of the NIE and transactions costs perspectives in understanding the interaction of sellers and buyers. The contracts case law reveals the extraordinary degree of experimentation and adaptation by which firms test various approaches to solve traditional and novel problems of cooperation and exchange. One sees the extent that even seemingly “simple” contracts, when examined in detail, frequently provide only a general framework in which the parties develop elaborate, unwritten “relational” understandings that supply the operational rules for executing the commitments described in the formal text.<sup>54</sup> The cases also reveal how various contract provisions can at first glance appear particularly harsh or excessively restrictive but actually constitute legitimate measures to discourage opportunism or other efforts to exploit imperfections in the specification of contract terms or the implementation of legal remedies for renegeing.<sup>55</sup>

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<sup>51</sup> Examples include naked price fixing, bid rigging, or customer allocation agreements.

<sup>52</sup> See *supra* note 10 and accompanying text.

<sup>53</sup> Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J. 693 (2000) [hereinafter *Law of Monopolization*].

<sup>54</sup> “Relational contracts” usually refer to situations in which parties, often in a setting involving long-term interaction, “are incapable of reducing important terms of the arrangement to well-defined obligations.” Charles J. Goetz & Robert E. Scott, *Principles of Relational Contracts*, 67 VA. L. REV. 1089, 1091 (1981). The parties rely heavily upon unwritten elaboration and adjustment of their responsibilities due to difficulty with writing contract terms that “identify uncertain future conditions or because of inability to characterize complex adaptations adequately even when the contingencies themselves can be identified in advance.” *Id.*

<sup>55</sup> Opportunistic behavior refers, in part, to “hold up” problems. On the economic issues and the role of contract law in policing holdups, see Timothy J. Muris, *Opportunistic Behavior and the Law of Contracts*, 65 MINN. L. REV. 521 (1981). For more recent discussions of opportunism in contractual settings with strong relational features, see John P. Esser, *Institutionalizing Industry: The Changing Forms of Contract*, 21 L. & SOC. INQUIRY 593 (1996); Claire Moore Dickerson, *Cycles and Pendulums:*

Many of the most difficult competition issues confronting the FTC and other enforcement bodies involve intricate and fast-changing contractual arrangements. High technology provides a noteworthy example. Bengt Holmstrom and John Roberts documented that complex contractual relationships are common in high tech industries, such as computers and biotechnology, as well as in more traditional ones, such as automobiles and steel.<sup>56</sup> In biotechnology, for example, Holmstrom and Roberts explain that the activities of the different industry members are highly interrelated, with most firms engaged in many partnerships. They note that, in 1996, one firm reported ten marketing partnerships, twenty licensing arrangements, and more than fifteen formal research collaborations.<sup>57</sup> In such a world, change is inevitable. Parties may become disillusioned with each other, and lawsuits may result. Although anticompetitive consequences are possible when relationships change, they are by no means likely, let alone inevitable.

To date, TCE's most important contribution to antitrust is its ability to provide much better explanations for most vertical relationships than market power theories. This contribution has come not so much from theory (although many theoretical papers apply TCE to vertical relationships) as from careful empirical work. Some papers use econometric analysis to estimate the importance of broad categories of transaction costs to the nature of vertical relationships across companies or industries. Following the scholarship of Coase, however, the core of the empirical implementation of transaction cost economics is the intensive case study. For example, Coase's *The Theory of the Firm* was based on in-depth case studies of several companies, comparing and contrasting organizational structure against firm and market parameters.<sup>58</sup> Quantitative data and econometric analysis belong in the case study, but the core of the analysis is identifying the key features of the relevant institutions and competitive processes and the nature and importance of the relevant transaction costs. The analysis then proceeds to analyze how institutions and transaction costs affect relationships and competition.

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*Good Faith, Norms, and the Commons*, 54 WASH. & LEE L. REV. 399 (1997); Benjamin Klein, *Contracts and Incentives: The Role of Contract Terms in Assuring Performance*, in CONTRACT ECONOMICS 149-72 (Lars Werin & Hans Wijkander eds., 1992).

<sup>56</sup> Bengt Holmstrom & John Roberts, *The Boundaries of the Firm Revisited*, J. ECON. PERSP., Fall 1998, at 73.

<sup>57</sup> *Id.* at 85-86.

<sup>58</sup> Coase, *Nobel Lecture*, *supra* note 34, at 6-8.

E. *Three NIE Applications*

Let me turn to some specific examples of the application of TCE.

1. *Kodak and Hold-ups*

Applying the insights of TCE, a number of scholars have critically re-examined *Eastman Kodak Co. v. Image Technical Services, Inc.*<sup>59</sup> and similar cases with a view toward a more thorough and rigorous understanding of the underlying conduct. Focusing on transactions costs, protection against opportunistic behavior, and risks embedded in contractual relations, this literature allows much better understanding of the disputes at issue than do court decisions and other analyses of these issues.<sup>60</sup>

The *Kodak* facts are generally well-known. To review briefly, in the early 1980s, independent service organizations (“ISOs”) began servicing Kodak’s photocopier and micrographics equipment. The ISOs competed with Kodak, often at substantially lower prices. In the mid-1980s, Kodak limited the availability of its replacement parts for Kodak equipment to ISOs, forcing many out of business and prompting the lawsuit.

There is potential for harm to the purchasers of high-volume equipment in this setting. Such purchasers generally make product and relationship-specific investments, including training employees on use of the equipment. Once these investments are made, it is costly to switch brands. It may also be, as the Court claimed, that the equipment’s value decreases rapidly in the second-hand market. These low salvage values and high product-specific investments imply that purchasers are “locked in” after their initial equipment purchase, perhaps allowing the seller to take advantage of them by increasing the price it charges for service above the level buyers anticipated when they purchased the original equipment.

Whether Kodak could have engaged in such a hold-up depends upon several facts. Most importantly, for buyers to be harmed the behavior must have been unanticipated.<sup>61</sup> Moreover, buyers can attempt to negotiate spe-

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<sup>59</sup> 504 U.S. 451 (1992).

<sup>60</sup> The hold-up issues in *Kodak* are analyzed in Benjamin Klein, *Market Power*, *supra* note 44; Benjamin Klein, *Market Power in Franchise Cases in the Wake of Kodak: Applying Post-Contract Hold-Up Analysis to Vertical Relationships*, 67 ANTITRUST L. J. 283 (1999); Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L. J. 483 (1995); Muris, *Law of Monopolization*, *supra* note 53, at 704-07.

<sup>61</sup> Moreover, buyers could not be harmed unless they made specific investments allowing the seller to engage in a “hold-up.” Further, protection against opportunism, either through contract law or some other mechanism, must have been inadequate. Finally, it is important to note that the hold-up problem is distinct from pre-contractual monopoly.

cific contract terms to protect against opportunistic behavior, rely on contract law's prohibition against such behavior, or take other steps to protect themselves. In *Kodak*, for example, the buyer could have purchased at a price far enough below what otherwise would be the market value to reflect potential switching costs.<sup>62</sup>

Because buyers usually can protect themselves, we cannot assume that a change in practice, such as occurred in *Kodak*, is unfair, let alone anti-competitive. Although the buyers are locked in, the change may have been anticipated. If so, how can it be said to be unfair? Of course, an unanticipated hold-up may still have occurred in *Kodak*; we do not know. Ben Klein argues that the arrangement *Kodak* adopted by tying the sale of some of its equipment to the sale of replacement parts and services was a device for price discrimination.<sup>63</sup> Regardless of the purpose, analyzing hold-up problems under TCE analysis reveals the nature of the problem better than other forms of analysis.<sup>64</sup>

## 2. Carbonated Soft Drinks

Another example of the use of TCE is the study of the carbonated soft drink industry I did with David Scheffman and Pablo Spiller,<sup>65</sup> which was conducted to understand the nature of vertical relationships in that industry and the reasons why those relationships were changing. This research was

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<sup>62</sup> Price adjustments may not always perfectly deter opportunism. Consider the problem of employees working at less than full capacity, often called “shirking.” Even if an employer could hire more employees at lower wages to solve the problem of employee shirking, a greater quantity of lower-quality labor at a low price may not perfectly substitute for a smaller quantity of more expensive, higher-quality labor. In the *Kodak* example, the lower equipment price would, as Klein notes, distort the relative prices of equipment and aftermarket services, leading customers inefficiently to economize on service. See Klein, *Market Power*, *supra* note 44, at 51. Additional contract terms to avoid the potential hold-up include a long-term service agreement or a “most favored purchase” clause on equipment sales that would prevent discriminatory pricing against old purchasers. Finally, a common way to avoid a hold-up problem is to contract with parties who possess sufficiently strong reputations for fair dealing that they have more to lose than gain by a hold-up policy. See *id.* at 50, 51; Muris, *Opportunistic Behavior*, *supra* note 55, at 527. Reliance on reputation may make the arrangement look “one-sided,” misleading observers to conclude that the contracts are “unfair.”

<sup>63</sup> See Klein, *Market Power*, *supra* note 44, at 62.

<sup>64</sup> See also Muris, *Law of Monopolization*, *supra* note 53, at 707 (observing that an analysis focused on hold-ups and opportunism “does not mean that *Kodak* was decided incorrectly. Indeed, it supports the *Kodak* majority’s view that the defendants were wrong in asserting that no potential problems existed. Whether *Kodak* could defend itself by claiming that its practices could not have been anticompetitive was not before the Court, nor did *Kodak* argue that, although hold-ups were possible, it did not engage in one.”).

<sup>65</sup> TIMOTHY J. MURIS ET AL., *STRATEGY, STRUCTURE, AND ANTITRUST IN THE CARBONATED SOFT-DRINK INDUSTRY* (1993).

stimulated by PepsiCo's and Coca-Cola's acquisitions of what had been for decades independent bottlers. Our work, both theoretical and empirical, demonstrated that changes in market conditions made vertical integration superior to independent bottlers to reduce the transaction costs of making, distributing, and selling the product. We also explained that these transactions costs rose dramatically in recent years. In the early years of the industry, independent bottling was a sensible response to the difficulty of managing hundreds of manufacturing and distribution operations for what was then a simple product with a relatively simple marketing strategy.

### 3. Antitrust Rules and Remedies

TCE also has valuable insights for framing antitrust rules and remedies. Antitrust policy normally seeks to deter misconduct rather than subject businesses to regulatory controls. Antitrust rules thus embody both potential benefits (the promotion of competition) and potential costs (the reduction of competition and innovation, and the augmentation of private sector and judicial costs). Errors in designing and applying enforcement rules—especially errors that chill pro-competitive conduct—can have severe adverse consequences. Thus, antitrust rules must account for these benefits and costs.

Given the transactions costs, it is clear that antitrust rules are not well-suited to “fix” all market imperfections. Rules that are “flexible” enough to accommodate every theory of “market power” place inordinate burdens on the courts to sort through huge amounts of economic facts, comprehend complex and often quite abstruse theory, and ultimately distinguish lawful competition from unlawful acts. The risk of error is substantial.

By contrast, relatively clear and simple antitrust rules may allow some amount of anticompetitive conduct to escape prosecution. The efficient rule will minimize the sum of failures to capture anticompetitive conduct and interventions that challenge or chill pro-competitive conduct, along with the costs of understanding and following the rules and of litigation. Paul Joskow puts it well when he says “the test of a good legal rule is not primarily whether it leads to the correct decision in a particular case, but rather whether it does a good job deterring anticompetitive behavior throughout the economy given all of the relevant costs, benefits, and uncertainties associated with diagnosis and remedies.”<sup>66</sup> Thus, optimal rules will create appropriate incentives for efficient behavior *ex ante*.

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<sup>66</sup> Paul L. Joskow, *Transaction Cost Economics, Antitrust Rules, and Remedies*, 18 J. LAW, ECON. & ORG. 95, 99-100 (2002).

TCE may also yield important insights in fashioning antitrust remedies. Joskow argues, for example, that antitrust enforcers should consider divestiture remedies with caution, and only after careful analysis reflecting transaction cost issues. It is obvious that for merger divestitures to restore competition to pre-merger levels, the divested assets must remain viable not only during the dispute, but also after the divestiture takes place. The problem is how to assess the long term viability of assets to-be-divested *ex ante*. Joskow argues that the organizational design and governance arrangements for the assets require careful attention. He cites an FTC study of thirty-five divestiture orders, taking place from 1990-1994, that concluded that twenty-five percent of the divestitures failed to create a sustained and viable competitive force within the target market.<sup>67</sup>

Joskow finds this result unsurprising. TCE, he suggests, tells us:

Firms subject to 'voluntary' divestitures to mitigate market power should be expected to behave strategically; ongoing businesses that have been divested are likely to fare better post-divestiture than are assets that require the creation of a complete new business organization to be used effectively; buyers negotiating divestiture agreements in which they depend on the seller and have not protected themselves against ex post holdups are likely to face the consequences of these holdups; contractual arrangements for input supplies between competing firms can soften competition between them; it's not the size of the acquirer but its ability to utilize the assets effectively that matters.<sup>68</sup>

Consequently, enforcement agencies must become more sophisticated in their analysis of alternative remedies. That is exactly what we are trying to do at the FTC.<sup>69</sup>

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<sup>67</sup> STAFF OF THE BUREAU OF COMPETITION, FEDERAL TRADE COMMISSION, A STUDY OF THE COMMISSION'S DIVESTITURE PROCESS (1999), available at <http://www.ftc.gov/os/1999/9908/divestiture.pdf>.

<sup>68</sup> Joskow, *supra* note 66, at 114.

<sup>69</sup> See Federal Trade Commission, *Frequently Asked Questions About Merger Control Consent Order Provisions*, at <http://www.ftc.gov/bc/mergerfaq.htm>; see also Robert Pitofsky, Chairman, Federal Trade Commission, *The Nature and Limits of Restructuring in Merger Review*, Prepared Remarks Before the Law Seminars International Cutting Edge Antitrust Conference, New York, New York (Feb. 17, 2000) (discussing importance of improving Commission's approach to devising remedies), available at <http://www.ftc.gov/speeches/pitofsky/restruct.htm>.

### III. A RESEARCH AGENDA TO IMPROVE ANTITRUST'S ECONOMIC FOUNDATIONS

#### A. *The FTC's Research Agenda*

As Chairman, I have emphasized the need for the antitrust agencies to devote adequate resources to competition policy “research and development.”<sup>70</sup> Over the past nineteen months, the FTC has embarked on several initiatives to improve and enhance its use of empirical economic analysis. The starting point for these initiatives was an Empirical Industrial Organization Roundtable, one of the first major events I convened on my return to the FTC. This event, organized by the Bureau of Economics (“BE”) and Dennis Carlton, brought together leading industrial organization scholars to discuss a wide array of topics that they felt needed more attention from researchers. Among the ideas that received the greatest support was more research evaluating merger outcomes—both in terms of competitive effects and efficiencies.<sup>71</sup> We are actively engaged in a number of these research projects.

Our most significant effort is research on consummated hospital mergers.<sup>72</sup> We have formed a Merger Litigation Task Force, whose mission includes investigating hospital mergers recently consummated. (Antitrust agencies unsuccessfully challenged some of these mergers.) These studies are using proprietary data on payments to hospitals by third-party payers to assess whether these mergers raised prices, taking into account any impact on quality.

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<sup>70</sup> Timothy J. Muris, Chairman, Federal Trade Commission, *Looking Forward: The Federal Trade Commission and the Future Development of U.S. Competition Policy*, Prepared Remarks before the Milton Handler Annual Antitrust Review, New York, New York (Dec. 10, 2002), available at <http://www.ftc.gov/speeches/muris/handler.htm>.

<sup>71</sup> See Federal Trade Commission, *Empirical Industrial Organization Roundtable* 115-41 (Sept. 11, 2001), available at <http://www.ftc.gov/be/empiricalioroundtabletranscript.pdf>; see also William E. Kovacic, *Evaluating Antitrust Experiments: Using Ex Post Assessments of Government Enforcement Decisions to Inform Competition Policy*, 9 GEO. MASON L. REV. 843, 855-56 (2001) (collecting authorities who have recommended that government antitrust agencies devote more resources to analyzing effects of completed cases). BE staff has long been involved in this type of research; see, e.g., LAURENCE SCHUMANN ET AL., CASE STUDIES OF THE PRICE EFFECTS OF HORIZONTAL MERGERS (Bureau of Economics Report, April 1992).

<sup>72</sup> The FTC's efforts to study the effects of consummated hospital mergers are addressed in Timothy J. Muris, Chairman, Federal Trade Commission, *Everything Old Is New Again: Health Care and Competition in the 21st Century*, Prepared Remarks Before the 7th Annual Conference in Health Care Forum, Chicago, Illinois (Nov. 7, 2002), available at <http://www.ftc.gov/speeches/murishealthcarespeech0211.pdf>.



Other merger retrospectives involve the petroleum industry. A major revision of the 1982 and 1989 FTC staff reports on oil mergers is underway.<sup>73</sup> The agency also is in the early stages of empirical research to assess the effects of various oil mergers of the past decade. On a related topic, the FTC's staff also will report on what we learned in conferences we held in August 2001 and May 2002 on the reasons for the volatility of refined petroleum products.

Another substantial topic of discussion at the Empirical Roundtable was the use of scanner data estimation and simulation models to investigate branded products mergers. Last year, BE economists produced a Working Paper on the use of scanner data estimation in antitrust.<sup>74</sup> Relying on econometric and economic analysis, including analyses from the merging parties, the paper identifies a number of significant issues in the estimation of demand systems and the interpretation of retail demand elasticities using scanner data. Some tentative conclusions were described by an FTC economist and an Antitrust Division economist in a luncheon program hosted by the American Bar Association's Section of Antitrust Law. Finally, an FTC economist is working with an academic economist on a retrospective study of several branded products mergers.

Yet a different BE paper explores the general role of econometrics and empirical analyses in antitrust, and it suggests best practices for developing econometric studies that will be useful for FTC decisions.<sup>75</sup> The paper provides examples of many commonly used analyses in investigations, including the use of scanner data for demand estimation, the use of merger simulation models, and the use of manufacturer level (especially transaction specific) data in consumer and industrial product mergers. In addition, we have published best practices for parties and outside counsel for interacting with the FTC regarding data and empirical analyses.<sup>76</sup>

Another significant research project is to develop an analytical approach and empirical analyses to help assess the impact of mergers on the potential for coordinated interaction. Several types of analyses were used in

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<sup>73</sup> FEDERAL TRADE COMMISSION, *MERGERS IN THE PETROLEUM INDUSTRY* (Sept. 1982); FEDERAL TRADE COMMISSION, BUREAU OF ECONOMICS, *MERGERS IN THE U.S. PETROLEUM INDUSTRY, 1971-1984: AN UPDATED COMPARATIVE ANALYSIS* (1989).

<sup>74</sup> DANIEL HOSKEN ET AL., *DEMAND SYSTEM ESTIMATION AND ITS APPLICATION TO HORIZONTAL MERGER ANALYSIS* (FTC Bureau of Economics Working Paper #246, 2002), available at <http://www.ftc.gov/be/workpapers/wp246.pdf>. The final version will be published in an American Bar Association Section of Antitrust Law monograph on the use of econometrics in antitrust.

<sup>75</sup> David Scheffman & Mary Coleman, *FTC Perspectives on the Use of Econometric Analyses in Antitrust Cases* (2002), available at <http://www.ftc.gov/be/ftcperspectivesoneconometrics.pdf>.

<sup>76</sup> Bureau of Economics, Federal Trade Commission, *Best Practices for Data, and Economics and Financial Analyses in Antitrust Investigations* (2002), available at <http://www.ftc.gov/be/ftcbebp.pdf>.

the Commission's investigation of the cruise company mergers.<sup>77</sup> At today's conference, BE Deputy Director Mary Coleman is discussing her research with Bureau Director David Scheffman regarding an analytical approach to coordinated interaction.

We also conducted a two-day Roundtable focusing on various issues about the rate of success of mergers, including key measures for success or failure.<sup>78</sup> This Roundtable blended empirical research on merger outcomes with knowledge from academics, consultants, and business leaders experienced in mergers and acquisitions. The transcript of this Roundtable, soon to be posted on the FTC's website, will be valuable for economists and others interested in studying merger efficiencies.

The FTC has also been extremely active in studying competition in pharmaceutical markets. Prompted by its own experience in antitrust cases and a request from Congress, the FTC began a lengthy industry-wide study of procedures to introduce generic drugs *prior* to the expiration of patents protecting the brand name drug. In July 2002, the Commission released *Generic Drug Entry Prior to Patent Expiration: An FTC Study*.<sup>79</sup> Based on responses from branded and generic pharmaceutical companies, this report clarified several important issues regarding the interplay between patents on pioneer pharmaceuticals and the ability of generic drugs to compete. The report greatly increased knowledge about the extent and potential effects of patent litigation and settlements, and its finding and recommendations were valuable to government decision makers considering modifications to the Hatch-Waxman statute.<sup>80</sup>

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<sup>77</sup> See Statement of the Federal Trade Commission Concerning Royal Caribbean Cruises, Ltd./P&O Princess Cruises plc and Carnival Corp./P&O Cruises plc, FTC File No. 021-0041 (Oct. 4, 2002), available at <http://www.ftc.gov/os/2002/10/cruisestatement.htm>; see also Joseph J. Simons, Director, Bureau of Competition, Federal Trade Commission, *Merger Enforcement at the FTC*, Prepared Remarks Before the Tenth Annual Golden State Antitrust and Unfair Competition Law Institute, Santa Monica, California (Oct. 24, 2002) (discussing cruise inquiry), available at <http://www.ftc.gov/speeches/other/021024mergerenforcement.htm>; Bureau of Economics, Federal Trade Commission, *Cruise Investigation: Empirical Economic & Financial Analyses* (Nov. 2002), available at <http://www.ftc.gov/be/hilites/ftcbeababrownbag.pdf>.

<sup>78</sup> The Roundtable, titled *Understanding Mergers: Strategy and Planning, Implementation and Outcomes*, was held in December, 2002.

<sup>79</sup> The study is available at <http://www.ftc.gov/os/2002/07/genericdrugstudy.pdf>.

<sup>80</sup> President Bush cited our study as the basis for the FDA's recent proposal to limit branded drug companies to a single 30-month stay under the Hatch-Waxman Act. *President Takes Action to Lower Prescription Drug Prices by Improving Access to Generic Drugs*, (Oct. 21, 2002), available at <http://www.whitehouse.gov/news/releases/2002/10/20021021-4.html>.

## B. *Important Areas for More Empirical Research*

The FTC is making a strong commitment to the fact-intensive research that improves the economic foundations of antitrust enforcement. We find that each new case and research project raises issues that require thoughtful analysis. Looking ahead, several areas are leading candidates for further study by both the FTC and the academy.

### 1. Research on Competitive Effects

The most important area for further research is empirical study to improve our understanding of the nature of competition and of how and why horizontal mergers affect competition. I discussed earlier the benefits of work on auction mechanisms and the deficiencies in the current state of Bertrand simulation models. The analysis of FTC economists in the Cruise Ships investigation was one useful contribution. The FTC economists highlighted the importance of understanding the relevant institutions and of detailed analysis of actual transactions, changes in capacity, and other facts. Mary Coleman's and David Scheffman's paper at this conference provides a further contribution. Closely related to the development of sound empirical analyses to assess the competitive effects of mergers is the need to understand manufacturer pricing for consumer products. We will be working with outside experts on this issue.

### 2. Retrospectives on Merger Enforcement Decisions

To assess the efficacy of merger enforcement, we need to analyze the effects of past enforcement actions, including non-enforcement decisions. Specifically, we need to understand the industry and firm specific conditions relevant to the potential for anticompetitive effects. We also need to know much more about the nature and likelihood of significant pro-competitive effects of mergers. Understanding the efficiencies that can arise from mergers and how they are achieved would provide us with greater ability to evaluate prospective mergers.

### 3. High Margin Industries

Mergers in high margin (high fixed costs) industries frequently present challenging issues. High margins can be simplistically equated with substantial existing market power (unilateral or coordinated). Given the nature

of costs in such industries, however, high margins are often necessary for firms to be profitable. Our understanding of the nature of competition in such industries is limited—particularly regarding how mergers might affect the nature of this competition.

#### 4. Price Discrimination

Some lawyers and economists use evidence of “price discrimination” to infer market power and market definition, raising several issues. Most real world markets, even those for relatively “homogenous” products and a market structure inconsistent with significant market power, exhibit significant price variation. These price differences do not prove that the firms have market power. Moreover, price discrimination can be pro-competitive. A significant deficiency of the economics literature is the fragmentary explanation of why significant price variation is common and understanding the implications of this fact.

A related issue occurs when the agency learns of customers concerned about targeted price increases. These concerns are difficult to assess, especially without detailed industry data. Greater focus on techniques to evaluate and analyze transaction data will yield insights into the likelihood of potential anticompetitive pricing. Thus, more research is needed concerning how to identify price discrimination that raises competitive concerns and the role that price discrimination should have in merger analysis. We are beginning studies in this area and encourage others to do so as well.

#### 5. Other Issues

This list is only the beginning of the numerous topics on which anti-trust would benefit from a better empirical foundation. For example, the many theories of possible anticompetitive behavior in the theoretical literature—including raising rivals’ costs, naked exclusion, and the impact of network effects—all lack significant empirical analysis.<sup>81</sup>

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<sup>81</sup> To say that the relevant literature is limited is not to say it does not exist. For an interesting example of research that brings an NIE perspective to bear on analyzing an apparent episode of raising rivals’ costs, see Elizabeth Granitz & Benjamin Klein, *Raising Rivals’ Costs: The Standard Oil Case*, 39 J.L. & ECON. 1 (1996).

## CONCLUSION

In passing the federal antitrust laws, Congress adopted an evolutionary scheme in which courts would alter doctrine by “recognizing and adapting to changed circumstances and the lessons of accumulated experience.”<sup>82</sup> The rationality of our antitrust system requires continuing efforts to make this process of adaptation well-informed by refinements in economic theory and empirical research. Too often in our antitrust history, sound understanding of business behavior has lagged behind, not accompanied by the formulation and application of legal rules.<sup>83</sup>

As the dynamism and complexity of the economy grow, competition policy institutions face ever greater pressure to improve their ability to analyze business conduct accurately and swiftly. Meeting this challenge requires greater use of analytical approaches that enrich our understanding of the institutions that govern behavior within firms and industries. By combining microeconomic theory with close attention to industry-specific facts, New Institutional Economics provides a valuable framework for achieving the necessary understanding. In the words of one of the Federal Trade Commission’s most illustrious economists, our concern must be “with how specific companies and markets operate, with what specific received data on competition mean, and with the economic development of the law.”<sup>84</sup>

With its unique combination of economic research and legal policy functions, the FTC occupies a special position to improve antitrust’s economic foundations. With its own resources, the agency is expanding efforts to examine the effects of its enforcement decisions and otherwise to strengthen the empirical basis for future policy making. Our own initiatives alone are important but not sufficient. For decades, the Commission has drawn heavily on the contributions of academics and other researchers. We seek to extend this intellectual partnership through greater interaction with scholars to identify priorities for industrial organization research.

I finish by expressing my hope that IO returns to be a much more empirically-oriented discipline, guided of course, by sound theory. We all have much to do to ensure that antitrust repeats the successes and avoids

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<sup>82</sup> *State Oil Co. v. Khan*, 522 U.S. 3, 20 (1997).

<sup>83</sup> See Dennis W. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak are Misguided*, 68 ANTITRUST L.J. 659, 680 (2001) (“[A]s the literature in economics shows, economists often take decades to understand certain business practices.”).

<sup>84</sup> Betty Bock, *Ethical Considerations for an Antitrust Economist: An Economist’s View*, 48 ANTITRUST L.J. 1875 (1979). Betty Bock was a leading figure in the use of economic analysis to inform antitrust law in the post-World War II era. Among other distinctions, she served in the FTC’s Bureau of Economics in the 1950s.

the mistakes of its past. Jim Liebler would have been happy with the progress to date, but impatient to continue with the job ahead. So am I.