

Economics, Economists, and Antitrust: A Tale of Growing Influence

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To be presented at the AEA session, "Better Living through Economics (V)"  
New Orleans, January 5, 2008

Draft: 12/10/07

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Abstract

Over the past two to three decades economics has played an increasingly important role in the development of U.S. antitrust enforcement and policy. This essay first reviews the major facets of U.S. antitrust enforcement and next reviews the ways in which economics -- starting from a low base -- has grown in importance in antitrust. The essay then highlights two antitrust areas in which the influence of economics has had the greatest influence: merger analysis, and vertical relationships. The essay concludes with the identification of three antitrust areas where further economics analysis could have high returns.

Keywords: Antitrust; industrial organization; merger analysis; vertical relationships

JEL Codes: K21; L40; L41; L42

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## Economics, Economists, and Antitrust: A Tale of Growing Influence

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*"Over the years, our courts have increasingly turned to economic principles to guide their interpretation of the antitrust laws... Relying on economic analysis is now routine for U.S. courts in the antitrust arena -- a salutary development helping our courts make sound decisions... Another area where economics has a profound impact is within the Antitrust Division..." Barnett (2007)*

### I. Introduction

Antitrust policy in the United States is an interesting amalgam. There is, of course, a body of legislated law, starting with three important statutes: the Sherman Act of 1890, the Clayton Act of 1914, and the Federal Trade Commission Act of 1914.

Next, because the language in these statutes is extraordinarily broad and terse (at least by modern legal standards), more than a century of numerous legal decisions by courts have interpreted and given specific meaning to the broad language of the statutes.

Further, decisions by the federal enforcement agencies -- the Antitrust Division of the U.S. Department of Justice (DOJ), and the Federal Trade Commission (FTC) -- as to whether to pursue cases or to decline their prosecution<sup>1</sup> provide another facet to antitrust policy.

Finally, economics and economists also play an important role (Kovacic 1992; Barnett 2007). In principle, the antitrust laws -- at least in their modern interpretation<sup>2</sup> -- are intended to encourage competition and to thwart cartels/price-fixing and to discourage the unwarranted creation

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<sup>1</sup> This is frequently described as the exercise of "prosecutorial discretion".

<sup>2</sup> Historically a second strain of antitrust was present: American populism, with its fears of bigness and its goal of keeping economic institutions small and locally oriented. That strain has disappeared from current enforcement and interpretation.

and exercise of market power (which is often paraphrased as "monopoly power"). Competition and monopoly have been bedrock concepts in the liturgy of microeconomics for over a century. Therefore, the influence of economics on antitrust policy would seem to be a natural phenomenon.

As this essay will illustrate, however, the influence of economics on antitrust is a relatively recent phenomenon; it was not considered to be so "natural" as recently as three or four decades ago. As of the early 1960s, for example, the two enforcement agencies had few well-trained economists on their staffs, and the appearance of an economist as an expert in support or testifying on behalf of the plaintiffs or defendants in antitrust litigation was relatively rare. Today, by contrast, both agencies have sizable staffs of well-trained economists, and most antitrust cases of any kind have economists involved on one or both sides. Indeed, in response to this "demand", a number of specialty antitrust economics consulting firms have arisen to offer a "supply".

The rest of this essay will expand on these developments, as follows: In Section II we will provide a brief overview of the antitrust laws. Section III will trace the growth of the influence of economics and economists over the past century. Section IV will pay special attention to two areas on which economics has had the most influence -- merger analysis and vertical restraints. Section V offers a brief conclusion and highlights some areas where further economic analysis could still yield high returns.

## II. A Brief Overview of U.S. Antitrust Policy

There are three major thrusts to antitrust enforcement in the U.S.:<sup>3</sup> First are the efforts to

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<sup>3</sup> Arguably, there is a fourth thrust as well: restrictions on price discrimination, under the auspices of the Robinson-Patman Act, which was a 1936 strengthening of Section 2 of the Clayton Act. However, the DOJ has not brought a lawsuit under the Robinson-Patman Act since the early 1960s, and the FTC's suits have declined almost (but not quite) to zero (Kovacic 2003); private plaintiffs rarely win the few cases that they bring. The Antitrust Modernization Commission (2007), which was tasked by Congress with recommending modifications in the antitrust laws, recommended outright repeal of the Robinson-Patman Act.

prevent "collusion": explicit price fixing or bid rigging or cartel formation.<sup>4</sup> These efforts mostly consist of law suits brought by the DOJ and by private parties under Section 1 of the Sherman Act, which forbids "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States or with foreign nations..." Violations of the Sherman Act are felonies, which means that the DOJ can seek jail terms against individuals and sizable fines against companies. Private parties that claim to have been harmed directly by price-fixers can also bring suits (regardless of whether there have been any suits by the DOJ or FTC), with any proven damages being automatically trebled.

Second are efforts to prevent mergers, where their effect would be to cause a significant lessening of competition. These are primarily suits brought by the DOJ or the FTC under Section 7 of the Clayton Act, which forbids mergers "where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly." The goal of such a suit is simply to gain an injunction to stop the merger from proceeding.<sup>5</sup>

Third are efforts to restrain the unilateral exercise of market power by a seller (or a buyer). These are suits that can be brought by the DOJ, the FTC, or private parties. Section 2 of the Sherman Act (under which suits by the DOJ and private parties are authorized), forbids acts that "monopolize, or attempt to monopolize... any part of the trade or commerce among the Several States, or with foreign nations..." Again, the Sherman Act allows felony convictions, although the DOJ more often brings civil suits that seek injunctions in this area. And, again, private treble-

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<sup>4</sup> Although most antitrust enforcement efforts are phrased in terms of preventing anti-competitive acts by sellers, antitrust enforcement applies (in principle) equally to anti-competitive acts by buyers (and thus to the exercise of monopsony power as well as monopoly power).

<sup>5</sup> Such suits may be settled by agreements by the merging parties to divest sufficient assets so as to maintain a sufficiently competitive environment.

damages lawsuits can be brought.

In addition, the FTC has, under the auspices of Section 5 of the Federal Trade Commission Act, the ability to prevent "unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce." And, finally, the DOJ, the FTC, and private parties can bring suits aimed at tying, bundling, exclusive dealing, and similar vertical restraints under the auspices of Section 3 of the Clayton Act, which forbids efforts "to lease or make a sale or contract for sale of goods....within the United States....or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the goods....of a competitor or competitors....where the effect....may be to substantially lessen competition or tend to create a monopoly in any line of commerce."

In addition to prosecuting antitrust law violations, the DOJ and the FTC pursue pro-competition policies in three other, less well known ways: First, they frequently file "amicus" (friend of the court) briefs in privately filed antitrust cases that have reached appellate levels, especially cases reaching the Supreme Court. Since the number of private cases filed annually far exceeds the number of cases brought by the two enforcement agencies,<sup>6</sup> and private cases can yield legal precedents that are as binding as agency-filed cases, these amicus briefs give the agencies the opportunity to "lobby" the courts in favor of pro-competitive decisions.

Second, the DOJ and FTC engage in "competition advocacy": the advocacy of pro-competitive policies for other federal agencies in regulatory proceedings and for the 50 states in their regulatory actions. For example, in the past few years both the DOJ and the FTC have been urging the states (with only partial success) to eschew regulatory policies that would protect "full-service"

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<sup>6</sup> In recent decades the ratio of privately initiated antitrust suits to publicly initiated cases has been approximately ten to one; see, for example, Viscusi et al. (2000, p. 68).

residential real estate brokers from the competition offered by "discount" brokers.<sup>7</sup>

Third, as other countries (especially in the wake of the transition of Eastern European countries to market-oriented economies) have become more interested in developing antitrust policies of their own, the two U.S. enforcement agencies have provided international advice and technical assistance.

### III. Economics and Economists' Involvement in Antitrust -- A Brief History<sup>8</sup>

The influence of economics on antitrust has occurred along three paths: (a) advances in economics thinking -- as expressed in theoretical developments and empirical testing -- about the microeconomics that undergirds antitrust; (b) the direct involvement of economists in antitrust litigation and policy development at the enforcement agencies and in the service of private parties that have been plaintiffs or defendants in antitrust cases; and (c) writing about specific antitrust cases, including those in which they provided litigation support. This section will trace these three paths.

#### A. The development of economics thinking.

Prior to the 1930s it would be difficult to identify a body of economics thought that could be identified as "industrial organization" (IO).<sup>9</sup> By the end of the 1930s, however, the field was starting to coalesce and take shape.<sup>10</sup> Partly this was due to the influence of Edward Mason at Harvard

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<sup>7</sup> See, for example, White (2006).

<sup>8</sup> This section draws on parts of White (1999).

<sup>9</sup> I have been unable to determine when the phrase "industrial organization" was first used to describe the specific field of microeconomics that has now come to be associated with that phrase or when the phrase came into common use for describing the field. I have found a 1937 journal article title that comes close: "The Organization of Industry and the Theory of Prices" (Burns 1937). See the discussion in de Jong and Shepherd (2007).

<sup>10</sup> In 1942 when a collection of articles was published by the AEA (1942), titled Readings in the Social Control of Industry and reprinting a collection of 15 articles on IO-oriented topics that were

(Mason 1939, 1957) and his colleagues and Ph.D. students<sup>11</sup> (who included, in the 1930s and afterward, Donald Wallace, William Nichols, Jesse Markham, Merton J. Peck, Samuel Loescher, Richard Tennant, James McKie, Joe Bain, Carl Kaysen, Morris Adelman, Donald Turner, and Richard Caves), and partly this was due to the industrial data collection and analyses that emerged from the Temporary National Economic Committee (TNEC).<sup>12</sup>

The field continued to develop over the next few decades. By the 1950s the structure-conduct-performance (S-C-P) model -- with the central role of seller concentration as a determinant of industry conduct and performance -- was the mainstay of IO thinking. In addition, formal thinking about oligopoly (e.g., Chamberlin 1929, 1956, ch. 3; Fellner 1949, Stigler 1964), aided by insights from game theory (e.g., Shubik 1959; Schelling 1960) and especially the "prisoner's dilemma", helped support the central role of concentration. The role of entry in the model gained prominence in the 1950s (Bain 1954, 1956). Empirical testing of the relationship between industry profit rates as a dependent variable and structural characteristics of the various industries as the independent variables, using the Censuses of Manufactures as the central data source, provided empirical support for the model (Bain 1951), as did a large number of industry study monographs.<sup>13</sup>

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published between 1934 and 1940, none of the articles had "industrial organization" in its title, although the Burns (1937) article was among them); but the "Preface" to the volume (Homan 1942, pp. v-vi) mentioned that the selection of the articles followed "the principle of confining attention to the more general problems of public policy toward industrial organization and control..." See also Peltzman (2007).

<sup>11</sup> See Shepherd (2007); and see De Jong and Shepherd (2007) more generally for mini-biographies of some of the leading figures in IO during the 1930s and after.

<sup>12</sup> The TNEC was created by an act of Congress in June 1938 and ended in April 1941. In its three years of existence it generated 37 volumes of testimony, two volumes of recommendations, and 43 monographs. Its data collection efforts provided the precedent for the Census of Manufactures, which first published data for 1947. For an example of its monographs, see Wilcox (1940).

<sup>13</sup> See Grether (1970) for a listing.

By the end of the 1950s, Bain's (1959) IO text laid out the S-C-P paradigm in systematic form, while the Kaysen and Turner (1959) treatise on antitrust provided an extensive application of the paradigm to antitrust.<sup>14</sup> It is noteworthy that Kaysen and Turner's strong structuralist deconcentration remedies for oligopolistic industries rested heavily on Bain's (1954, 1956) finding that economies of scale, though a significant barrier to entry in many industries, did not appear to extend to the sizes of the largest firms in these industries -- with the implication that antitrust-forced divestitures would involve little or no sacrifice in productive efficiencies.

Government antitrust victories, and the judicial opinions that supported those victories, in Sherman Section 1 and Section 2 cases in the 1940s and 1950s involving the aluminum industry, the cigarette industry, the movie industry, and the shoe machinery industry reflected these developments of the S-C-P paradigm. Only in the movie industry, however, were there major divestitures as remedies -- but these involved vertical separations, not the horizontal divestitures envisioned by Kaysen and Turner.

Further, after being largely dormant because of unduly restrictive wording in its original legislative language, Section 7 of the Clayton Act was revived by the Cellar-Kefauver Amendment in 1950. A remarkable 25-year series of government challenges to mergers -- mostly victorious -- followed, based largely on S-C-P grounds (although some elements of populist fears of bigness were also present).<sup>15</sup>

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<sup>14</sup> By the late 1950s and early 1960s the S-C-P paradigm was also being applied to regulated industries; see, for example, Meyer et al. (1959) and Caves (1962).

<sup>15</sup> The major cases in this series included: U.S. v. Bethlehem Steel Corp. et al., 168 F. Supp. 576 (1958); Brown Shoe Co. v. U.S., 370 U.S. 294 (1962); U.S. v. Philadelphia National Bank et al., 374 U.S. 321 (1963); U.S. v. Aluminum Company of America et al., 377 U.S. 271 (1964); U.S. v. Continental Can Co. et al., 378 U.S. 441 (1964); FTC v. Consolidated Foods Corp., 380 U.S. 592 (1965); U.S. v. Von's Grocery Co. et al., 384 U.S. 270 (1966); U.S. v. Pabst Brewing Co., 384 U.S. 546 (1966); FTC v. Proctor & Gamble Co. et al., 386 U.S. 568 (1968); Citizen Publishing Co. v U.S., 394 U.S. 131 (1969); and U.S. v. Falstaff Brewing Corp., 410 U.S. 526 (1973).



The 1960s and early 1970s saw further elaborations of the S-C-P paradigm and more extensive testing of the profitability-concentration relationship, with the inclusion of entry conditions (e.g., Mann 1966; Comanor and Wilson 1967; Collins and Preston 1968, 1969; Weiss 1971),<sup>16</sup> advertising (e.g., Comanor and Wilson 1967, 1974), foreign trade (e.g., Esposito and Esposito 1971), the structural conditions on the buyers' side of the market (e.g., Lustgarten 1975), risk (e.g., Bothwell and Keeler 1975), and the presence of a critical concentration ratio (e.g., White 1976).<sup>17</sup> But a "Chicago School" counter-revolution was brewing as well, which argued that high concentration might be causing high profit rates, because of economies of scale (contrary to the earlier claims by Bain).<sup>18</sup> The famous "face-off" of the S-C-P advocates versus the Chicago School in the early 1970s led to the publication of a widely read and cited conference volume (Goldschmid et al. 1974).

A further blow to the profit-concentration empirical support for the S-C-P model came in the early 1980s, from two major attacks (Benston 1982; Fisher and McGowan 1983; Fisher 1984) on the reliability of the accounting data that were used to measure the profit rates used in the studies. Profit-based tests of the S-C-P paradigm quickly tailed off, but were soon replaced by price-based studies drawn from individual industries (e.g., as summarized in Weiss 1989; Audretsch and Siegfried 1992), which tended to show a similar positive relationship between prices and concentration. In addition, empirical studies of auctions indicated that the number of bidders at auctions (which, say, in procurement auctions would be an approximate equivalent to the number of sellers in a market) would have the same type of effect on prices (e.g., Brannman et al. 1987; Brannman and Klein 1992).

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<sup>16</sup> Also, see the later surveys of entry that are to be found in Siegfried and Evans (1992, 1994) and Geroski (1995).

<sup>17</sup> See Weiss (1971, 1974), Bresnahan (1989), Schmalensee (1989), and Caves (2007) for summaries.

<sup>18</sup> See Demsetz (1973, 1974).

As is discussed in Section IV below, the S-C-P paradigm, with some further economics-based supplements, became the basis for much of the modern version of the DOJ (and now DOJ-FTC) "Merger Guidelines".

In the area of vertical relationships, too, there was a clash between the "Harvard" tradition and the "Chicago" tradition. The former was suspicious of -- and tending to hostility toward -- vertical mergers (e.g., between suppliers and customers) and vertical restraints (e.g., tying, bundling, exclusive dealing, territorial sales restraints, resale price maintenance). As will be discussed in Section IV, until the early 1970s antitrust legal decisions were generally hostile toward vertical mergers and vertical restraints, but since then the line of economic reasoning that was championed by the Chicago School has prevailed in the courts.

Finally, it is worth noting that a number of IO-oriented professional economics journals came into existence, providing specialized vehicles for the dissemination of the research in IO. Included in this list (with their first year of publication) would be: Journal of Industrial Economics (1952); Antitrust Bulletin (1955); Journal of Law & Economics (1958); Rand Journal of Economics (1970);<sup>19</sup> Review of Industrial Economics (1977);<sup>20</sup> International Journal of Industrial Organization (1984); Journal of Regulatory Economics (1984); and Journal of Economics & Management Strategy (1992). Also, a first-ever Handbook of Antitrust Economics (Buccirossi 2007) is another milestone in the maturation of economics thought as applied to antitrust.<sup>21</sup>

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<sup>19</sup> The RJE was originally (1970) the Bell Journal of Economics and Management Science, then (1975) the Bell Journal of Economics, and then (1984) the RJE.

<sup>20</sup> The RIO was originally the Industrial Organization Review. It became the RIO in 1984.

<sup>21</sup> That the appearance of this volume marks a milestone in the relationship of IO to antitrust is highlighted by the fact that there was not even a chapter devoted to antitrust economics in the original two-volume Handbook of Industrial Organization (Schmalensee and Willig 1989a, 1989b). There was a section in the second volume that was devoted to "Government in the Marketplace". But all five chapters in that section (Noll 1989; Braeutigam 1989; Baron 1989; Joskow and Rose 1989; and Gruenspecht and Lave 1989) were focused on regulation, not antitrust.

## B. The role of economists at the enforcement agencies and in antitrust litigation.

Economists' direct involvement in antitrust extends back at least to the beginning of the twentieth century,<sup>22</sup> although their role prior to the 1970s was often limited to simple litigation support -- in a sense, as "hewers of wood and haulers of water" -- rather than being able to participate in the development of case theories and the formulation of policy.

The U.S. Bureau of Corporations, which had been established in 1903 within the Department of Commerce and Labor and which had economists on its staff, provided valuable research support for some of the early antitrust prosecutions undertaken by the DOJ, including U.S. v. Standard Oil Co., 221 U.S. 1 (1911), and U.S. v. American Tobacco Co., 211 U.S. 106 (1911) (Scherer 1990). An early -- possibly, the first -- testimony by an economist in an antitrust case was in U.S. v. Unites States Steel Corp., 223 F. Rep. 55, 251 U.S. 417 (1920), which was filed in October 1911 and ultimately decided by the Supreme Court in 1920 against the DOJ. The Supreme Court's decision disparagingly cited the testimony of "an author and teacher of economics whose philosophical deductions had, perhaps, fortification from experience as Deputy Commissioner of Corporations and as an employee in the Bureau of Corporations." (251 U.S. 417, 448)

When the FTC was created in 1914, its Economic Department (later to become the Economic Division and then the Bureau of Economics, which is the title it retains today) inherited the Bureau of Corporations' research and investigative role, as well as absorbing the specific office accommodations and personnel of its predecessor agency (Scherer 1990).<sup>23</sup>

At the DOJ the responsibility for antitrust enforcement was placed in a separate division --

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<sup>22</sup> As Scherer (1970, p. 424) has noted, economists in the 1880s were generally unconcerned about the rise of the "trusts" and thus do not appear to have been advocates of passage of the Sherman Act.

<sup>23</sup> See also Blaisdell (1922), Henderson (1924), Stevens (1940), and Mueller (2004).

the Antitrust Division, where that responsibility still rests -- only in 1933.<sup>24</sup> Within three years the Division hired its first economists (White 1984). Until the early 1970s, however, the economics group within the Division was used primarily for data gathering and statistical support in litigation. Indeed, a study of the Division in the early 1970s (Green 1972, p. 128) characterized economists there as "...second class citizens. They have little or no say in the type of cases brought, the legal theories used, or the relief sought. In general, they neither conduct long-range studies nor work closely with the policy-planning staff. Mostly they aid attorneys in the preparation of statistical data for trial, and they occasionally testify. They are technicians -- "statisticians," as nearly all of the lawyers call them -- and act like it." A later study (Weaver 1977) mentioned economists only in passing -- again an indication of their subsidiary role.

In the mid 1960s the Assistant Attorney General for Antitrust, Donald Turner (who had a Ph.D. in economics from Harvard as well as a law degree), established the position of Special Economic Assistant to the Assistant Attorney General, and a number of young industrial organization economists -- William Comanor, Oliver Williamson, Leonard Weiss, William G. Shepherd, H. Michael Mann, Kenneth Elzinga, George Eads, and George Hay -- served one-year terms in the position. But, until the early 1970s, little was done to strengthen the quality and position of the staff economists at the Division, as reflected in the description above.

At the FTC the tradition that had started at the Bureau of Corporations served economics and economists somewhat better. The Bureau of Economics (BE) was able to attract Ph.D.-trained leaders, such as Corwin Edwards, John Blair, Jesse Markham, and Willard Mueller, and during the

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<sup>24</sup> The DOJ acquired antitrust enforcement authority under the Sherman Act in 1890. Until 1903 enforcement was carried out directly within the Office of the Attorney General, and from 1903-1933 it was carried out within the Office of the Assistant to the Attorney General (White 1984). According to Edwards (1940), who cited Thurman Arnold, "the great trust-busting campaign of Theodore Roosevelt [which included the filing and litigation of the Standard Oil, American Tobacco, and other important antitrust cases] was conducted with 7 lawyers and 4 stenographers."

1960s the size and budget of BE expanded considerably (Mueller 2004). Nevertheless, at the end of the 1960s outside reviews of the FTC (ABA 1969; Green 1972) commented unfavorably on the low quality of BE's personnel and on BE's lack of influence on policy and decision-making within the agency.<sup>25</sup>

Two top-level committee reviews of general antitrust policy at the end of the 1960s viewed economics and economists quite differently. The "Neal Report" (White House 1968) was largely silent on the subject, although it did endorse improvements in the gathering of economic information by the enforcement agencies. The "Stigler Report" (Task Force 1969), on the other hand, strongly endorsed an expanded role for economics and economists at the Antitrust Division and at regulatory agencies more widely.

The 1970s brought a general strengthening of the position of economists at the two enforcement agencies and in antitrust litigation support.<sup>26</sup> At the FTC a reorganization and reform of the agency strengthened the position and status of BE. During the decade H. Michael Mann, F.M. Scherer, Darius Gaskins, and William Comanor served as BE Directors. Commentaries at the end of the 1970s (Katzman 1980; Clarkson and Muris 1981) noted the strengthened position of BE. At the DOJ in 1973 George Hay, completing his one-year term as Special Economic Assistant, convinced the Division to strengthen the Economics Section and transform it into the Economic Policy Office, with Hay as its initial director and with authority to expand its personnel and recruit Ph.D. economists to staff positions (Kauper 1984).

More generally, the 1970s saw an increased involvement of economists in antitrust cases;

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<sup>25</sup> For a different view, see Mueller (2004).

<sup>26</sup> Kwoka and White (1989, 1994, 1999, 2004a, 2009) have written about the "revolution" of the application of economics reasoning to antitrust in the 1970s and afterward and enlisted economists who participated in major antitrust cases to write analyses of the cases in which they were involved. Some of the 1970s cases are discussed below.

sometimes the economists' involvements led to publications that reviewed the economic issues of the specific cases in which they had been involved. These writings will be discussed below.

The involvement of economists in antitrust policy, as well as litigation support, took a sharp turn upward in the early 1980s, with the arrival at the Antitrust Division and the FTC of leaders who were quite sympathetic to the role and message of microeconomics in the development of antitrust policy and in litigation.<sup>27</sup> For the first time there were FTC Commissioners who were economists, including the Chairman during the first few years of the Reagan Administration. The FTC continued to have an economist as at least one of its five commissioners during 1981-1985 and 1991-1995. At the Division, an indication of the rising importance of economists in the mid 1980s was the redesignation of the Director of the Economic Policy Office as a Deputy Assistant Attorney General.

As of the first decade of the twenty-first century, economists continue to play prominent roles at both agencies (see, e.g., Barnett 2007; Salinger et al. 2007; Carlton and Heyer 2007). At the DOJ, there are approximately 60 Ph.D.-level economists, headed by a Deputy Assistant Attorney General who is usually a leading academic IO economist and who typically serves for about two years in the position. Similarly at the FTC, the BE is staffed by approximately 70 Ph.D.-level economists (although about a quarter of their time is spent on consumer protection issues), and the Bureau Director is usually a leading academic economist who spends about two years in the position.

### C. Economists' writings about specific antitrust cases.

The tradition of economists' writing specifically about major antitrust cases extends at least as far back as a 1949 symposium in the American Economic Review (Adelman 1949a; Nicholls 1949); Nicols 1949)<sup>28</sup> and includes Stocking and Mueller's (1955) discussion of the "cellophane

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<sup>27</sup> Also in the late 1970s and the 1980s the number of economics consulting firms that had extensive antitrust litigation support practices increased substantially. Often these firms were led and staffed by "alumni" from the economics staffs of the two enforcement agencies.

<sup>28</sup> The cases about which they were writing were, respectively, U.S. v. New York Great Atlantic

fallacy" of U.S. v. E. I. du Pont de Nemours & Co., 118 F. Supp 41 (1953), 351 U.S. 377 (1956). Most of the antitrust discussions prior to the 1970s were by economists who had simply become interested in the details and implications of a particular antitrust case. A notable exception was Carl Kaysen, who in 1950 as a Ph.D. student of Edward Mason's at Harvard provided a unique form of antitrust litigation support: He was appointed as a law clerk by Federal District Court Judge Charles Wyzanski, to provide economic counseling to Judge Wyzanski in the DOJ's monopolization trial of the United Shoe Machinery Company.<sup>29</sup> Kaysen served for two years and wrote a lengthy report for Judge Wyzanski, which subsequently became Kaysen's Ph.D. dissertation and a monograph (Kaysen 1956).

By the 1970s economists were actively participating in antitrust cases more frequently -- and writing about those cases and their participation more frequently. Such instances in cases initiated in the 1970s included Fisher et al. (1983), DeLamarta (1986), and Houthakker (1999) on the DOJ's monopolization suit against IBM; Brock (1989) on private suits against IBM; Evans (1983) and Noll and Owen (1994) on the DOJ's suit to break up AT&T; Hay (1999) on the FTC's suit against the manufacturers of lead-based antiknock gasoline additives; White (1975) on the DOJ's suit alleging price-fixing of fleet automobile sales by General Motors and Ford; Schmalensee (1978) and Scherer (1979) on the FTC's investigation of the breakfast cereal industry; Hilke and Nelson (1989) on the FTC's allegations of predation in the sale of coffee; Dobson et al. on the FTC's suit concerning du Pont's monopoly of titanium oxide (1994); Cox (1989) on a private suit challenging state-imposed restrictions on advertising by lawyers; Elzinga (1999) on a private suit alleging conspiracy and predation by Japanese manufacturers of televisions; Preston (1994) on a private suit challenging

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& Pacific Tea Co. et al., 173 F.2d 79 (1949); American Tobacco Co. et al. v. U.S., 147 F. 2d 93 (1944), 328 U.S. 781 (1949); and FTC v. Cement Institute et al., 333 U.S. 683 (1948). See also Adelman (1949b).

<sup>29</sup> U.S. v. United Shoe Machinery Corp., 110 F. Supp. 295 (1953), 347 U.S. 521 (1954).

territorial restraints by GTE-Sylvania; Warren-Boulton (1999) on a private suit alleging resale price maintenance by Monsanto; and Lynk (1999) on a private suit alleging tying by Jefferson Parish (Louisiana) Hospital.

Since the 1970s economists' participation in antitrust litigation has become substantially more frequent (Kovacic 1992; Barnett 2007), and articles reflecting that participation also continue to appear (see, e.g., Kwoka and White 1989, 1994, 1999, 2004a, 2009).

#### IV. Special Achievements

There are two areas of antitrust where economists' achievements in bringing changes in antitrust enforcement and policy are especially noteworthy: merger analysis, and vertical relationships and restraints. Each will be addressed below.

##### A. Merger analysis.

Almost all of modern antitrust merger analysis takes as its starting point the DOJ-FTC Horizontal Merger Guidelines.<sup>30</sup> The Guidelines, first published in 1982<sup>31</sup> and subsequently revised in 1987, 1992, and 1997, establish two approaches under which a merger might be deemed to have anti-competitive consequences: "coordinated effects" and "unilateral effects".

1. Coordinated effects. This is a direct application of the S-C-P model, with the special emphases that were provided by Stigler (1964). The primary concern under this approach is that oligopolistic sellers will, post-merger, be able implicitly to coordinate their behavior so as to achieve significantly higher prices (or to effect other changes in conduct variables) and higher profits. Seller

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<sup>30</sup> Accessible at: <http://www.usdoj.gov/atr/public/guidelines/hmg.htm>

<sup>31</sup> An earlier set of DOJ Guidelines were published in 1968 but proved unsatisfactory and were largely scrapped when the 1982 Guidelines were adopted. The economists at the DOJ played an extensive role in the development of the 1982 Guidelines, especially the market definition paradigm that is discussed below; see White (2000).



concentration, as measured by the Herfindahl-Hirschman Index (HHI),<sup>32</sup> occupies the center stage (as it does in the S-C-P model) for at least two reasons: First, seller concentration is surely the most readily measured structural attribute; and second, the immediate effect of any horizontal merger is to increase seller concentration. The Guidelines indicate specific guideposts as to post-merger concentration (and merger-induced changes in concentration) that will likely trigger close scrutiny and possible intervention.<sup>33</sup>

The Guidelines also bring into the analysis the other important components of the S-C-P model: conditions of entry; the buyer side of the market; the nature and complexity of the product; the transparency (or opaqueness) of price and other market information; and the antitrust history of the sellers in the market.

A particular problem of implementing merger enforcement prior to 1982 had been the issue of defining the relevant product and geographic markets. The S-C-P model assumes that an appropriate market has been specified, so that the market shares of the leading firms provide a meaningful indication of the likelihood that the firms will collectively exercise market power. But the S-C-P model itself provides no guidance for delineating appropriate markets.

The Guidelines addresses this problem in the following way: A relevant market is defined as a product or group of products that are sold by a group of sellers who, if they acted in concert (i.e., as a "hypothetical monopolist"), could achieve a "small but significant and nontransitory increase in price" (SSNIP); that SSNIP is designated as 5% for one year. This is equivalent to defining a

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<sup>32</sup> The HHI was used as the measure of seller concentration in the Guidelines, rather than the four-firm concentration ratio (which was far more commonly used prior to 1982), partly because it is a more complete measure of the shares of all firms in the market and partly because Stigler (1964) showed that it could serve as an indicator of the ease with which sellers who were trying to coordinate their pricing could distinguish between random market share fluctuations and the market share changes that could occur as a consequence of a surreptitious price cut.

<sup>33</sup> Actual enforcement, however, has indicated that substantially higher HHI levels are the de facto thresholds. See Leddy (1986), Coate (2005), and Coate and Ulrick (2005).

relevant market as one in which market power can be exercised (or one in which market power can be enhanced).<sup>34</sup> The smallest group of sellers that satisfies the SSNIP test is usually designated as the relevant market. These principles apply to the determination both of product markets and of geographic markets. The determining factor in the analysis is whether sufficient numbers of buyers would switch away to other sellers (of other goods and/or located in other areas) so as to thwart the price increase.

The logic of this approach follows from the goal of preventing mergers that create or enhance market power. The SSNIP test identifies the smallest group of sellers who could exercise such power. With one exception, the market definition paradigm focuses on sellers (since it is sellers who exercise market power). That exception arises when a group of sellers may be able to practice price discrimination and raise prices significantly for an identifiable group of buyers (defined by a geographic area or by a business function). In such a case, that group of buyers may also be considered to be a relevant market.

This market definition paradigm has proved enduring and has spawned a "mini industry" of econometric efforts in merger cases to estimate "critical" demand elasticities and price-cost margins that would indicate the boundaries of relevant markets.<sup>35</sup>

2. Unilateral effects. The 1992 revision to the Merger Guidelines added "unilateral effects" as a second area of anti-competitive concern with respect to mergers. By this is meant a significant post-merger price increase that could occur solely on the part of the merged entity. This unilateral price increase could occur if the two merging firms produced products that were moderately close

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<sup>34</sup> As Werden (2003) has indicated, the first suggestion for using this approach to define relevant markets for merger analysis was by Adelman (1959). Other efforts at defining markets, such as Elzinga and Hogarty (1973) and Horowitz (1981), proved less satisfactory than the approach outlined in the text.

<sup>35</sup> See, for example, Katz and Shapiro (2003).

substitutes for each other (but not perfect substitutes) and a significant number of the customers of each firm had as their runner-up choice the products of the merger partner. If the products of all other firms were a distant enough third choice for these customers, then the merged entity would likely find a general price increase worthwhile (Ordover and Willig 1993) -- and could do even better if it could identify and target these "trapped" customers and thereby practice selective price discrimination against them.<sup>36</sup>

Note that the anti-competitive effects of this type of merger do not arise because of cooperation or collusion among the firms that compete with the merged entity. Instead the competitive harm occurs because the merged firm is better able to internalize the benefits of a price increase.

Note also that for the unilateral effects analysis the issues of market definition and market shares are largely irrelevant, since what matters is the extent to which customers have the two merging firms as their first and second choices (and the extent to which other firms are a distant third choice). Thus, direct measurements of elasticities and cross-elasticities are crucial. and, again, a mini-industry of empirical estimations for antitrust purposes has arisen.<sup>37</sup>

#### B. Vertical relationships and restraints.<sup>38</sup>

As was noted above, the "Harvard" IO tradition was hostile toward vertical relationships and vertical restraints. The important Kaysen and Turner (1979) antitrust treatise, for example, had a

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<sup>36</sup> Unilateral effects could also occur if a dominant firm merged with one of its rivals, even in a homogeneous goods industry (Stigler 1965). The post-merger concentration (and merger-induced change in concentration) guideposts would probably be sufficient to catch such mergers; but, to be on the safe side, the Guidelines also indicate that any merger involving a firm that has a market share of 35% or higher will receive special scrutiny.

<sup>37</sup> See, for example, Werden and Froeb (1994, 2007) and Pelcovits (2004).

<sup>38</sup> An earlier treatment of this topic can be found in White (1989).

generally negative view of vertical mergers and of vertical restraints such as tying,<sup>39</sup> bundling, exclusive dealing, requirements contracts, full-line forcing, territorial restraints, and resale price maintenance (RPM).<sup>40</sup> Earlier, the Report of the Attorney General's National Committee to Study the Antitrust Laws (1955), which included economists Walter Adams, Morris Adelman, John M. Clark, Alfred Kahn, Eugene V. Rostow, Sumner Slichter, and George Stigler,<sup>41</sup> as well as a number of leading antitrust lawyers and law professors, showed a similar harsh view of vertical restraints.<sup>42</sup>

"Chicago", however, began offering a different view of vertical restraints. Bowman (1957) and Burstein (1960a) argued that tying was often a vehicle for monitoring the buyers' use of the tied product and thus serving as an alternative mechanism for effecting price discrimination (about which the welfare effects are generally ambiguous); Burstein (1960b) argued the same for full-line forcing.<sup>43</sup> Telser (1960) argued that RPM could be a means by which a manufacturer (or other "upstream" entity) could overcome the potential free riding problems that accompany the provision

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<sup>39</sup> "...a flat rule against tying arrangements, regardless of whether they serve a useful purpose, appears justified" (Kaysen and Turner, 1959, p. 159).

<sup>40</sup> At least part of the reason for many economists' harsh view of RPM was the experience of the 1930s, when small retailers (and especially pharmacists) lobbied for protection against "unfair" competition from large chain stores. One legislative reaction, already noted above, was the Robinson-Patman Act of 1936, which strengthened the Clayton Act's Section 2 prohibitions on price discrimination (because, the small retailers alleged, the chain stores were extracting discounts from manufacturers that were unavailable to smaller retailers). Another response, the Miller-Tydings Act of 1937, authorized the states to legalize RPM (which also went by the name "fair trade"), so that the small retailers could convince manufacturers to impose RPM and thus force the chain stores to sell at the same prices as the smaller retailers.

<sup>41</sup> It is worth noting that, though Stigler was subsequently associated with the "Chicago School", at the time of the Report he was a Professor at Columbia University. See Peltzman (2007).

<sup>42</sup> White (1989) offers some reasons for these harsh views.

<sup>43</sup> It was also argued that tying and similar vertical restraints could be a way of making sure that the product functioned properly and thus preserving the goodwill of the manufacturer and of dealing with potential free riding problems.

of product information to customers and thereby induce more point-of-sale service from retailers.<sup>44</sup> The free riding argument for RPM has been extended to the provision of other retailer services (Mathewson and Winter 1984; Marvel 1985; Marvel and McAfferty 1984, 1985, 1986). And free riding problems have been offered as a justification for territorial restraints (White 1981) and for exclusive dealing (Marvel 1982). Further, there was a widespread "Chicago" attack on the idea that vertical integration could generally have serious anti-competitive consequences.<sup>45</sup>

Prior to the mid 1970s, the Supreme Court's antitrust legal decisions with respect to vertical restrictions and vertical mergers were consistent with the harsh "Harvard" view. Early on, the Court condemned RPM as a per se violation of Section 1 of the Sherman Act in Dr. Miles Medical Co. v. John D. Park and Sons Co., 220 U.S. 373 (1911).<sup>46</sup> This decision was subsequently reaffirmed in U.S. v. Bausch & Lomb Optical Co., 321 U.S. 707 (1944); U.S. v. Parke, Davis & Co., 362 U.S. 29 (1960); Simpson v. Union Oil Co., 377 U.S. 13 (1960); and Albrecht v. Herald Co., 390 U.S. 145 (1968).<sup>47</sup>

Tying came under attack in Motion Picture Patents Co. v. Universal Film Manufacturing Co., 243 U.S. 502 (1917);<sup>48</sup> United Shoe Machinery Corp. v. U.S., 258 U.S. 451 (1922); Carbice

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<sup>44</sup> See also Bowman (1955). Telser acknowledged that RPM could be a cover for a retailers' cartel or even for a manufacturers' cartel. What was important, however, was his demonstration that a manufacturer unilaterally might find RPM to be in its interests.

<sup>45</sup> See, for example, Bork (1954, 1978); Bork and Bowman (1965); McGee 1971); Bowman (1973); and Posner (1976). For a discussion of some of the "counter-revolution" literature that showed that vertical restraints and vertical mergers might not be as benign as the Chicago revolution claimed, see White (1989). See also Perry (1989).

<sup>46</sup> However, in U.S. v. Colgate & Co., 250 U.S. 300 (1919), the Court decided that it was legal for a manufacturer to decide what the retail price of an item should be and then unilaterally decline to deal with any retailer that failed to adhere to that price. The tension between Dr. Miles Medical and Colgate remained a problem until the Leegin decision in 2007, which is mentioned below.

<sup>47</sup> Albrecht involved maximum RPM.

<sup>48</sup> Prior to the 1914 passage of the Clayton Act's Section 3 prohibition on tying, the Court had

Corp. v. American Patent Development Corp., 283 U.S. 27 (1931); International Business Machines Corp. v. U.S., 298 U.S. 131 (1936); Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488 (1942); and International Salt Co. v. U.S., 332 U.S. 392 (1947). In 1949 the Court condemned tying as a per se illegal offense in Northern Pacific Railway Co. v. U.S., 356 U.S. 1 (1949), and declared that "Tying agreements serve hardly any purpose beyond the suppression of competition," Standard Oil Co. of California et al. v. U.S., 337 U.S. 293, 305-306 (1949). This onslaught on tying continued in U.S. v. Loew's, Inc., 371 U.S. 38 (1962); Atlantic Refining Co. v. FTC, 381 U.S. 357; FTC v. Texaco, 393 U.S. 223 (1968); and Fortner Enterprises, Inc. v. United States Steel Corp., 394 U.S. 495 (1969).

Similarly, the Court attacked requirements contracts in Standard Oil Co. of California et al. v. U.S., 337 U.S. 293 (1949), and in Richfield Oil Corp. v. U.S., 343 U.S. 922 (1952). Earlier, the Court had attacked exclusive dealing in Standard Fashion Co. v. Magrane-Houston Co., 258 U.S. 346, and repeated that attack in Standard Oil (1949) and in FTC v. Motion Picture Advertising Service Co., 344 U.S. 392 (1953). Later, in U.S. v. Arnold Schwinn & Co. et al., 388 U.S. 365 (1967), the Court condemned territorial restraints as a per se violation of the Sherman Act.<sup>49</sup>

And the Court condemned vertical mergers in U.S. v. E.I. du Pont de Nemours & Co., 353 U.S. 586 (1957); Brown Shoe Co. v. U.S., 370 U.S. 294 (1962); and in Ford Motor Co. v. U.S., 405 U.S. 562 (1972).

The tide turned after the mid 1970s,<sup>50</sup> with "Chicago" arguments largely carrying the day. In  

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upheld tying in a patented product case: Henry v. A.B. Dick Co., 224 U.S. 1 (1912).

<sup>49</sup> Four years earlier, in White Motor Co. v. U.S., 372 U.S. 253 (1963), the Court had declared that it did not know enough about territorial restrictions to be able to decide whether to condemn them or not.

<sup>50</sup> There were exceptions to the pre-1970s pattern described above. For example, in Tampa Electric Co. v. Nashville Coal Co., 365 U.S. 320 (1961), the Court declined to condemn a requirements contract and declared that exclusive dealing should be judged by a rule of reason. That same year, in U.S. v. Jerrold Electronics Corp., 365 U.S. 567 (1961), the Court affirmed a lower court opinion that allowed tying for a start-up situation. But these and a few other cases were exceptions. The general pattern was as described in the text.

1977 two important decisions showed the change in direction. In Continental T.V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36 (1977), the Court declared that territorial restraints should be examined under a rule of reason, rather than being automatically condemned as per se illegal under the rule of Schwinn just 10 years earlier. And in United States Steel Corp. v. Fortner Enterprises, Inc., 429 U.S. 610 (1977), the Court found (reinforcing Jerrold) that the absence of market power in the tying market meant that a tying arrangement was acceptable (despite the per se rule of Northern Pacific, which remained in place).

The 1980s saw further progress. Though the Supreme Court continued its per se condemnation of RPM in Monsanto Co. v. Spray-Rite Corp., 465 U.S. 752 (1984), and in Business Electronics Corp. v. Sharp Electronics Corp., 485 U.S. 717 (1988), it raised the standard of proof that plaintiffs would need to provide in order to prevail. In Jefferson Parish Hospital District No. 2 v. Edwin G. Hyde, 466 U.S. 2 (1984), the Court again found that the absence of market power meant that a tying arrangement was acceptable; and a minority opinion signed by four members of the Court argued that the per se rule for tying should be superseded by a rule of reason approach.

In the 1990s, the Court took a step back on tying, in Eastman Kodak Company v. Image Technical Services, Inc., 504 U.S. 451 (1992), in which the Court (on a motion for summary judgment) found that Kodak must stand trial on a tying claim. However, later in the decade, in State Oil v. Khan, 522 U.S. 3 (1997), the Court declared that maximum RPM should be judged under the rule of reason (and not condemned as a per se violation, as had been decided in Albrecht).

The first decade of the twenty-first century has been auspicious in this respect. In Illinois Tool Works, Inc. v. Independent Ink, Inc., 547 U.S. 28 (2006), the Court decided that the presence of a patent on the tying product does not automatically mean that the seller has market power. And in Leegin Creative Leather Products, Inc. v. PSKS, Inc., 127 S. Ct. 2705 (2007) the Court decided that minimum RPM -- the "plain vanilla" version of RPM that had been condemned as per se illegal in Dr. Miles -- should also be judged under a rule of reason.

In sum, antitrust law (as interpreted through Supreme Court decisions and DOJ and FTC enforcement decisions) has made great progress since the 1970s, building on the advances in economics thinking discussed above. Challenges to vertical mergers are rare, as they should be.<sup>51</sup> Most vertical restraints are judged under a rule of reason; and even judgments concerning tying, which is still nominally a per se violation, are at least requiring a showing of market power. Where vertical restraints involve abuses and enhancements of market power, as in U.S. v. Microsoft, 253 F.3d 34 (2001), and U.S. v. Dentsply International, Inc., 399 F.3d 181 (2006), prosecutions occur and succeed, as they should. And, with luck, in the not too distant future, the Supreme Court will see the wisdom of formally reversing Northern Pacific and judging tying cases under the rule of reason as well, completing the movement from the harsh judicial treatment of the 1960s to a more balanced view of vertical relationships and vertical restraints - based on sensible economics.

#### V. Conclusion

It is clear that the influence of economics on antitrust legal decisions and policy over the past two to three decades has been substantial. This influence has occurred through developments in economics thinking, through the elevation of economists' status and positions at the DOJ and the FTC, and through the wider participation of economists in antitrust litigation generally.

Reasonable economists can differ as to the wisdom of some of these developments and as to the particular stringency of enforcement (or lack thereof) over the past few decades. But few can argue with the proposition that economists' influence has increased.

Nirvana has not yet arrived, however. There are at least three areas where further creative economics thinking and influence could encourage better antitrust decisions and policy. First, there is the ongoing dilemma of how to take into account the efficiencies that may accompany a proposed

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<sup>51</sup> For a discussion of one worthwhile challenge in the 1980s, see White (1985).



merger. The tradeoffs of the potential welfare losses from heightened market power as against the potential improved efficiencies have been apparent at least since Williamson (1968). But improved efficiencies are easy to promise and may be difficult to deliver;<sup>52</sup> and "unscrambling the eggs" of a merger a few years after it has been approved and the efficiencies have failed to appear may be difficult or impossible (as well as the difficulties of even trying to measure whether efficiencies have indeed appeared or not).

Second, unilateral predatory behavior needs a more nuanced approach. Current antitrust decisions -- as enunciated in Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209 (1992), and recently re-affirmed in Weyerhaeuser Co. v. Ross-Simmons Lumber Co., 127 S. Ct. 1069 (2007) -- portray predation as a low-price strategy that is strictly a narrow investment involving an initial investment in below-marginal-cost pricing that will be recouped in higher prices and profits after the target firm departs from the market. Lost in this narrow approach are the larger issues of whether achieving a reputation for below-cost pricing might deter future entry or deter fringe firms that might otherwise be inclined to be mavericks. Achieving this reputation could make the action worthwhile, even if the specific instance under scrutiny would (when the analysis is narrowly confined to only the costs and returns in this instance) not appear to be profitable.<sup>53</sup> Further, applying even this narrow cost-benefit paradigm to non-price behavior has proved difficult.<sup>54</sup> And the issue of bundled discounts, as portrayed in LePage's Inc. v. 3M, 324 F.3d 141 (2003), has roiled antitrust thinking.<sup>55</sup>

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<sup>52</sup> For an example, see Kwoka and White (2004b). However, for a closer call on these tradeoff issues, see Baker (2004).

<sup>53</sup> See, for example, Brodley et al. (2000).

<sup>54</sup> See, for example, the discussion in Edlin and Farrell (2004).

<sup>55</sup> The AMC Report, for example, devoted a surprisingly large amount of space to the decision and to remedies. For a discussion of LePage's, see, for example, Roberts (2009).

Clear economics thinking can surely help. For example, the concept of "no economic sense" -- that a price or non-price action should be condemned if it made no economic sense for the firm undertaking it unless the target firm disappeared from the market or would otherwise be disciplined - - is surely one direction that is worth pursuing (although it does not encompass the strategic reputation issues raised above).<sup>56</sup> There may well be other directions that good economics thinking can uncover.

Third, the issue of market definition in Sherman Act Section 2 monopolization cases remains in an unsatisfactory state. This problem is at the center of the so-called "cellophane fallacy": The Supreme Court in U.S. v. E. I. du Pont de Nemours & Co., 351 U.S. 377 (1956), decided that the relevant market for analyzing du Pont's market share was "flexible wrapping materials", in which du Pont's cellophane had less than a 20% share, rather than cellophane itself, which du Pont dominated.

The Court reached this decision by noticing that du Pont was constrained from raising its cellophane prices by the likelihood that it would lose too many customers to sellers of other flexible wrapping materials. The difficulty with this approach (as was pointed out by Stocking and Mueller 1955) is that a monopolist of cellophane would be expected to maintain a price that would have exactly this property. Accordingly, this "test" cannot distinguish between a monopolist of cellophane and a competitor in the flexible wrapping materials market.<sup>57</sup> Nevertheless, this test frequently appears in the market definition parts of monopolization decisions.<sup>58</sup>

The economics textbook notion of what distinguishes a monopoly often stresses the excess

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<sup>56</sup> See, for example, Werden (2006) and Ordoover and Willig (1981, 1999).

<sup>57</sup> Although the Court's "test" would appear to be similar to the Merger Guidelines' SSNIP test, the crucial difference is that the SSNIP test is intended to be forward looking, in order to answer the question, "Will this merger create or enhance market power," whereas the Court was applying it in the context of trying to determine whether du Pont already had market power. See White (2007).

<sup>58</sup> See the discussion in White (2007); see also U.S. v. Visa and MasterCard, 163 F. Supp. 2d 322 (2001), 344 F.3d 229 (2003).

profits that are being earned by the monopoly (and this was a large part of Stocking and Mueller's (1955) claim that du Pont did have market power<sup>59</sup>); but, as was discussed above, since the mid 1980s accounting profits have largely disappeared from economists' efforts to test the S-C-P paradigm, because of concerns about measurement error, and these same concerns would plague most profits-based efforts at market definition for these Section 2 cases. Clearly, more creative thinking is warranted.<sup>60</sup>

In sum, antitrust economics still has important tasks before it. I hope that there will be supply that will respond to this demand.

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<sup>59</sup> Stocking and Mueller (1955) also argued that du Pont's prices for cellophane did not move in response to changes in other flexible wrapping materials' prices.

<sup>60</sup> Some suggestions are offered in White (2007).

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