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*United States v. Microsoft***

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# **Do Easy Cases Make Bad Law? Antitrust Innovations or Missed Opportunities in *United States v. Microsoft***

Timothy J. Brennan\*

“... and in the history of antitrust this is indeed a landmark opinion.” Assistant Attorney General Joel Klein, Apr. 3, 2000,<sup>1</sup> regarding Judge Jackson’s “Conclusions of Law” in *United States v. Microsoft*.<sup>2</sup>

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<sup>1</sup> U.S. Department of Justice press briefing, Apr. 3, 2000, transcript from the PBS News Hour, *available at* [http://www.pbs.org/newshour/bb/cyberspace/jan-june00/microsoft\\_discussion\\_4-3.html](http://www.pbs.org/newshour/bb/cyberspace/jan-june00/microsoft_discussion_4-3.html), (accessed Aug. 23, 2001).

<sup>2</sup> *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000), (*Microsoft VII*)(conclusions of law). For ease of exposition, we will refer to the case in the text as *United States v. Microsoft*, even though the United States, as plaintiff in this case, was originally accompanied by twenty states, nineteen of which remained throughout the litigation, and seventeen of which supported the proposed remedy. The extent to which the collective size of the plaintiffs influenced the construction of the case is not at issue here. Some commentators have suggested that the states have made it more difficult to settle this or other antitrust cases. Richard A. Posner, *Antitrust in the New Economy* 68 ANTITRUST L.J. 925, 940 (2000).

## Executive Summary

Much has been said and written regarding the legal and economic merits of *U.S. v. Microsoft* and the practicality of antitrust in high technology industries. The focus here is what this prominent case says about the role of economics in general, and in particular, “post-Chicago” approaches. Is antitrust economics and law on a progressive path, producing more refined analyses of industrial practices? Or is the path more like that of a pendulum, with doctrines coming back in style that had once fallen out of fashion?

*U.S. v. Microsoft* suggests that the path of antitrust may be cyclical rather than progressive. The crux of the argument is that in *U.S. v. Microsoft*, the three aspects of an economically sound antitrust case—theory, evidence, and remedy—were largely independent of, if not inconsistent with, each other. Roughly speaking, the theory focused on monopolizing application platforms, the evidence spoke to monopolizing browser distribution, and the remedy treated applications themselves as the competitive lynchpin. The plaintiffs’ success at trial suggests, in contrast to the older aphorism that “hard cases make bad law,” that this “easy case” may be responsible for “bad law,” where an “easy case” is one where the victory at trial was so compelling and “bad law” refers to an ultimately reduced role for economics as an antitrust policy guidepost.

These observations need not imply that Microsoft’s conduct was benign. Isolating the theory, evidence, and remedy from the case, one can construct three potential rationales for finding Microsoft’s actions anticompetitive. We also identify three additional stories based on tying with transaction costs, reputation-preserving predatory pricing, and intellectual property. That none of these stories were told suggests that *U.S. v. Microsoft* signals a return to pre-Chicago antitrust. Those preferring a less constraining role for economics in antitrust courts may agree with this assessment without finding it disagreeable. Moreover, there may be no better alternative—legislation or regulation need not lead to better outcomes. It may offer small comfort to observe that antitrust is not the only policy area in which progress in economic theory may ironically lead to regress in its importance.

**Do Easy Cases Make Bad Law?**  
**Antitrust Innovations or Missed Opportunities in *United States v. Microsoft***

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**I. Introduction**

*A. Context*

Much has been said and written regarding *United States v. Microsoft*. The most salient issue has been whether bringing an antitrust case against Microsoft was good or bad for competition in the computer industry and the economy.<sup>3</sup> A related, more general concern has been whether the time consuming and backward-looking nature of antitrust litigation renders it unsuitable as a means for controlling market power in high technology industries.<sup>4</sup>

The focus here is different. While we will have much to say about the economics pertaining to *United States v. Microsoft*, our purpose is not to criticize the plaintiff's legal claims or strategies. Through the trial stage, the legal strategy was a home run, with the district court both making a strong finding of antitrust liability<sup>5</sup> and ordering the remedy the plaintiffs sought.<sup>6</sup> The Court of Appeals of the District of Columbia recently upheld the judgment that Microsoft illegally abused its monopoly position.<sup>7</sup> While it rejected the plaintiff's proposed remedy, it did so on largely procedural grounds.<sup>8</sup>

We do not seek to resolve controversies about whether Microsoft's conduct merited legal intervention. We will introduce half a dozen economic theories of anticompetitive conduct that might warrant the imposition of an antitrust remedy against Microsoft. Those theories, however, serve to illustrate ways in which economic theory could have been applied in this case. We make no claims, by and large, that evidence adduced in the case, or that could have been obtained,

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<sup>3</sup> DAVID EVANS ET AL., DID MICROSOFT HARM CONSUMERS: TWO OPPOSING VIEWS (2000). David Evans and co-author Richard Schmalensee consulted for Microsoft in the antitrust case, with Schmalensee testifying as Microsoft's economic expert. Co-author Franklin Fisher testified as the economic expert for the Department of Justice, while co-author Daniel Rubinfeld was the Deputy Assistant Attorney General for Economic Analysis in the Division during the case. Other significant publications on different sides of the issue include Robert Hahn, *The Costs of Regulating Microsoft*, 21 REGULATION 67 (1998); Steven Salop & Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards and Microsoft*, 7 GEO. MASON L. REV. 617 (1999); Ronald Cass & Keith Hylton, *Preserving Competition: Economic Analysis, Legal Standards, and Microsoft*, 8 GEO. MASON L. REV. 1 (1999); STANLEY LIEBOWITZ & RICHARD MARGOLIS, WINNERS, LOSERS AND MICROSOFT: COMPETITION AND ANTITRUST IN HIGH TECHNOLOGY (1999); George Bittlingmayer & Thomas Hazlett, *DOS Kapital: Has Antitrust Action Against Microsoft Created Value in the Computer Industry*, 55 J. HN. ECON. 329 (2000); Howard Shelanski & J. Gregory Sidak, *Antitrust Divestiture in Network Industries*, 68 U. CHI. L. REV. 1 (2001).

<sup>4</sup> See Posner, *supra* note 2, at 1.

<sup>5</sup> *Microsoft VII*, 87 F. Supp. 2d at 35-51.

<sup>6</sup> *United States v Microsoft Corp.*, 97 F. Supp. 2d 59, 62-63 (D.D.C. 2000)(*Microsoft VIII*)(final judgment). For the remedy the plaintiffs sought, see Plaintiffs' Proposed Final Judgment, *Microsoft VIII* (No. 98-1232), available at: <http://www.usdoj.gov/atr/cases/f4600/4639.pdf>, (accessed Aug. 23, 2001).

<sup>7</sup> *United States v Microsoft Corp.*, 253 F.3d 34, 51 (D.C. Cir. 2001)(*Microsoft IX*).

<sup>8</sup> *Id.* at 97-107.

would have lent these theories sufficient support to justify legal restrictions on Microsoft's conduct or changes in its corporate structure.

Rather, our objective is to see what this prominent case says about the incentive and ability to employ economics in general, and in particular, so-called "post-Chicago" antitrust economics.<sup>9</sup> We ask whether antitrust economics and law are on a progressive path, producing more refined analyses of industrial practices? Or, alternatively, is the path more like that of a pendulum, with doctrines coming back in style that had once fallen out of fashion?

If the path is progressive, more sophisticated theories and better methods of empirical analysis should lead to a more accurate sorting of practices that promote competition and consumer welfare from those that do not. As a result, post-Chicago economics would provide new insights and constraints on the direction of case law. On the other hand, if the path is cyclical, reviving the formerly available wide array of potential enforcement justifications, litigants may use new theoretical models as "quasi-evidence" to argue that a practice that could be bad under some conditions, is therefore likely to be bad in the case at hand. The antitrust courtroom, however, may not be an effective forum for resolving whether the conditions are present to infer that a particular practice is anticompetitive in a particular circumstance. Rather than improving antitrust practice, theoretical sophistication would ironically subvert the constraining role economics has taken in antitrust since the 1970s. Consequently, the post-Chicago approach ends up merely rationalizing a pre-Chicago approach, where economics carries less weight.

*United States v. Microsoft* suggests that the path of antitrust may be cyclical rather than progressive. To paraphrase President Clinton's famous line in his 1996 State of the Union speech, the case indicates that the era of big economics in antitrust is over.<sup>10</sup> The plaintiffs' success at trial suggests, in contrast to the older aphorism that "hard cases make bad law," that this "easy case" may be responsible for "bad law," where an "easy case" is one where the victory at trial was so compelling. This case may encourage a throwback to the antitrust litigation style of earlier years, which was less disciplined by a need to "cross the t's" and "dot the i's" of an economically consistent story.

In arguing that *United States v. Microsoft* signals a return to pre-Chicago antitrust, a case against Microsoft need not have been inappropriate on the economic merits. We will sketch out below half a dozen economic theories (some post-Chicago) potentially supporting antitrust-based limits on Microsoft's conduct or structure, three of which are suggested by the course of the litigation. Each of these theories implies a particular set of confirming evidence to be adduced and an appropriate remedy. But none of these theories came as a complete economic package in

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<sup>9</sup> "Post-Chicago" economics is based on complicated models involving strategic behavior and imperfect information, which allow for a wider range of possible outcomes than the relatively simple competitive and monopoly models characteristic of the "Chicago" school. This is discussed in slightly more detail in the text accompanying notes 48-78 *infra*. These terms are standard in the antitrust vernacular. See Symposium, *Post-Chicago Economics*, 63 ANTITRUST L.J. 445 (1995).

<sup>10</sup> The original quote from President Clinton's 1996 State of the Union address was "The era of big government is over." President William J. Clinton, 1996 State of the Union Address (Jan. 23, 1996), available at <http://www.washingtonpost.com/wp-srv/politics/special/states/dpcs/sou96.htm>, (accessed Aug. 3, 2001).

*United States v. Microsoft*, with an implied set of evidence and remedy to match. The plaintiff's success at trial, despite this shortcoming, supports the view that a legally compelling case did not require, and may well have been hampered by, the economic discipline necessary to construct one of these complete packages.

Many, if not most, practitioners inclined toward activist antitrust policy might well agree that post-Chicago economics, as reflected in *United States vs. Microsoft*, promotes pre-Chicago antitrust. They surely do not applaud post-Chicago economics because they relish parsing out the complex mathematical nuances of sequential equilibrium models. Instead, the popularity of post-Chicago economics rests on its ability to provide hypothetical situations in which practices largely exonerated by Chicago-style antitrust could be deleterious. Consequently, whether one concludes that post-Chicago economics is good or bad likely depends in large measure on whether one believes that economic constraints on antitrust jurisprudence—specifically, the Chicago school perspective regarding the effectiveness of competition and the largely benign nature of vertical integration and restraints—led to worse or better antitrust policies than those which preceded them.

#### B. *The cinematic version: Austin Powers*

A cinematic analogy may help set the scene. A recent film, *Antitrust*, might seem to be a candidate in light of its title and plot involving a software company that will “stop at nothing to win.”<sup>11</sup> A better film to represent *United States v. Microsoft*, however, might be the next installment of the *Austin Powers* comedies. In these films, Austin Powers, a secret agent from the 1960s, is brought out of frozen suspended animation in the late 1990s to prevent the malevolent Dr. Evil from “hatching a . . . diabolical scheme to annihilate the world.”<sup>12</sup>

While interest in *United States v. Microsoft* has little to do with any comedic appeal, *Austin Powers* is analogous, in that the case called for thawing out 1960s antitrust to fight a “Dr. Evil” in the guise of Microsoft and its co-founder and (then) chief executive officer, Bill Gates. Leaving aside the specific analogy, this view of the case is not unique. Irwin Stelzer has recently opened a commentary on the case with the following analysis:

Despite all [of] the controversy it has already and will in the future engender, the Microsoft case is nothing more than an unremarkable step down a well-trodden path to the preservation of a competitive economy—unremarkable because it merely presents an example of a traditional antitrust violation.<sup>13</sup>

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<sup>11</sup> ANITRUST synopsis, official site from MGM, at <http://www.antitrustthemovie.com/synopsis.html> (accessed May 17, 2001).

<sup>12</sup> AUSTIN POWERS: THE SPY WHO SHAGGED ME story, official site from NewLine Films, at <http://www.austinpowers.com/notes/story.html> (accessed May 17, 2001).

<sup>13</sup> Irwin M. Stelzer, *Microsoft and the Antitrust Laws: Old Fashioned Problems and a New Economy Company*, AEI-BROOKINGS JOINT CENTER FOR REGULATORY STUDIES POLICY MATTERS 01-09, March, 2001, at [http://www.aei.brookings.org/publications/policy/policy\\_01\\_09.asp](http://www.aei.brookings.org/publications/policy/policy_01_09.asp) (accessed May 17, 2001).

Stelzer goes on to observe that one reason the case has received so much attention is because “the flamboyant and brilliant David Boies [the lead attorney hired by the Justice Department] skillfully seduced the media into playing the story as a gladiatorial battle between good (him) and evil (Gates).”<sup>14</sup>

The *Austin Powers* analogy serves to distinguish the argument supported by this Article from other possible arguments about the relationship of economics to antitrust, and about the case in particular. Specifically, the “plot” of this installment in the cinema series would leave open the following possibilities that are not at issue in this Article.

- *The government made an excellent tactical move by defrosting Austin Powers.* Although the legal process has yet to run its course, the “slam dunk” success at trial suggests that the plaintiffs’ legal strategy was, in terms of accomplishing their goals, brilliantly conceived and executed.
- *Austin Powers was the most effective opponent for getting Dr. Evil.* As Stelzer argues and the courts have found so far, Microsoft’s conduct violated the antitrust laws, as conventionally interpreted. Our thesis here depends in part on showing that there are serious tensions, if not outright inconsistencies, within the economics of the case and the judge’s decisions.<sup>15</sup> But such inconsistencies do not rule out the possibility that *United States v. Microsoft* makes for a coherent story within existing antitrust law.
- *Dr. Evil really is evil (and didn’t go away after the first movie).* We do not claim here that Microsoft’s conduct has been unfailingly benign and any case against it would be misguided. Criticizing *this* case against Microsoft does not imply a criticism of any case that might have been brought. To support the assertion that this case is problematic on economic grounds, we will briefly outline half a dozen potential economic cases—theories, potential fact patterns, and implied relief—that the plaintiffs might have brought against Microsoft. Just as Austin Powers failed to quash Dr. Evil in the first installment of the series, here the “first movie” was the first consent decree obtained by the Justice Department against Microsoft in 1995,<sup>16</sup> which did not prevent the actions leading to the Microsoft case we are examining here.
- *Austin Powers might be a fascinating “international man of mystery.”* The quoted phrase, the subtitle of the first Austin Powers movie, indicates that the old doctrines are worthy research subjects for academic economists interested in exploring noncooperative game theoretic models of corporate behavior. Such strategic considerations underpin some alternative cases the plaintiffs could have brought against Microsoft. Whether this theoretical potential is or can be realized in practical antitrust contexts, for better or worse, is our primary concern.

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<sup>14</sup> *Id.*

<sup>15</sup> See *infra* text accompanying notes 179-237.

<sup>16</sup> See *infra* text accompanying notes 79-88.



- *More conventional methods may still be employed against lesser villains.* Even if “the era of big economics in antitrust is over,” “small” but highly complex economics will have a role in ascertaining pertinent facts. The most prominent example would be novel econometric techniques for predicting unilateral effects in mergers between suppliers of differentiated substitutes.<sup>17</sup>

If this long list of issues is not what we are challenging, what are we asking here? Continuing the cinematic analogy, the foremost question is whether Austin Powers is back to stay. Does *United States v. Microsoft* signal a return to antitrust traditions of the 1960s? If Austin Powers is coming back to stay as a crime fighter, will he displace the tools and tactics that developed in his absence? Finally, did “science gone mad” lead to Austin Powers? Have advances in economic theorizing that led to the creative construction of dozens of models of industry behavior ironically diminished the ability of economics to influence the design and outcome of antitrust cases?

### C. *Summary of the argument*

We begin with a very brief review of the salient aspects of antitrust law, economics and policy history to clarify the problem. To set the stage, we provide a brief background of the context for the litigation in *United States v. Microsoft*. This includes a timeline of prior salient development in Microsoft’s corporate history and its dealings with the Department of Justice, as well as the events in the present case. We summarize the major points in the complaint and Microsoft’s defense.

In economic terms, an ideal antitrust case should have three interrelated components: a *theory* of how consumers are harmed by the conduct at issue, which implies a body of confirming *evidence*, and if confirmed, which implies a *remedy* for the problem. An analysis of whether these three components followed this logical path in *United States v. Microsoft* would test the significance of economic theory in the construction of the case. Focusing on the plaintiff’s complaint in filing the case,<sup>18</sup> the trial court’s conclusions of law,<sup>19</sup> and the plaintiffs’ brief in support of the remedy,<sup>20</sup> we identify these three components in *United States v. Microsoft* as follows:

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<sup>17</sup> For a useful review of recent developments in antitrust econometrics, see Jonathan Baker & Daniel Rubinfeld, *Empirical Methods in Antitrust Litigation: Review and Critique*, 1 AM. J.L. & ECON. REV. 386 (1999).

<sup>18</sup> Complaint, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999)(*Microsoft VI*)(No. 98-1232)(findings of fact), available at <http://www.usdoj.gov/atr/cases/f1700/1763.htm>. Some supporting the Justice Department’s case have suggested to me that more recent documents, e.g., the plaintiff’s brief opposing Microsoft’s appeal of the decision, would provide more appropriate background. Brief for Appellees United States and the State Plaintiffs, *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001)(*Microsoft IX*)(Nos. 00-5212, 00-5213), available at <http://www.usdoj.gov/atr/cases/f7200/7230.pdf> (accessed Aug. 23, 2001). For a number of reasons, I disagree. The only reason to look at later briefs would be if, during the course of trial, the plaintiffs changed the evidence upon which they planned to rely. There is no indication, however, that the positions of the parties changed in any significant way. Without such a change, one would infer that any lack of economic fit between the theory and evidence at the start likely persisted.

Most important, as public agencies as well as litigators, the plaintiffs in this case had an obligation to present a clear case as soon as possible. The ultimate purpose of antitrust prosecutions is to deter anticompetitive conduct. Deterrence will be weakened, if not eliminated, if cases are drawn so loosely that firms come to believe that antitrust authorities will not provide pre-trial notice of what they regard as problematic and why. Even if the plaintiffs’ briefs

- *Theory*: Microsoft developed and promoted Internet Explorer (“IE,” its web browser) and Windows-specific Java (an application that allows personal computers to run web-delivered programs) to protect its monopoly in operating systems necessary to run any applications.<sup>21</sup>
- *Evidence*: Microsoft has a monopoly in operating systems for Intel-based personal computers (PCs).<sup>22</sup> It engaged in repeated conduct to exclude Netscape, the primary competitor to IE, primarily through exclusionary contracts with PC manufacturers and Internet service providers.<sup>23</sup> As the case progressed, the plaintiffs added a specific claim that free distribution of IE was predatory.<sup>24</sup>
- *Remedy*: The plaintiffs recommended and the trial court adopted a remedy to separate Microsoft into two companies, one that would provide operating systems, and another that would provide all other applications, including word processing, spreadsheet, and presentation software, as well as IE.<sup>25</sup>

These three aspects of the case are largely independent of if not inconsistent with each other. Each could form part of the core of an economically sound case, but only if each was accompanied by two alternative partners in the “theory-evidence-remedy” triangle. The most difficult potential case to construct is to find evidence and remedy partners for the theory of the case.<sup>26</sup> The evidence should first delineate a different market—future application platforms, including those supporting web-resident programs—than that identified by the plaintiffs, the market for operating systems for Intel-based PCs. It should then show that Microsoft and the combination of “Netscape + Java” were the two most likely entrants into that future market. Had that been done, the appropriate remedy would be to bite a distasteful bullet. The plaintiffs could have asked the court to prevent Microsoft, as an incumbent monopolist, from providing new products or product features, to preserve the possibility that providers of those products or features today would survive to compete in that future platform market. Neither this evidence nor this remedy was present.

Having considered all of the arguments, testimony, and evidence in detail, the trial judge might have resolved possible inconsistencies between the theory and the evidence. (The proposed remedy had yet to be considered, and appears to have been generally unanticipated at the

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on appeal substantively differed from the complaint, the plaintiffs should be held accountable on the latter in evaluating the role of economics (as opposed to other salient legal factors) in the construction of the case.

<sup>19</sup> *Microsoft VII*, 87 F. Supp. 2d at 35.

<sup>20</sup> Plaintiffs’ Memorandum in Support of Proposed Final Judgment, *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59 (D.D.C. 2000)(*Microsoft VIII*)(No. 98-1232)(final judgment), available at <http://www.usdoj.gov/atr/cases/f4600/4640.htm> (accessed Aug. 15, 2001).

<sup>21</sup> Complaint ¶¶ 4-9, *Microsoft VI* (No. 98-1232).

<sup>22</sup> *Id.* at ¶¶ 54, 58.

<sup>23</sup> *Id.* at ¶¶ 75-86, 93-102.

<sup>24</sup> Plaintiffs’ Joint Proposed Findings of Fact ¶¶ 295-317.3.i, *Microsoft VI* (No. 98-1232), available at <http://www.usdoj.gov/atr/cases/f2600/2613.htm> (accessed Aug. 23, 2001).

<sup>25</sup> Plaintiff’s Proposed Final Judgment at 2-3, *Microsoft VIII* (No. 98-1232); *Microsoft VIII*, 97 F. Supp. 2d at 64.

<sup>26</sup> See *infra* notes 196-207 and accompanying text.

time the Conclusions of Law were issued.) Instead, the trial judge's Conclusions of Law<sup>27</sup> contain at least three economic tensions, if not contradictions, in findings applying the Sherman Act § 1 and § 2.<sup>28</sup> These tensions could have been byproducts of the absence of a clear economic story. The Court of Appeals decision upholding the trial court in part and rejecting it in part indirectly addressed some of these tensions, but still left them largely unresolved.<sup>29</sup>

An alternative theory based on monopolization of browser distribution, and a remedy that would reduce the scope of exclusive browser contracts with computer manufacturers and Internet service providers, would better fit the evidence as presented.<sup>30</sup> The vertical divestiture remedy adopted by the trial judge in *United States v. Microsoft* would fit a theory that the crucial monopoly Microsoft held was not over the operating system, but over its applications, particularly its Word word-processing application and its Office suite of word-processing, spreadsheet, and presentation software.<sup>31</sup> Such a case may be factually supportable, but it was not the case that was litigated.<sup>32</sup> Although "application lock-in," i.e., reluctance to switch operating systems absent assurance that one's applications will continue to work, is important in explaining why entry into operating systems is difficult, it does not explain why the applications Microsoft owns were crucial. The proposed "vertical divestiture," of Microsoft has been analogized to the facially similar relief in the previous major monopolization case, *United States v. AT&T*, but the two cases could hardly be less similar.<sup>33</sup>

To voice these criticisms is not to conclude that Microsoft's conduct increased rather than reduced consumer welfare. As discussed above, isolating the theory, evidence, and remedy from the case as brought allows us to construct three potential rationales for finding Microsoft's actions anticompetitive. We identify three additional such stories based on tying in the presence of transaction costs,<sup>34</sup> reputational theories of predation,<sup>35</sup> and intellectual property definitions.<sup>36</sup> With appropriate evidence, these stories could each warrant remedies against Microsoft other than those that the district court proposed. They include mandatory provision of application program interfaces at "reasonable" prices, requiring Bill Gates to divest his interests in Microsoft, or giving independent firms the rights to see and use the source code for the Windows operating system. Not all such stories implicate Microsoft; in particular, we discuss how contentions that operating system markets are prone to "tipping" in favor of a single monopolist may make strategic entry deterrence more difficult, not less.

That none of these stories were told and that substantial inconsistencies persisted in a case that, subject to appeals, was a spectacular success for the plaintiffs, suggests that when the litiga-

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<sup>27</sup> See *Microsoft VII*, 87 F. Supp. 2d at 34.

<sup>28</sup> 15 U.S.C. §1, 2 (1994); see *infra* notes 208-16 and accompanying text.

<sup>29</sup> See *infra* notes 217-21 and accompanying text.

<sup>30</sup> See *infra* notes 192-195 and accompanying text.

<sup>31</sup> See *infra* notes 230-37 and accompanying text.

<sup>32</sup> *Id.*

<sup>33</sup> See *infra* notes 238-53 and accompanying text.

<sup>34</sup> See *infra* notes 254-64 and accompanying text.

<sup>35</sup> See *infra* notes 266-74 and accompanying text.

<sup>36</sup> See *infra* notes 275-79 and accompanying text.

tion heat is on, attorneys may want economists in the kitchen. It may be easier to apply traditional precedents than to support innovative economic theories. Legal settings may not be conducive to a careful assessment of the assumptions that inherently situation-specific post-Chicago theories require.

We briefly examine arguments that the proper way to view Microsoft's antitrust liability is in holistic or intentional terms.<sup>37</sup> A holistic case is one in which Microsoft's liability depends not on any single event, but on a pattern of conduct revealed by a course of events. A holistic perspective may well have played a significant role in establishing Microsoft's legal culpability, but it would not complement an economic approach inherently more analytical and less impressionistic. The Court of Appeals similarly found that a holistic view of the case added nothing of consequence beyond the culpability associated with each individual allegation.<sup>38</sup> Intent may be legally salient, but it does not fit well with an economic perspective. Economics offers reasons for incorporating intent to distinguish between torts and crimes, but those reasons do not seem particularly pertinent to antitrust.<sup>39</sup>

Difficulties in unifying the theory, evidence, and remedy into a single whole, and the failure to incorporate other potential strategic economic theories, suggest that *United States v. Microsoft* points antitrust "back to the future" or, perhaps more accurately, "ahead to the past." As noted above, one can agree with this assessment without finding it disagreeable. Even if one objects to a conclusion that the nature of antitrust litigation limits the amount of economic sophistication one can expect, there remains a question of whether there is any practical alternative. Having antitrust courts in which both sides can invoke situationally-specific economic theories that prove difficult to distinguish and thus cancel each other out, may be no better than attempting to settle competition issues through legislation or regulation. It may offer small comfort to observe that antitrust is not the only policy area in which progress in economic theory may lead to regress in its importance.<sup>40</sup>

## II. Background: antitrust law and economics

### A. Antitrust law primer

The argument that the course of a particular case may signify trends in antitrust practice might surprise those unfamiliar with antitrust. They might expect an intricate statutory regime that defines violations with considerable specificity. Such statutory specificity would presumably define which kinds of arguments count in antitrust cases—whether economic or otherwise. Under such a regime, the notion of "trends" or "cycles" in policy practice, absent passage of new statutes, would seem out of place.

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<sup>37</sup> See *infra* notes 303-22 and accompanying text.

<sup>38</sup> *United States v. Microsoft Corp.*, 253 F.3d 34, 78 (D.C. Cir. 2001)(*Microsoft IX*).

<sup>39</sup> See *infra* notes 313-19 and accompanying text.

<sup>40</sup> See *infra* notes 326-33 and accompanying text.

Those with experience in antitrust know better. Except for technical clauses regarding penalties, the entire body of codified antitrust laws relevant to *United States v. Microsoft* may be found in §1 of the Sherman Act on “restraints of trade,”

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, is declared to be illegal.<sup>41</sup>

and Sherman §2, on “monopolization,”

Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony.<sup>42</sup>

That’s it. The antitrust laws in the U.S. are primarily judge-made, rather than defined by statute.<sup>43</sup> The enormous precedential effect of decisions made through litigation makes antitrust law malleable, allowing it to remain applicable as the economy changes around them.

Competition law in the U.S. might not look much different if the relevant statutes said only “be good.” There is, however, one specific and, perhaps to those not antitrust *aficionados*, unexpected substantive limitation on these laws. In specifying that bad acts are associated either with *agreements* to restrain trade or with acting to *acquire* a monopoly, the laws neither make it illegal to possess a monopoly nor limit a monopolist’s ability to charge whatever price the market will bear.<sup>44</sup> Microsoft did not and could not invite antitrust scrutiny simply because of the price it charged for its Windows operating systems, even if it were uncontested that it had a monopoly over operating systems. In this case, as in others, a firm runs a greater risk of running afoul of the antitrust laws by setting a price too low and thereby acquiring a virtual monopoly in its market, than in keeping its price high and making it easier for competitors to survive.

## B. Antitrust’s economic and policy history

The combined historical course of antitrust economics and jurisprudence, with an unavoidable time lag for academic developments to reach the courtroom, may be divided into three stages. The first, taking up most of the first seventy-five years of antitrust, might be called im-

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<sup>41</sup> 15 U.S.C. §1 (1994)

<sup>42</sup> 15 U.S.C. §2 (1994).

<sup>43</sup> Also like common law, most antitrust cases (although not *United States v. Microsoft*) are brought by private parties motivated by redressing their own grievances rather than setting public policy. See William J. Baumol & Janusz A. Ordover, *Use of Antitrust to Subvert Competition*, 28 J. L. ECON. 247 (1985), Steven Salop & Lawrence White, *Private Antitrust Litigation: An Introduction and Framework*, in PRIVATE ANTITRUST LITIGATION: NEW EVIDENCE, NEW LEARNING (L. White ed. 1988).

<sup>44</sup> ERNEST GELLHORN & WILLIAM E. KOVACIC, ANTITRUST LAW AND ECONOMICS 93, 195 (1994) (monopolization requires an illegally obtained monopoly, and a single firm cannot conspire alone to restrain trade, citing *Cop-perweld Corp. v. Independence Tube Corp.*, 467 U.S. 752 (1984)). Note that even this substantive limitation is expressed in the case law, and perhaps even it is vulnerable, despite the use of the term “monopolization” rather than “having a monopoly” in section 2 of the Sherman Act, 15 U.S.C. §2 (1994).

pressionistic. During that era markets and competition were seen as fragile, sensitive to the level of market concentration. Following this perception of fragility, profits from monopoly would encourage successful monopolization and collusion, manifested tacitly as well as overtly. This impressionistic view supported beliefs that firms could, through predatory pricing, tying, and exclusive agreements, leverage a monopoly in one market to monopolize other markets.

This impressionistic disposition led to a populist view that the goal of antitrust was to maximize independence in the organization of industries. Within markets, the enforcement objective was to minimize concentration by taking a strict approach regarding both mergers and practices by large firms that might put smaller enterprises out of business. The characterizing phrase later voiced critically in the antitrust community was “protecting competition by protecting competitors.” This disposition applied to vertical as well as horizontal integration,<sup>45</sup> and to vertical restraints as well as monopolistic or collusive practices that reduced independent discretion among competitors.<sup>46</sup> Opposition to vertical restraints was bolstered by their facially similar resemblance to decidedly anticompetitive horizontal practices, e.g. in holding that manufacturer-imposed retail prices were akin to agreements among competitors to fix prices.<sup>47</sup>

Beginning in the late 1950s and 1960s within academia, and spreading to antitrust practice in the 1970s, this impressionistic view was challenged by an economic perspective that rejected the premise that markets and competition were inherently fragile.<sup>48</sup> This perspective came to be known as the “Chicago school,” because economists at the University of Chicago were prominent (but by no means alone) in promoting it. Among the more prominent academic articles espousing this view were those written by Bowman,<sup>49</sup> McGee,<sup>50</sup> Telser,<sup>51</sup> and Demsetz.<sup>52</sup> Posner<sup>53</sup> and Bork<sup>54</sup> wrote influential books collecting and summarizing these ideas for the general antitrust audience. Perhaps the bellwether decision was *Continental T.V., Inc. v. GTE Sylvania*,

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<sup>45</sup> *United States v. Yellow Cab Co.*, 332 U.S. 218, 227 (1947) (banning a cab manufacturer from forcing its taxi service subsidiary to purchase its cabs).

<sup>46</sup> DAVID KASERMAN & JOHN MAYO, *GOVERNMENT AND BUSINESS: THE ECONOMICS OF ANTITRUST AND REGULATION* 372 (1995); *see also* *Standard Oil Co. of California v. United States*, 337 U.S. 293, 314 (1949) (affirming a decree enjoining exclusive gasoline contracts to supply gasoline and automobile parts to independent dealers); *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365, 382 (1967) (prohibiting grants of exclusive territories to retail Schwinn bicycles).

<sup>47</sup> *See* *Dr. Miles Med. Co. v. John D. Park & Sons*, 220 U.S. 373, 408 (1911) (prohibiting manufacturer of patent medicines from fixing retail prices); Kaserman & Mayo, *supra* note 46, at 366.

<sup>48</sup> *See infra* notes 49-64 and accompanying text.

<sup>49</sup> Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 *YALE L.J.* 19 (1957) (arguing that tying cannot be used to create additional market power through leveraging).

<sup>50</sup> John McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 *J.L. ECON* 137 (1958) (arguing that *Standard Oil* did not achieve market power through predation).

<sup>51</sup> Lester Telser, *Why Should Manufacturers Want Fair Trade*, 3 *J.L. ECON.* 86 (1960) (arguing that resale price maintenance provides incentives to provide point-of-sale service, and would otherwise reduce a monopolist’s profits).

<sup>52</sup> Harold Demsetz, *Two Systems of Belief about Monopoly*, in *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* 164 (Harvey J. Goldschmid et al., eds., 1974) (arguing that empirical correlation between market concentration and profits reflect efficiencies of large firms, not anticompetitive pricing).

<sup>53</sup> RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* (1976).

<sup>54</sup> ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978).

*Inc.*,<sup>55</sup> which eliminated *per se* illegality for non-price vertical restraints.<sup>56</sup> In the policy arena, the Chicago school perspective reached an apex under William Baxter as Assistant Attorney General for Antitrust in the Department of Justice from 1981-1983.<sup>57</sup>

The Chicago school perspective posited that markets could take care of themselves in all but a limited set of circumstances.<sup>58</sup> Explicit collusive agreements would warrant prosecution. Tacit collusion, however, did not warrant prosecution, because the inability of firms to resist the incentive to cheat on any informal, unenforceable agreement made such agreements unsustainable. Threat of entry not only imposed competitive pressures to hold prices down, but it also made threats to charge “predatory” below-cost prices not credible, because entry would prevent them from recouping losses by raising prices later.<sup>59</sup>

This same propensity for firms to enter in response to high prices implied that only a few firms were necessary to achieve competitive outcomes in a market, reducing concern about mergers unless market concentration became quite high.<sup>60</sup> The reduced need to limit concentration *per se* in order to preserve a large number of independent actors led to the view that protecting small competitors forced consumers to pay high prices for the sole purpose of keeping otherwise inefficient enterprises afloat.<sup>61</sup> “Protecting competitors by protecting competition” came to be replaced in the antitrust vernacular by what some have called the “First Theorem of Antitrust: If a competitor complains about a merger or practice, it must be good.”<sup>62</sup>

If competition is, by definition, a process that takes place among firms within a market, the Chicago perspective implies that relationships that reach across markets—vertical integration, tying, vertical restraints, exclusionary contracts—would not reduce competition. These tactics are used as a means to achieve operational efficiencies that ultimately reduce costs and price, increase product quality, or provide consumers with better information.<sup>63</sup> Even if a firm engaging in these practices is a monopolist, its monopoly already harms consumers as much as possible, leaving nothing to be gained through “leverage” or “foreclosure.”<sup>64</sup> Unless regulation limits the ability of such a firm to set monopoly prices in the first place, vertical integration or restraints

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<sup>55</sup> 433 U.S. 36 (1977).

<sup>56</sup> *Id.* at 57-59.

<sup>57</sup> Among Baxter’s accomplishments during this time at the Division was the issuance of the economics-based Department of Justice Horizontal Merger Guidelines, dropping the government’s (then) thirteen year old monopolization case against IBM. JOHN MCGEE, *INDUSTRIAL ORGANIZATION* 473-76 (1988).

<sup>58</sup> See generally BORK, *supra* note 54.

<sup>59</sup> MCGEE, *supra* note 57, at 200-02.

<sup>60</sup> DEMSETZ, *supra* note 52 at 167.

<sup>61</sup> William Baxter has called this aspect of antitrust an “excise tax we levy on consumers . . . to subsidize the free spirit and lifestyle of middle-class would-be entrepreneurs.” *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* 111-12 (Harvey J. Goldschmid et al., eds., 1974).

<sup>62</sup> I first heard this from a colleague, Bruce Snapp, when we both worked as economists in the Antitrust Division during the 1980s.

<sup>63</sup> KASERMAN & MAYO, *supra* note 46, at 334-63.

<sup>64</sup> BORK, *supra* note 54, at 229.

have no predictably harmful incremental effect.<sup>65</sup> Aggressive antitrust policy that blocked anything but explicit collusion and the most egregious mergers would do more harm than good.

In the last twenty years, antitrust economics has changed from the Chicago school's small set of relatively general and simple theories to a wider range of more complex, situation-specific strategic interactions—"post-Chicago" economics.<sup>66</sup> The latter, grounded in non-cooperative game theory,<sup>67</sup> is characterized by a multitude of models relying on differing assumptions regarding the instruments firms choose to maximize profits (e.g., capacity, output, prices), information asymmetries, institution-specific commitment abilities, and the timing of interactions among actual and potential entrants.<sup>68</sup> Adding all of these dimensions reopens possible antitrust doors that the simpler Chicago perspective had closed.

Research into these questions has been extensive. Important articles include those by Aghion and Bolton,<sup>69</sup> Whinston,<sup>70</sup> Ordoover et al.,<sup>71</sup> Rasmusen et al.,<sup>72</sup> and Riordan and Salop.<sup>73</sup> Tirole<sup>74</sup> and Schmalensee and Willig<sup>75</sup> provided very useful compendiums of these and many other models. The case signaling a move away from the Chicago view to the post-Chicago environment was *Eastman Kodak Co. v. Image Technical Services, Inc.*,<sup>76</sup> in which the Supreme Court recognized that imperfect information could create a relevant market in servicing Kodak copiers.<sup>77</sup> A Chicago analysis would have rejected such a brand-specific market, finding that servicing is simply part of the copier services market in which all brands compete.

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<sup>65</sup> We return to this specific point below in comparing the justifications for the vertical divestiture in *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), to that proposed by the plaintiffs and trial judge (vacated and remanded by the Court of Appeals) in *United States v. Microsoft*. See *infra* notes 238-53 and accompanying text.

<sup>66</sup> See M. Sean Royall, Editor's Note, *Symposium: Post-Chicago Economics*, 63 ANTITRUST L.J. 445 (1995).

<sup>67</sup> Non-cooperative game theory comprises formal mathematical models of what happens in settings where interacting players adopt strategies to promote their self interest based on what they know or reasonably believe to be the choices made by others. A key feature of noncooperative games is that the participants cannot make binding commitments to each other. ERIC RASMUSEN, *GAMES AND INFORMATION* 18 (1994).

<sup>68</sup> See *infra* notes 68-78.

<sup>69</sup> Phillippe Aghion & Patrick Bolton, *Contracts as a Barrier to Entry*, 77 AM. ECON. REV. 388 (1987) (arguing that contracts where a customer who switches to an entrant has to compensate incumbent for doing so can bar more efficient entry if the entrant's costs are not known by the incumbent and customer prior to entry.)

<sup>70</sup> Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837 (1990) (noting that a monopolist makes credible a commitment to sell at predatory prices in a second market by foregoing monopoly profits if it fails to sell in the second market, by tying sales in the latter to sales in the former).

<sup>71</sup> Janusz A. Ordoover et al., *Equilibrium Vertical Foreclosure*, 80 AM. ECON. REV. 127 (1990) (arguing that if vertical integration makes credible a seller's commitment not to sell to a buyer, the buyer's competitor may have an incentive to merge with an upstream seller in order to raise prices).

<sup>72</sup> Eric B. Rasmusen et al., *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991) (arguing that buyers may sign contracts giving a firm a monopoly over the entire market if buyers are too small to support individual sellers and each expects the others to sign such contracts).

<sup>73</sup> Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L. J. 513 (1995) (offering a framework for antitrust analysis of vertical mergers and rejecting Chicago presumption that vertical mergers are generally benign).

<sup>74</sup> JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* (1988).

<sup>75</sup> RICHARD SCHMALENSEE & ROBERT WILLIG, *THE HANDBOOK OF INDUSTRIAL ORGANIZATION* (1989).

<sup>76</sup> 504 U.S. 451 (1992). For a useful critique of this decision, see Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L.J. 483 (1995).

<sup>77</sup> *Eastman Kodak*, 504 U.S. at 473-76.



Injecting game theory into neoclassical economics has transformed the economics of industrial organization. Chicago school industrial organization resembled a hammock suspended between one tree of approximately perfect competition and another of monopoly. Industries featuring oligopoly and product differentiation rested uncomfortably in the middle. The game theory revolution changed that largely by expanding the set of well-defined models from two—competition and monopoly—to an unlimited number, exploiting the various potential specifications of timing, strategic variables, commitments, and information. The standard competitive model itself became just a special case of a Nash equilibrium of a game in which firms set prices simultaneously.<sup>78</sup>

But raising these possibilities comes at the cost of making specific theories less robust. Whether a practice (tying, vertical integration) enhances or reduces consumer welfare depends, often crucially, on conjectures regarding how the industry in question works.<sup>79</sup> Do firms choose capacity, output, or price? Do they choose some variables at one time and others at a later time? Do they make choices knowing what the other has done, do they choose in ignorance, or do some get to choose with more knowledge than others? Perhaps most important are the conditions in which one firm can convince its competitors or customers that its commitments to charge predatory prices, refuse to deal with competitors, or insist on exclusivity from customers, are credible.

Game-theory-based, post-Chicago revolution has two possible implications for antitrust practice. Ideally, this revolution would lead to more refined analyses, which would begin with the Chicago perspective, and then explain exactly how informational and strategic considerations lead to more accurate determinations of whether a given practice is good or bad for consumers and the economy. A second possibility is that post-Chicago theories lead to less refined analyses.

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<sup>78</sup> The “Nash equilibrium” concept, developed by the mathematician John Nash, essentially says in this context that each firm will make choices that maximize its profits given the choices others have made. See John Nash, *Non-Cooperative Games*, 54 ANNALS OF MATHEMATICS 286 (1951); TIROLE, *supra* note 74 at 427.

A variety of complicating refinements should be kept in mind. If firms act simultaneously—by definition, not knowing what one another does—a Nash equilibrium implies that once each observes what others do, it would not change its own behavior. In single-play games, the firm has no opportunity to retrace its steps, thus there is no force, akin to supply-demand imbalances in competitive markets, that leads firms to Nash equilibria. This is particularly problematic in games where there can be multiple Nash equilibria. If the firms replay the game indefinitely, the number of Nash equilibria typically becomes so large that predicting specific outcomes—collusion, competition, and anything in between—becomes impossible.

When firms make choices sequentially, some Nash equilibria may become ineligible. While they may represent optimal choices if a firm can commit to them in advance, the choices along that path may not be profitable to carry out in the middle of the game. A predatory price may be credible with an up-front commitment, but it fails in that if entry takes place, the incumbent will find it unprofitable to charge a predatory price. Knowing that, the entrant will not find the threat credible.

Finally, the most complex refinement is that if information is imperfect, Nash equilibria can be highly sensitive to the initial assumptions about what firms infer from moves the others make. Those conjectures may depend on what a firm would infer had others made choices different than the ones they chose in equilibrium. These “out of equilibrium” beliefs can never be updated or refuted, in that the choices on which they are based never arise. Thus, the number of outcomes that can take place in such models can be virtually unlimited. Predictions can depend on conjectures regarding what expectations are reasonable *a priori*.

<sup>79</sup> TIROLE, *supra* note 73; SCHMALENSEE & WILLIG, *supra* note 74.

Its theories may become a kind of “quasi-evidence,” in that if a practice could be harmful in some setting, it could be harmful in the case at hand. A “quasi-evidential” role could displace the simpler Chicago school approach, without offering any analytical discipline to replace it.<sup>80</sup> Economics becomes little more than a litigation tax—each side must have one, but their stories cancel each other out.

The fundamental questions here concern what *United States v. Microsoft* says about whether one of these possible implications may be true. Does the post-Chicago revolution signal more and better refinements of economics in antitrust, applying the post-Chicago models? Or does it signal a reversion to a “pre-Chicago” approach, in which the economic analysis serves largely to support impressions rather than constrain litigation?

### III. Background: the industry and the case

#### A. The MS-DOS case

Microsoft (MS) began its rise to prominence in 1981 with its introduction of MS-DOS, the basic operating system (OS) for the IBM personal computer (PC) and subsequent “clones” based on Intel processors.<sup>81</sup> Throughout the 1980s, MS-DOS was the dominant operating system in the personal computer industry.<sup>82</sup> Apple, originally in its Apple II and III computer series and later with the Macintosh introduced in 1984, offered an incompatible hardware-software package. While Apple systems could not run MS-DOS and IBM-compatible PCs could not run Apple’s operating system, Microsoft became the leading applications provider for Macintosh computers.<sup>83</sup>

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<sup>80</sup> See, e.g., Malcolm B. Coate & Jeffrey H. Fischer, *Can Post-Chicago Economics Survive Daubert*, 34 AKRON L. REV. 795 (2001) (arguing that post-Chicago economics offers models on both sides of an issue and is thus unable to contribute any useful insight in antitrust litigation).

<sup>81</sup> See *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 ¶6, 13 (D.D.C. 1999) (*Microsoft VI*) (findings of fact). The “D” in MS-DOS stands for “disk,” referring to the OS’s role in writing and reading data on a floppy disk drive.

<sup>82</sup> Complaint at ¶8, 9, 15, *United States v. Microsoft Corp.*, 159 F.R.D. 318 (D.D.C. 1995) (*Microsoft I*) (No. 94-1564), available at <http://www.usdoj.gov/atr/cases/f0000/0046.htm>, (accessed Aug. 15, 2001). An “operating system” provides the internal instructions that tell a computer how to find, store, manipulate and display information by communicating between its internal temporary memory, internal storage devices, external data sources, display screens, printers, modems, and other devices. *Id.* at ¶ 6. It provides the instruction set, known as “applications program interfaces” or APIs, that those who write programs to do specific tasks—word processing, spreadsheets, calendars, email, web browsing, and games—use to get the PC to carry out the desired tasks. An API is a software instruction in which an applications program can tell the operating system to perform a particular function. *United States v. Microsoft Corp.*, 97 F. Supp. 2d 57, 71 (D.D.C. 2000) (*Microsoft VIII*) (final judgment). Examples include showing a character in a window, inserting or extracting data from random access memory or a hard drive, or displaying a box to give the user a choice of options. See James Gleick, *Making Microsoft Safe for Capitalism*, THE N.Y. TIMES MAGAZINE, Nov. 5, 1995, at 56-57. Programs written to run on one operating system generally cannot run on another system. They must either be rewritten to call on different APIs or use typically slow and cumbersome simulation programs that, for example, get a Macintosh to “pretend” that it is an Intel-based PC.

<sup>83</sup> David Evans & Richard Schmalensee, *Be Nice to Your Rivals: How the Government is Selling an Antitrust Case Without Consumer Harm in United States v. Microsoft*, in EVANS ET AL., *supra* note 3, at 69.

Microsoft's next major contribution to operating systems came with its icon-based graphic-user interface, Windows.<sup>84</sup> The most successful versions, Windows 3.0 and 3.1, were introduced respectively in 1990 and 1992.<sup>85</sup> During this period, the Federal Trade Commission commenced an investigation of Microsoft's alleged exclusion of competitors to MS-DOS and independent application developers. After the five-member FTC deadlocked twice, voting 2-2 (with one recused) on whether to proceed, the investigation was handed to the Department of Justice's Antitrust Division in 1993.<sup>86</sup>

The Division's investigation led to a settlement in 1994 with a consent decree containing two key provisions.<sup>87</sup> The first provision ended Microsoft's practice of entering into "per processor" contracts, in which computer manufacturers (OEMs, for "original equipment manufacturers") would pay Microsoft a fee based on how many computers they made, rather than how many actually came with MS-DOS.<sup>88</sup> Under such contracts, an OEM would bear a marginal cost of zero for including MS-DOS on a PC, discouraging it from supplying PCs with either no operating system or with a competitor's operating system included.<sup>89</sup>

The second key provision turned out to be crucial for what was to come, and thus is worth quoting:

Microsoft shall not enter into any License Agreement in which the terms of that agreement are expressly or impliedly conditioned upon: (i) the licensing of any other Covered Product, Operating System Software product or other product (provided, however, that this provision in and of itself shall not be construed to prohibit Microsoft from developing integrated products); or (ii) the OEM not licensing, purchasing, using or distributing any non-Microsoft product.<sup>90</sup>

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<sup>84</sup> Complaint at ¶ 9, *Microsoft I* (No. 94-1564).

<sup>85</sup> Stan Liebowitz, Windows and the "Applications Barrier to Entry": Fact or Fantasy?, On Point Policy Brief, Competitive Enterprise Institute, n. 4 (Jan. 19, 2000), available at <http://www.cei.org/OnPointReader.asp?ID=909>, accessed Aug. 20, 2001.

<sup>86</sup> *Microsoft I*, 159 F.R.D. at 321.

<sup>87</sup> *United States v. Microsoft Corp.*, No. 94-1561, 1995 U.S. Dist. LEXIS 20533 (D.D.C. Aug. 21, 1995) (*Microsoft II*). In February of 1995, the district court judge discarded the decree under the Tunney Act, 15 U.S.C. § 16(e) (1994), at the request of a brief filed on behalf of independent software developers, on the grounds that the decree did not address allegations that Microsoft favored its own applications developers. *Microsoft I*, 159 F.R.D. at 328-29, 338. The Division and Microsoft jointly appealed this decision, claiming that the Tunney Act gives a judge authority to reject a decree only if the relief fails to address the alleged violation, not because the Department of Justice failed to cite a different set of violations. The Court of Appeals reversed the district court in June 1995. *United States v. Microsoft Corp.*, 56 F.3d. 1448 (D.C. Cir. 1995) (*Microsoft IV*).

<sup>88</sup> *Microsoft II*, 1995 U.S. Dist. LEXIS 20533, at \*8.

<sup>89</sup> Assuming per-processor contracts covered the PC industry, their effect would be to give Microsoft the power to raise the prices of PCs by the MS-DOS or Windows license fee, while giving OEMs free access at the margin to install its operating systems. In effect, the contracts allowed Microsoft to monopolize the OEM market, but would raise OEM prices by only a small fraction, as the license fee was typically less than 3-4% of the price of a PC. The "free access" aspect would be problematic, since the marginal cost of making an additional copy of an operating system is essentially zero. Had this case gone to trial, an interesting issue would have been why MS-DOS competitors could not contract with OEMs or vertically integrate into computing (a la Apple) to market their own operating systems.

<sup>90</sup> *Microsoft II*, 1995 U.S. Dist. LEXIS 20533, at \* 8.

This provision implies that Microsoft is not permitted to tie any other product to the operating system, but that it is permitted to integrate products into the operating system. Whether this provision constrained Microsoft's conduct with respect to other products, particularly browsers, remained to be seen.

### *B. Events leading to the 1998 litigation*

Shortly after Judge Thomas Penfield Jackson entered this decree, Microsoft introduced Windows 95, followed by the first significant version of its Internet browser, Internet Explorer.<sup>91</sup> In late 1997, the Justice Department claimed that Microsoft had violated the above decree by forcing OEMs to include IE with Windows 95.<sup>92</sup> The district court judge, Thomas Penfield Jackson, issued a preliminary injunction in December of that year to halt such inclusions.<sup>93</sup> The next month, January 1998, Microsoft and the Justice Department agreed to settle this issue in part.<sup>94</sup> Although Microsoft would not delete the IE source code (i.e., the computer program) from its copies of Windows 95, it agreed to delete that part of the source code that would display the IE icon on the Windows 95 screen, or desktop, so consumers would not automatically presume that IE was on the computer.<sup>95</sup>

In 1998, Microsoft announced plans to introduce its next major operating system, Windows 98, which was closely integrated with the latest version of Internet Explorer and which displayed the icon on the desktop.<sup>96</sup> On May 12 of that year, the Court of Appeals for the D.C. Circuit ruled that the consent decree provisions in the earlier case would not apply to Windows 98.<sup>97</sup> Within a week, the Justice Department and twenty states initiated a new antitrust case against Microsoft.<sup>98</sup> The following month, on a 2-1 vote, the D.C. Circuit voided Judge Jackson's 1997

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<sup>91</sup> Petition By the United States for an Order to Show Cause Why Respondent Microsoft Corporation Should Not be found in Civil Contempt, at ¶ V, *United States v. Microsoft Corp.*, 980 F. Supp. 537 (D.D.C. 1997) (*Microsoft III*) (No. 94-1564), available at <http://www.usdoj.gov/atr/cases/f1200/1236.htm>. A browser is a program that enables a computer user to exploit the graphic links in pages written in the "hypertext markup language," or HTML, to search for and display information stored on computers connected through the Internet using the "hypertext transfer protocol," or HTTP. The set of computers so linked is known as the World Wide Web (WWW). WebGuest Web Glossary, available at <http://www.webguest.com/glossary/> (accessed Aug. 15, 2001).

<sup>92</sup> Petition by the United States ¶ V, *Microsoft III* (No. 94-1564).

<sup>93</sup> *United States v. Microsoft Corp.*, 980 F. Supp. 537 (D.D.C. 1997) (*Microsoft III*).

<sup>94</sup> See Stipulation and Order, *Microsoft* \_ (No. 94-1564), available at <http://www.microsoft.com/presspass/doj/finalstipulation.asp> (accessed Aug. 15, 2001).

<sup>95</sup> *Id.* at ¶ I

<sup>96</sup> Mary Jo Foley, *Win98: It's the Last of a Line*, ZDNN TECH NEWS NOW (June 24, 1998), at [http://www.zdnet.com/zdnn/stories/zdnn\\_display/0,3440,2115046,00.html](http://www.zdnet.com/zdnn/stories/zdnn_display/0,3440,2115046,00.html) (accessed Aug. 15, 2001).

<sup>97</sup> *Chronology of Events*, MICROSOFT PRESS PASS, available at <http://www.microsoft.com/presspass/trial/timeline2.asp> (accessed Aug. 15, 2001).

<sup>98</sup> Complaint, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft V*) (No. 98-12) (findings of fact). South Carolina dropped out before the case went to trial. The complaint is described *infra* at text accompanying notes 99-123.

injunction, holding that technical integration should be unrestricted unless it is a clear sham, largely because “[c]ourts are ill equipped to evaluate the benefits of high-tech product design.”<sup>99</sup>

In the shadow of this skepticism, the plaintiffs went ahead with their case. The trial began on October 1998. To expedite the trial, Judge Jackson set a limit of twelve witnesses for each side.<sup>100</sup> Each witness supplied direct testimony in advance, with courtroom proceedings limited to cross examination, along with assorted oral arguments and the use of videotaped depositions. Even with these limitations, the trial still went on until August 1999.

### C. *The complaint and case*

The essence of the plaintiffs’ case was that Microsoft viewed the ability to run applications delivered over the Internet as a threat to their franchise in an industry where applications were run from the desktop.<sup>101</sup> To do word processing in the Windows world, a user would run a copy of Microsoft Word or WordPerfect from the hard drive on his PC. In the potential Internet based programming environment, the user would access a remote word-processing program from the Internet to construct the document, running bits and pieces of it as needed for specific tasks.<sup>102</sup> To run such programs, all the user would need would be a means to access the Internet—a browser—and a programming language designed to support these applications.<sup>103</sup>

If the browser and programming language were written to run on any PC operating system, users would no longer need to buy Windows, provided they had a Netscape browser and the Java programming language from Sun Microsystems to permit running applications via the browser.<sup>104</sup> Thus, the case primarily focused on Microsoft’s efforts to target Netscape, in terms of both effect and intent. The latter was perhaps encapsulated by a quote from a Microsoft executive expressing a desire to “cut off their air supply,” referring to Netscape.<sup>105</sup>

The plaintiffs’ factual allegations began with a claim that Microsoft has a monopoly in the market for Intel-based PC operating systems.<sup>106</sup> This monopoly allegedly followed from three facts about operating systems and computer usage. First, operating system production is subject to significant scale economies.<sup>107</sup> The fixed cost of developing a reasonably reliable<sup>108</sup> operating

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<sup>99</sup> *United States v. Microsoft Corp.*, 147 F.3d 935, 952 (1998) (*Microsoft V*). The dissenting judge argued that the courts could and should attempt to balance consumer benefits against the anticompetitive effects of tying, even when it involves software. *Id.* at 958 (Wald, J., concurring in part and dissenting in part).

<sup>100</sup> Pretrial Order No. 2, *United States v. Microsoft Corp.* (No. 98-1232) (D.D.C. Aug. 6, 1998), available at <http://www.dcd.uscourts.gov/98-1232c.pdf> (accessed Aug. 15, 2001).

<sup>101</sup> Complaint, ¶4-7, *Microsoft VI* (No. 98-1232).

<sup>102</sup> *Id.* ¶ 7, 9.

<sup>103</sup> *Id.*

<sup>104</sup> *Id.*

<sup>105</sup> *Id.* ¶ 16.

<sup>106</sup> *Id.* ¶ 54.

<sup>107</sup> Direct Testimony of Franklin M. Fisher at 41, *United States v. Microsoft Corp.*, 84 F. Supp. 9 (D.D.C. 1999) (*Microsoft VI*) (No. 98-1232) (findings of fact), available at: <http://www.usdoj.gov/atr/cases/f2000/2057.pdf> (accessed Aug. 16, 2001).

system, which must both support pre-existing programs and facilitate innovative features in new ones, is enormous.<sup>109</sup> Once produced, however, the marginal cost of producing an additional copy of the operating system is essentially zero.<sup>110</sup> Operating systems are, in this technical sense, natural monopolies.

Second, on top of scale economies in the supply of operating systems are demand-side economies of scale, also known as “network externalities” or “network effects.”<sup>111</sup> A good or service possesses network externalities when the willingness of a consumer to buy a product goes up the more other people buy it.<sup>112</sup> The classic example is a telephone—the more people a customer can reach, the more valuable it becomes. Numerous factors combine to create network externalities in operating systems.<sup>113</sup> One who learns how to use Windows will be able to operate any computer running Windows, so the value of learning it increases as the likelihood that one will see other Windows computers elsewhere increases. File sharing becomes easier as well, especially when other operating systems support incompatible hardware.<sup>114</sup> The more widespread a particular OS, the more inviting it will be for software developers to write applications for it, thus making the OS more valuable to any particular user.

A final argument supporting the contention that operating system markets are hard to enter is “application lock-in.”<sup>115</sup> This phrase refers to the idea that a new operating system developer will find it very difficult, if not impossible, to be successful unless it can provide consumers with the ability to read files and run applications designed for the operating system it replaces.<sup>116</sup> An operating system entrant, however, must not only have a good operating system, but also one that either runs existing applications or has close versions of existing applications written for it.<sup>117</sup>

After arguing that Microsoft has a monopoly, the plaintiffs turned to Microsoft’s actions to impede Netscape’s success.<sup>118</sup> The plaintiffs began by alleging that Microsoft attempted in 1995 to persuade Netscape to agree to an illegal division of the PC market, where Microsoft would sell IE exclusively to Windows users, while Netscape would retain the remainder of the PC business

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<sup>108</sup> Contrary to the wishes of some, the crashing of one’s Windows-based PC is not grounds for an antitrust violation. One could argue that if Microsoft’s actions prevented the entry of a more reliable operating system, such crashes could indicate some of the harm to consumers following such exclusionary conduct. I do not believe such an argument was made in this litigation.

<sup>109</sup> See Fisher Testimony, at ¶ 41, *Microsoft VI* (No. 98-1232).

<sup>110</sup> See *id.*; *Microsoft VI*, 84 F. Supp. 2d at 20.

<sup>111</sup> Fisher Testimony, ¶¶ 42-44, *Microsoft VI* (No. 98-1232).

<sup>112</sup> *Microsoft VI*, 84 F. Supp. 2d at 20; STEPHEN J. BROWN & DAVID S. SIBLEY, *THE THEORY OF PUBLIC UTILITY PRICING* 197-199 (1986).

<sup>113</sup> *Microsoft VI*, 84 F. Supp. 2d at 20. I make this point painfully, as a longtime Macintosh user who finally threw in the towel in 1997 and bought a PC running Windows 95.

<sup>114</sup> For years, Apple and Intel-based PCs could not read floppy disks written on each other’s machines.

<sup>115</sup> *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 19 (D.D.C. 1999) (*Microsoft VI*) (findings of fact).

<sup>116</sup> *Id.*

<sup>117</sup> *Id.* Application lock-in is mitigated when software companies can write essentially similar versions for different operating systems, and when the operating systems support the same file and hardware structures.

<sup>118</sup> Complaint ¶¶ 14-37, *Microsoft VI* (No. 98-1232).

for itself.<sup>119</sup> The core of the complaint, however, was a list of practices Microsoft undertook to allegedly make it more difficult to distribute Netscape.<sup>120</sup>

The plaintiffs revived the claim they used to obtain the injunction (that the Court of Appeals later rejected) that Microsoft had forced OEMs to take IE if they wanted to install Windows 95 on their PCs.<sup>121</sup> Microsoft allegedly used its clout in the operating system market to force OEMs to maintain a uniform initial “boot up” screen that would display the availability of IE, at the exclusion of Netscape.<sup>122</sup> Microsoft also designed Windows 98 in such a way as to effectively tie IE to Windows, with no countervailing consumer benefits.<sup>123</sup> The plaintiffs contended that Microsoft refused to give Internet service providers (ISPs) and Internet content providers (ICPs) display space on the initial Windows desktop unless they agreed to promote IE at Netscape’s expense.<sup>124</sup> The upshot was that Netscape’s ability to distribute its browser through OEMs or ISPs was severely restricted, and that consumers already receiving IE along with Windows would have little demand for Netscape’s product.<sup>125</sup> As the case progressed, the plaintiffs emphasized two additional claims. The first was that Microsoft attempted to “pollute” Java as a platform-independent support program by developing a Windows-specific version.<sup>126</sup> The plaintiffs also offered testimony that the price Microsoft charged for IE—essentially, zero—was a predatory price.<sup>127</sup>

By and large, our purpose here is not to argue for or against the plaintiffs’ allegations. Some thoughts on Microsoft’s response, however, are in order. Essentially, the plaintiff’s case could be boiled down to four claims: (a) Microsoft has a monopoly in Intel-based PC operating systems; (b) Microsoft used that monopoly to exclude Netscape; (c) The exclusion was successful; (d) The success harmed consumers. Microsoft’s defense emphasized (a) and (b) in an attempt to persuade the court that it did not have a monopoly, and that it did not act to exclude Netscape.<sup>128</sup>

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<sup>119</sup> *Id.* ¶ 14.

<sup>120</sup> *Id.* ¶ 17-37.

<sup>121</sup> *Id.* ¶ 18-20.

<sup>122</sup> *Id.* ¶ 24-25.

<sup>123</sup> *Id.* ¶ 20.

<sup>124</sup> *Id.* ¶ 26-27, 32-34.

<sup>125</sup> *Id.* ¶ 35-37.

<sup>126</sup> Brief for Appellees United States and the State Plaintiffs at 35–38, *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (*Microsoft IX*) (Nos. 00-5212 – 00-5213), *available at* <http://www.usdoj.gov/atr/cases/f7200/7230.pdf> (accessed Aug. 23, 2001). This claim was part of the licensing case brought against Microsoft by Sun, the developer of the Java language. Sun claimed that Microsoft violated its license by developing an incompatible version. The case was recently settled with the parties agreement stipulating that Microsoft’s license be voided, that Microsoft agrees not to use the “Java Compatible” trademark, and that Microsoft could distribute earlier versions of Java only if its future versions “passed Sun’s compatibility tests.” Press Release, Sun Microsystems, Sun and Microsoft Settle Lawsuit; Settlement Protects Integrity of Java Platform (Jan. 23, 2001), *available at* <http://www.sun.com/smi/Press/sunflash/2001-01/sunflash.20010123.1.html> (accessed May 19, 2001).

<sup>127</sup> Plaintiffs’ Joint Proposed Conclusions of Law at 40-44, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (*Microsoft VII*) (No. 98-1232 (conclusions of law), *available at* <http://www.usdoj.gov/atr/cases/f3900/3932.htm>.

<sup>128</sup> Defendant Microsoft Corporation’s Proposed Conclusions of Law at 35-54, (*Microsoft VII*) (No. 98-1232), *available at* <http://www.microsoft.com/presspass/trial/p-col/col.doc>

Contesting (a), the existence of a monopoly in operating systems was a questionable tactic. Microsoft did not lack support, in that the Windows license fee had been low relative to the price of personal computers, and has remained low despite a huge fall in the price (adjusted for quality) of PCs.<sup>129</sup> One would normally expect that if a monopoly supplier of a product needed to use a second product, and the price of that second product plummets, the monopolist would find it profitable to raise its price by a little. Perhaps Microsoft was concerned that if it raised the operating system price high, it would face a larger threat of piracy, i.e., distribution of unauthorized copies. Nevertheless, Microsoft's claim that it lacked market power because consumers could turn to other operating systems is, at best, a very hard sell.

On the second argument, Microsoft may have been on slightly more secure ground, because the plaintiffs failed to allege that Microsoft refused to provide Netscape with the applications program interfaces (APIs) necessary for its product to run.<sup>130</sup> Nevertheless, the plaintiffs were on secure ground in asserting that the contracts were exclusionary in nature.

Microsoft would have been on stronger ground had it emphasized the last two aspects of the plaintiff's argument. Microsoft did note that Netscape was available to consumers in other ways, such as mail order and downloading.<sup>131</sup> It also argued that IE's success in the market was correlated with positive product reviews in the trade press, rather than the result of its actions against Netscape.<sup>132</sup> Most importantly, Microsoft could have argued that, even if it were a monopolist and had succeeded in excluding Netscape, it made consumers better off. The company's actions increased the operating systems' capability at no cost, promoted useful standards for sharing material over the World Wide Web, and created no additional market power for itself.<sup>133</sup> These points, however, may have been made less compelling by being combined with Microsoft's as-

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<sup>129</sup> The license fee charged to OEMs to install Windows is in the \$45-65 range. Declaration of David S. Sibley at 6, *United States v Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999)(*Microsoft VI*) (No. 98-1232) (findings of fact), available at <http://www.usdoj.gov/atr/cases/f1700/1767.htm>. If the average price of a PC is about \$1500, such a low price would maximize Microsoft's profits only if the elasticity of demand for personal computers was enormous. *Id.* These representative figures are consistent with an elasticity of demand for PCs of about 30, that is, a 1% increase in the price of PCs would result in a 30% reduction in sales.

Economists testifying for Microsoft argued that this is implausible, and that if Microsoft were "really" a monopoly, it would charge a license fee for Windows on the order of \$1000 or more. Werden argues that Microsoft's low Windows fee is consistent with a monopoly, if the elasticity of demand for inexpensive PCs (in the range of a few hundred dollars) is within reasonable parameters. Gregory Werden, *Microsoft's Pricing of Windows and the Economics of Derived Demand Monopoly*, 18 REV. INDUS. ORG. 257, 257-58 (2001). Not surprisingly, economists on Microsoft's side disagree. See Bernard Reddy et al., *A Monopolist Would Still Charge More for Windows: A Comment On Werden*, 18 REV. INDUS.ORG. 263 (2001).

<sup>130</sup> See *supra* note 80.

<sup>131</sup> Defendant Microsoft Corporation's Proposed Conclusions of Law, at 19-20, 60, *Microsoft VII* (No. 98-1232).

<sup>132</sup> Defendant Microsoft Corporation's Revised Proposed Findings of Fact ¶ 427, *Microsoft VI* (No. 98-1232), available at <http://www.microsoft.com/presspass/trial/r-fof/default.asp>.

<sup>133</sup> Why Microsoft's defense was so ineffective is open to speculation. One cannot rule out that it simply had a legally weak case. Its willingness to sacrifice credibility by fighting the proposition that it had a monopoly in operating systems, however, is difficult to explain unless it sincerely believed that it really was under siege. Another possibility is that its run of success at the Court of Appeals convinced it that it would ultimately prevail. At this writing, Microsoft may yet be proven right. Still, for a company with a market capitalization of up to half a trillion dollars, its inability to put on an effective defense is noteworthy. That it was caught essentially faking exhibits was astounding.



sertions that it did not have a monopoly on operating systems or that it was not interested in overtaking Netscape through contracts with OEMs, ISPs, and ICPs.

#### *D. The trial court decision and remedy order*

About three months after the trial ended, Judge Jackson issued the first of three important rulings. This first ruling, on November 5, 1999 was his “findings of fact,” essentially agreeing with all of the contentions the plaintiffs made in the case.<sup>134</sup> Two weeks later, Judge Jackson appointed Judge Richard Posner of the Seventh Circuit Court of Appeals, a leading expert in anti-trust law and economics, to mediate settlement discussions between the plaintiffs and Microsoft.<sup>135</sup>

The settlement talks lasted until the early spring of 2000, but to no avail.<sup>136</sup> On April 3, 2000, Judge Jackson issued his “Conclusions of Law.”<sup>137</sup> Judge Jackson held that Microsoft’s actions to impede the success of Netscape and Java constituted monopolization of Intel-based PC operating systems and attempted monopolization of browsers in violation of § 2 of the Sherman Act.<sup>138</sup> He first found that Microsoft had a monopoly in Intel-based PC operating systems.<sup>139</sup> Microsoft initially acted to preserve that monopoly by attempting to persuade Netscape not to make its browser available for Windows PCs.<sup>140</sup> After Netscape refused, Microsoft targeted Netscape through licensing arrangements with OEMs and rewarding ISPs and ICPs for distributing IE instead of Netscape.<sup>141</sup> Judge Jackson next found that Microsoft’s conduct with respect to IE was “predacious,” particularly in that it lost money by giving it away.<sup>142</sup> Judge Jackson also held as unlawful Microsoft’s efforts to develop and promote a Windows-specific Java to make it harder for other firms to supply operating systems that would compete with Windows.<sup>143</sup>

Explicitly rejecting the earlier rulings of the D.C. Circuit, Judge Jackson also held that Microsoft violated § 1 of the Sherman Act *per se* by tying IE to the Windows operating system, finding that Microsoft had a monopoly in the tying market, that the tied and tying products were in separate markets, and that consumers were injured by the practice.<sup>144</sup> To hold that Microsoft’s conduct satisfied these criteria, Judge Jackson restated his findings that Microsoft had a monopoly, that browsers and operating systems were separate products, and that forced bundling of IE with Windows hurt consumers.<sup>145</sup> However, he found that Microsoft was not guilty of violating §

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<sup>134</sup> United States v. Microsoft Corp., 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft VI*) (findings of fact).

<sup>135</sup> Order of Reference for Mediation, *Microsoft VI* (No. 98-1232), available at <http://www.dcd.uscourts.gov/98-1232o.pdf>.

<sup>136</sup> United States v. Microsoft Corp., 253 F.3d 34, 48 (D.C. Cir. 2001) (*Microsoft IX*).

<sup>137</sup> United States v. Microsoft Corp., 87 F. Supp. 2d 30 (D.D.C. 2000) (*Microsoft VII*) (conclusions of law).

<sup>138</sup> *Id.* at 37-46.

<sup>139</sup> *Id.* at 36-37.

<sup>140</sup> *Id.* at 39, 45-46.

<sup>141</sup> *Id.* at 39-43.

<sup>142</sup> *Id.* at 44.

<sup>143</sup> *Id.* at 43-44.

<sup>144</sup> *Id.* at 46-51.

<sup>145</sup> *Id.*

1 through its exclusionary arrangements with OEMs, ISPs, ICPs, and other related companies.<sup>146</sup> Jackson's main empirical rationale for exonerating Microsoft on this count was that Netscape distributed 160 million copies and more than doubled its installed base from 15 million to 33 million users during the time period at issue in the case.<sup>147</sup>

Two months later, on June 7, 2000, Judge Jackson accepted the recommendation of the Justice Department and seventeen states to break up Microsoft into two vertically separated applications companies.<sup>148</sup> One company, the "Operating System Business," would get the Windows operating systems, defined as the "software that controls the allocation and usage of hardware resources" along with "additional shipped software."<sup>149</sup> The second "Applications Business" would get the Office suite of applications and its components (Word, Excel, PowerPoint, Outlook), and "middleware" including the Internet Explorer browser and video and audio support.<sup>150</sup> These two companies would not be permitted to merge or enter into a distribution agreement for ten years.<sup>151</sup> The Operating System Business would be required to grant all applications companies equal access to its APIs, so that the (former Microsoft) Applications Company's products would not run faster or with more features than those of its competitors.<sup>152</sup> Until this reorganization takes place, Microsoft would be enjoined from exclusive dealing, price discrimination, imposing restrictions on desktop displays, and other tying arrangements involving its operating systems.<sup>153</sup>

Two weeks later, Judge Jackson accepted the plaintiff's request, under a rarely invoked provision of antitrust law,<sup>154</sup> to bypass the (presumably Microsoft-friendly) D.C. Circuit Court of Appeals and to submit the case directly to the Supreme Court for appeal.<sup>155</sup> The judge stayed the interim restrictions on Microsoft's conduct until the Supreme Court could consider the appeal.<sup>156</sup> On September 26, 2000, the Supreme Court denied the direct appeal, remanding the case to the D.C. Circuit for review.<sup>157</sup>

### *E. The Court of Appeals decision*

On June 28, 2001, a seven-judge panel of the D.C. Court of Appeals issued a *per curiam* decision affirming Judge Jackson in part, reversing in part, and vacating the remedy order, remand-

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<sup>146</sup> *Id.* at 51-54.

<sup>147</sup> *Id.* at 53.

<sup>148</sup> United States v. Microsoft Corp., 97 F. Supp. 2d 59, 64 (D.D.C. 2000) (*Microsoft VIII*) (final judgment).

<sup>149</sup> *Id.* at 73.

<sup>150</sup> *Id.* at 71.

<sup>151</sup> *Id.* at 65, 71.

<sup>152</sup> *See id.* at 65.

<sup>153</sup> *Id.* at 68-69. For six months, Microsoft could continue to bundle middleware with its operating systems, as long as it allowed OEMs to remove all or part of the middleware and to receive a discount based on number of bytes removed. *Id.* at 68.

<sup>154</sup> 15 U.S.C. 29(b) (1994).

<sup>155</sup> Order, United States v. Microsoft Corp., 97 F. Supp. 2d 59 (D.D.C. 2000) (*Microsoft VII*) (No. 98-1232) (final judgment), available at <http://www.dcd.uscourts.gov/98-1232v.pdf>.

<sup>156</sup> *Id.*

<sup>157</sup> Microsoft Corp. v. United States, 530 U.S. 1301 (2000) (*Microsoft \_*).

ing to a different trial judge for further proceedings on liability and remedy.<sup>158</sup> Before getting to the substance of the case, the court began by observing that rapid technological change in computing makes formulating both structural and conduct remedies difficult, and that there is no consensus among commentators demanding amendment of monopolization doctrine in this industry.<sup>159</sup>

Regarding Judge Jackson's findings regarding monopolization, the court first upheld the district court's finding that Microsoft held monopoly power.<sup>160</sup> It agreed with the trial court that the relevant market was Intel-based personal computer operating systems, specifically excluding Apple Computer's operating system, information appliances, and the "middleware" combination of Netscape and Java.<sup>161</sup> The court held that Microsoft had monopoly power in that market, as indicated by both market share and the entry barrier created by the difficulty in writing operating systems that would run applications.<sup>162</sup> In doing so, the court rejected Microsoft's claims that it priced Windows too low to be a monopolist.<sup>163</sup> Moreover, with some minor modifications, the court of appeals upheld Judge Jackson's findings that the anticompetitive effects of Microsoft's practices - licensing to OEMs,<sup>164</sup> integration of IE and Windows,<sup>165</sup> exclusionary contracts with ISPs and independent software developers,<sup>166</sup> and attempts to discourage cross-platform Java<sup>167</sup> - all outweighed any procompetitive justifications, and hence violated §2 of the Sherman Act.<sup>168</sup> The court rejected Microsoft's claims that Judge Jackson erroneously found this conduct exclusionary under §2 but not under §1,<sup>169</sup> and that a holding of antitrust liability requires that Microsoft's actions actually *caused* the monopoly power it currently holds.<sup>170</sup>

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<sup>158</sup> United States v. Microsoft Corp., 253 F.3d 34, 46-47 (D.C. Cir. 2001) (*Microsoft VII*).

<sup>159</sup> *Id.* at 48-50.

<sup>160</sup> *Id.* at 51.

<sup>161</sup> *Id.* at 51-54.

<sup>162</sup> *Id.* at 54-56.

<sup>163</sup> *Id.* at 56-57.

<sup>164</sup> *Id.* at 59-64, focusing on Microsoft's forcing OEMs to keep Microsoft's IE icons on the initial screen and preventing changes to the "boot-up" screen that greets consumers when they turn on their PCs. The court reversed Judge Jackson's finding that Microsoft's policy to prevent alternative desktops lacked ample procompetitive justification. *Id.* at 63-64.

<sup>165</sup> *Id.* at 64-67. Interestingly, although the court expressed skepticism regarding claims that product design changes are anticompetitive, *id.* at 65, it did not mention here its earlier statement that courts are ill-equipped to evaluate software design. *See infra* note 105 and accompanying text. Unlike in other discussions of conduct, the court here only stated that Judge Jackson's findings regarding commingling of IE and Windows code were not "clearly erroneous." *Id.* at 66. The court also found that Microsoft could not be held liable for designing Windows so that it would override the consumer's choice of browsers other than IE in limited situations involving Internet access. *Id.* at 67.

<sup>166</sup> *Id.* at 67-74. The court found no anticompetitive effect associated with Microsoft's efforts to promote Internet content providers only if they agreed to rely on IE rather than Netscape. *Id.* at 71.

<sup>167</sup> *Id.* at 74-78. The court reversed Judge Jackson in holding that Microsoft could develop its own version of Java, *id.* at 75, but agreed that it was anticompetitive to try to force other software developers and Intel to use it rather than "cross-platform" Java, i.e., versions of Java that would work on all PC operating systems, not just Windows. *Id.* at 77-78.

<sup>168</sup> *Id.* at 57-78.

<sup>169</sup> *Id.* at 69-70; *see infra* text accompanying notes 135-45 and notes 215-16, 221.

<sup>170</sup> *Id.* at 78-80.

From this point, the court of appeals decision turns more in Microsoft's favor. It rejected Judge Jackson's finding that Microsoft attempted to monopolize the browser market, because the record provided insufficient evidence that browsers were a market or that any such market is difficult to enter.<sup>171</sup> The court then remanded the § 1 tying claim for further adjudication, rejecting Judge Jackson's finding that Microsoft's bundling of IE with Windows was *per se* illegal.<sup>172</sup> The requirement that the tied and tying products be separate "may not give newly integrated products a fair shake,"<sup>173</sup> and that tying may produce efficiencies in the face of the "pervasively innovative character of platform software markets."<sup>174</sup> If plaintiffs were to pursue the case on remand, the court issued three instructions:

- (1) The plaintiffs would have to show that tying unreasonably restrained competition, but could not base such allegations on a "browser market" or barriers to entry into such a market, having foregone the opportunity to show such facts in the initial litigation.<sup>175</sup>
- (2) Plaintiffs must also show that any anticompetitive effects of Microsoft's refusing to let OEMs or consumers remove IE from PCs using Windows 95 or 98 outweigh the benefits; the actions alone will not support a finding of §2 liability.<sup>176</sup>
- (3) The trial court would also need to consider whether Microsoft engaged in "price bundling," i.e., charging more for Windows and IE than what the price would have been for Windows alone, and in refusing to make Windows available at that low price.<sup>177</sup>

The court of appeals then vacated the vertical divestiture order for three reasons. First, the trial judge failed to hold evidentiary hearings when relevant facts were in dispute.<sup>178</sup> The court also found that because Judge Jackson ignored relevant Supreme Court precedent, his stated justifications for the remedy were inadequate.<sup>179</sup> Finally, the court, having vacated the district court's remedy decree and remanded the tying claim for further adjudication, held that a remedy

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<sup>171</sup> *Id.* at 80-84.

<sup>172</sup> *Id.* at 85-95.

<sup>173</sup> *Id.* at 89. The court derived the "separate products" criterion for *per se* illegality of tying in *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 12-18 (1984). It also stated that its earlier opinion regarding the inadvisability of courts intruding on operating system design (*see infra* note 97 and accompanying text) applied only to the definition of integrated products, not whether there was an antitrust violation. *Id.* at 92.

<sup>174</sup> *Id.* at 93.

<sup>175</sup> *Id.* at 95.

<sup>176</sup> *Id.* at 96.

<sup>177</sup> *Id.* at 96-97. Evidence that other operating system vendors bundle browsers and do not offer "stand alone" versions at a discount would "tend to exonerate" Microsoft. *Id.* at 97. In this discussion, the court stated that "we know there is no claim of price predation." *Id.* at 96. This seems odd in light of both the plaintiffs' arguments and the trial court's conclusions of law. *See* notes 125, 140 *supra* and accompanying text.

<sup>178</sup> *Id.* at 98. Microsoft lost its appeal that the trial court acted improperly in limiting the number of witnesses. *Id.* at 100-101.

<sup>179</sup> *Id.* at 98. Judge Jackson's justifications, according to the court of appeals, were largely that Microsoft failed to admit culpability, continued its prior business practices, was "untrustworthy," and that the plaintiffs, having won the case and been charged with acting in the public interest, "have some entitlement to a remedy of their choice." *Id.* at 103 (quoting *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59, 62-63 (D.D.C. 2000)(*Microsoft* \_)(final judgment)).

needs to be supported in remand in light of the changes in findings of liability.<sup>180</sup> On remand, the trial court will have to consider carefully whether the benefits of any divestiture exceed the costs, and whether Microsoft's anticompetitive conduct in fact led to its dominance in operating systems.<sup>181</sup> The remainder of the decision was devoted to a discussion of Judge Jackson's misconduct by giving press interviews about the case during the trial, in which he reflected a lack of impartiality.<sup>182</sup> The court of appeals ultimately disqualified him retroactively from the remedy phase of the case.<sup>183</sup>

#### IV. Posing the question

From an economic perspective, the ideal antitrust case would follow a simple structure. It would begin with a *theory* of anticompetitive conduct and effect. The theory would be grounded in economic methods based on maximization of consumer utility and firm profits, expressed within a specified institutional and informational structure.

This theory would then imply a set of confirming *evidence*. Depending on the robustness of the theory, some of this evidence would establish whether the contextual assumptions of the theory are in fact valid, regarding matters such as barriers to entry, market concentration, demand elasticities, strategic choices, credibility of commitments, and information asymmetries. With Chicago school theories, only entry barriers, market concentration, and demand might matter; with post-Chicago theories, the other strategic elements may play a more significant role.<sup>184</sup> The theory would specify what evidence would be necessary to confirm or refute its applicability in the particular case, e.g., whether the predicted conduct ensued and whether it tended to reduce output and raise prices without commensurate improvements in product quality or (perhaps) reduced production costs.

Following this conception, an internally sound theory of antitrust liability together with confirming evidence would imply a *remedy*. A remedy serves a role different from punishment or deterrence. Its function is to change the situation so that the conditions supporting the theory of anticompetitive conduct no longer hold, and in so doing prevent future occurrences of the adverse consequences identified by the theory and confirmed by the evidence. In my view, remedies fall into two broad categories. The first category, *structural*, includes remedies that change the firm itself, e.g., ordering a divestiture. The second category, *injunctive* or *behavioral*, includes remedies that leave the firm as it is but remove its ability to undertake specified types of conduct. The former is often preferable in theory, in that structural remedies often remove both the incentive and ability to engage in anticompetitive practices while behavioral remedies typically address only ability. On the other hand, structural remedies both unravel an established

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<sup>180</sup> *Id.* at 98.

<sup>181</sup> *Id.* at 105-07. The court had refused to take such causation into account in assessing Microsoft's antitrust liability. *See* note 167 *supra* and accompanying text.

<sup>182</sup> *Id.* at 107-111.

<sup>183</sup> *Id.* at 117. The court of appeals let stand Judge Jackson's "findings of fact" and "conclusions of law" because his improprieties occurred largely during the remedy phase of the case. *Id.* at 117-18.

<sup>184</sup> *See infra* text accompanying notes 65-78.

corporate structure, making them difficult to implement, and impede the realization of economies of scale and scope. Structural remedies may create a cure worse than the disease.

We can illustrate the preceding analysis with a diagram:

<b>Ideal case</b>	<b>Theory =&gt;</b>	<b>Evidence =&gt;</b>	<b>Remedy</b>
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The following diagram illustrates the plaintiffs’ case, using the theory and evidence emphasized in the complaint and the remedy they recommended and that Judge Jackson accepted.<sup>185</sup>

<b>Case</b>	<b>Theory</b>	<b>Evidence</b>	<b>Remedy</b>
<b>Plaintiff’s case:</b>	<b>MS developed IE and Windows-specific Java to impede OS, application platform entry</b>	<b>MS used OEM, ISP contracts to block Netscape access<sup>186</sup></b>	<b>Vertically divide MS into OS and apps companies</b>

The core argument is that the three primary components of the plaintiffs’ case do not match the ideal economists’ case as specified above. The conceptual chain from theory to evidence to remedy is not followed; arguably, no two of these three components are so connected. The central evidence adduced by the plaintiffs does not follow from the theory of the case, and the remedy is logically connected to neither.

The following diagram leaves blanks for us to develop the evidence and remedy that would match the theory in the case, the theory and remedy that best match the evidence, and the theory and evidence that would support the remedy:

<sup>185</sup> See *infra* text accompanying notes 146-51.

<sup>186</sup> As noted above, after the trial the plaintiffs discussed other items having to do with Microsoft’s pricing of Internet Explorer and developing Windows-specific Java. We consider that and other holistic “pattern of conduct” and intent-based evidence *infra* at the text accompanying notes 303-10.

Case	Theory	Evidence	Remedy
<b>Protecting the OS monopoly:</b>	MS developed IE and Windows-specific JAVA to impede OS, application platform entry	?	?
<b>Blocking Netscape distribution:</b>	?	MS used OEM, ISP contracts to block Netscape distribution	?
<b>OS/applications split:</b>	?	?	Vertically divide MS into OS and apps companies

As we fill in these blanks, each of the three rows will illustrate an economically consistent case that might have been filed against Microsoft. The leftmost entry in each row is the shorthand name of such a case. But as each entry in the column is different, no one of these cases will match the one that the plaintiffs presented. That the plaintiffs in *United States v. Microsoft* were so successful despite this lack of economic consistency indicates the decline in the value of economics in defining and litigating a major antitrust case.

The following table summarizes where we are headed by filling in the blanks:

Case	Theory	Evidence	Penalty
<b>Protecting the OS monopoly:</b>	MS developed IE and Windows-specific JAVA to impede OS, application platform entry	Netscape + JAVA best/only entry path into Windows' future market	<b>Bite the bullet: Limit MS innovation, divest IE</b>
<b>Blocking Netscape distribution:</b>	Monopolize relevant market in means for distributing browsers	MS used OEM, ISP contracts to block Netscape distribution	<b>Eliminate contracts giving exclusive access to monopoly share of distribution market</b>
<b>OS/applications split:</b>	Protect Windows by not developing	Word, Office killer apps; MS favored	Vertically divide MS into OS and

	<b>Word, Office for Linux, Internet</b>	<b>its own applica- tions</b>	<b>applications com- panies</b>
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Entries in lighter text are the components of the plaintiffs’ case. The other entries in each row of the table indicate how one might develop economically consistent cases out of each of those components.

## V. Theory and evidence

### A. *Filling in the blanks—Part 1: Building on the core evidence*

The easiest story to tell involves the middle row of the table above, beginning with the evidence involving Microsoft’s efforts to impede the distribution of Netscape. The theory to which this evidence speaks most directly is that Microsoft monopolized the means by which Netscape could distribute its browser to consumers. By definition, whether Microsoft was successful in that monopolization largely depends on whether its exclusionary contracts tied up a “monopoly” share of all that lies in the relevant market for browser distribution.

The associated theory posits that packaging browsers with personal computers or distributing them via a customer’s Internet service and content provider constitutes a dominant share of the distribution market. If it does not, Microsoft would not be able to make it significantly more expensive for Netscape to deliver its browser. Whether this had been accomplished is arguable. The evidentiary heart of the plaintiffs’ case was that Netscape was injured through the various means Microsoft took to keep OEMs, ISPs, and ICPs from distributing Netscape’s browser.<sup>187</sup> On the other hand, downloading and mail are potential substitutes for OEM or ISP distribution, particularly since Netscape’s browser was available without charge.<sup>188</sup> Also, as noted above, Judge Jackson found in his conclusions of law that Netscape had managed to distribute its browser and double its use during the period in question.<sup>189</sup>

Assuming that Microsoft had monopolized browser distribution, the appropriate remedy would be for it to divest its share of the distribution market so that it no longer retained power over that market. A draconian remedy would be to force Microsoft to eliminate all of its exclusionary dealings. Such a remedy, however, would be akin to requiring a firm that had created a monopoly by purchasing its competitors’ factories to divest not only the plants it bought but also the plants it originally owned. A more reasonable remedy would be to allow Microsoft to sign such contracts with some of the OEMs or ISPs, but not with so many as to allow it to dominate the browser distribution market.

<sup>187</sup> See *infra* text accompanying notes 116-23.

<sup>188</sup> On whether this is a reasonable way to construct a predation case, see *infra* text accompanying notes 212-214, 266-74; see also GELLHORN & KOVACIC, *supra* note 44 at 137-44.

<sup>189</sup> United States v. Microsoft Corp., 87 F. Supp. 2d 30, 53 (D.D.C. 2000) (*Microsoft* \_) (conclusions of law).



A row indicating the theory and remedy that best fits the evidence in the case is provided below:

Case	Theory	Evidence	Remedy
<b>Blocking Netscape distribution:</b>	<b>Monopolize relevant market in means for distributing browsers</b>	<b>MS used OEM, ISP contracts to block Netscape distribution</b>	<b>Eliminate contracts that give exclusive access to monopoly share of distribution market</b>

Two caveats are necessary. First, some may argue that the evidence speaks to the stated theory of the case, in which Microsoft was impeding Netscape and Java to protect its operating system monopoly. As we see below, that theory best emphasizes a different set of facts than those focusing primarily on browser distribution.<sup>190</sup> To be sure, an interest in protecting its operating system monopoly may explain why Microsoft might have been interested in monopolizing browser distribution.<sup>191</sup> But whatever its motive, Microsoft could not impede Netscape’s distribution without acquiring power over its operations in that market.<sup>192</sup> Such power is not only a necessary condition for an antitrust violation; it is presumably sufficient to establish anticompetitive monopolization of a relevant market.<sup>193</sup>

Second, some of the evidence introduced in the case was not only about Netscape distribution. Much of the case was devoted to establishing Microsoft’s intent to eliminate Netscape as a competitor.<sup>194</sup> The parties addressed intent, in part, through internal corporate documents<sup>195</sup> and through the presentation of a pattern of conduct along with an emphasis on specific episodes.<sup>196</sup> We turn to the role of such arguments in an economically oriented antitrust case below.<sup>197</sup> As noted above, the plaintiffs introduced additional claims involving Microsoft’s development of a Windows-specific Java and predatory pricing of Internet Explorer.<sup>198</sup> The predatory claims were not a separate finding, but are better characterized as part of the holistic case to be considered below.<sup>199</sup> We will also examine how a post-Chicago predation case against Microsoft could and

<sup>190</sup> See *infra* text accompanying notes 198-202.

<sup>191</sup> The plaintiffs suggest this in their complaint. See Complaint, ¶¶10, 15, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft* \_) (No. 98-1232) (findings of fact).

<sup>192</sup> See *infra* text accompanying notes 182.

<sup>193</sup> For more on how actions targeted at competitors could and should be thought of in terms of monopolization of an input market, see Timothy J. Brennan, *Understanding “Raising Rivals’ Costs,”* 33 ANTITRUST BULL. 95 (1988).

<sup>194</sup> Complaint, ¶¶ 13, 17, *Microsoft* \_ (No. 98-1232).

<sup>195</sup> *Id.* ¶ 17.

<sup>196</sup> Plaintiffs’ Joint Proposed Conclusions of Law, at 50-53, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (*Microsoft* \_) (No. 98-1232) (conclusion of law), available at <http://www.usdoj.gov/atr/cases/f3900/3932ftm>.

<sup>197</sup> See *infra* text accompanying notes 303-10.

<sup>198</sup> See *supra* text accompanying notes 124-25.

<sup>199</sup> See *infra* text accompanying notes 212.

perhaps should have been constructed.<sup>200</sup> Java manipulation is properly relevant evidence for the presented theory of the case but, as we see in the following section, it is only a small part of a much larger set of evidence that was largely neglected, if not contradicted.

### B. *Filling in the blanks—Part 2: Establishing the plaintiff’s theory*

The central theory of the case against Microsoft is that it was protecting its monopoly by targeting Netscape. An economically consistent statement of such a case would require some substantial theoretical refinement and the establishment of a delicate collection of evidence largely different from that at the hub of *United States v. Microsoft*. Establishing such a theory, however, presented many obstacles.

The first obstacle was one the plaintiffs could not necessarily avoid. A necessary predicate of a monopolization case seems to be that the alleged monopolizer already has a monopoly to protect.<sup>201</sup> From an economic perspective, this requires the plaintiff in a monopolization case to show that the defendant has a monopoly that is not threatened by entry from competitors. In *United States V. Microsoft*, the plaintiffs fulfilled this task by claiming that the relevant market was Intel-based PC operating systems, with entry barred by scale economies, network externalities, and application lock-in.<sup>202</sup> This task, however, is inherently problematic, because the more a plaintiff is successful at showing that the defendant has a safe monopoly that it can use as a platform for nefarious deeds, the harder it should be to show that those deeds are necessary to protect this market from entry. Ideally, one would want to show that “but for” the deeds, this monopoly would fall apart.

One way out of this dilemma begins by distinguishing the present market in which the defendant currently has a monopoly from the future market that it is allegedly attempting to monopolize. For Microsoft, Netscape with Java posed the threat that computer users would be able to run applications off the Internet, rendering it less important to have sophisticated desktop operating systems, such as Windows, to which applications must be specifically written and for which specific expertise is necessary. In that sense, Netscape plus Java would be a substitute for Windows. But while Netscape plus Java may be a means by which consumers might be able to use applications residing on distant servers via the Internet,<sup>203</sup> their combination is *not* an Intel-based PC operating system.”<sup>204</sup> Accordingly, the market definition should not be limited to “Intel-based PC operating systems; it should rather be redefined more broadly as *application platforms*. The market would include both Microsoft desktop operating systems and browser-based Internet server interfaces. It would include software that allows devices to run applications with important capa-

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<sup>200</sup> See *infra* text accompanying notes 266-74.

<sup>201</sup> *Microsoft* \_\_\_, 87 F. Supp. 2d at 36 (“The threshold element of a § 2 monopolization offense being ‘the possession of monopoly power in the relevant market,’” (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966))).

<sup>202</sup> See *supra* notes 105-15 and accompanying text.

<sup>203</sup> Complaint ¶¶ 6-8, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft VI*) (No. 98-1232) (findings of fact), available at <http://usdoj.gov/atr/cases/f1700/1763.htm>.

<sup>204</sup> *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 27-29 (D.D.C. 1999) (*Microsoft* \_\_\_) (findings of fact).

bilities (word processing, spreadsheets, electronic mail, browsing) from a device on a customer's premises, whether that device is a sophisticated Pentium personal computer or relatively simple Internet access equipment.

This target application platform market is largely not a present market but a potential market in the future, if at all.<sup>205</sup> Developing evidence to validate the theory of the case for such a market requires a dynamic approach explaining how one's dominant position in both desktops and browsers today would allow one to dominate application platforms tomorrow. This approach uncovers two aspects of a potential case that were largely omitted in the actual case. The first aspect is demonstrating what advantage a monopoly today provides for obtaining a monopoly tomorrow. In conventional industries, the answer is obvious—ownership of durable physical facilities committed to serve the market in question, be they factories, airplanes, or telephone lines. Thus, this aspect was not necessary in traditional antitrust cases. In computing, while the software itself is durable, rapid changes in technology, infrastructure, and consumer acceptance of various services means that a plaintiff opposing Microsoft should have some burden of showing that a monopoly today positions Microsoft to compete for the monopoly tomorrow.

The second neglected aspect is showing that two products that are complements today—browsers and desktop operating systems such as Windows—are substitute inputs in the production of applications platforms in the future.<sup>206</sup> Presumably, the plaintiffs did not devote much attention to this because the market they defined, "Intel-based PC operating systems," was not a market in which the target firm, Netscape, participated. Showing this substitution is crucial. The core of the monopolization complaint against Microsoft is that having a desktop monopoly today is not enough to provide a compelling competitive advantage in future applications platforms; it needs to also have a strong presence, if not monopoly, over browsers. The claim is that separate monopolies today lead to a single monopoly tomorrow.<sup>207</sup> The dimensions along which desktop operating systems and browsers compete as in the market for "inputs into providing a competitive advantage in future application platforms" are not immediately obvious. They may involve economies of scope between either of them and future application platforms, technological expertise, or establishing a client base that can be used to introduce future products.

These theoretical clarifications suggest a range of relevant evidence, which was largely untouched, that would show:

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<sup>205</sup> *Id.*

<sup>206</sup> Models that may speak to this issue are the "dynamic models" of exclusion involving firms in multiple related markets, as set out in Dennis Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak Are Misguided*, 68 ANTITRUST L.J. 659, 668-71 (2001)

<sup>207</sup> Were it not for the "single monopoly tomorrow," integration within a single company of monopolies of complements could reduce prices and increase output. With separately owned monopolies, each will raise price without taking into account how one's high price reduces the profits of the other. This is known as the "double marginalization" problem. Vertical integration "internalizes" these externalities, reducing the incentive of either monopoly to raise prices. See TIROLE, *supra* note 73, at 174-75.

- “Future applications platforms” and “inputs to future applications platforms” are the relevant markets, rather than “Intel-based PC operating systems,” “browsers,” or as in the above case, “browser distribution.”
- Windows and browsers are presently substitute inputs in establishing oneself as a significant competitor in that market.
- “Netscape + Java” is the best substitute for Windows and Internet Explorer in this “input to future application platforms.”
- Entry into that market is difficult, i.e., it is costly to successfully introduce browsers and supporting application language.
- No other technologies (e.g., personal digital assistant software, third-generation wireless devices) are also potential inputs into the development of future application platforms.

A useful test of this theory would be whether Windows prices would rise or fall if Microsoft had been prohibited from developing a browser. If the two were complements in a static market, the price of Windows would rise, as Microsoft would lose an opportunity to capture profits through browser distribution. If, as this monopolization theory requires, Windows and Internet Explorer were substitutes, then the price of Windows would fall, as Microsoft would want to expand whatever strategic position in the future applications platform market that sales of current desktop operating systems affords.

By and large, the plaintiffs did not take this tack. Netscape with Java was not in the market that the plaintiffs defined as relevant in this case. Having defined neither an applications market nor inputs into it, the plaintiffs could not and did not offer economic or technical evidences that Netscape plus Java was the sole competitor to Windows in this market. Similarly, they did not establish that barriers to entry into these markets were sufficiently high for monopolization of that market to be successful.

This is not to say that the plaintiffs could not have made such a case involving strategic positioning for dominance of future markets. I suspect that they could, but to have done so would have required unorthodox market definitions that would likely have been difficult to support with conventional evidentiary techniques. As a consequence, the theory would have been hard to sell to the court. As noted above, the theory, supported by evidence that Microsoft executives viewed Netscape as a competitive threat, did underscore why Microsoft was interested in impeding Netscape distribution.<sup>208</sup> While not in the original complaint from the Justice Department, Microsoft’s efforts to develop a nonstandard version of Java, and thus impede Java’s development as a platform-independent applications support language, offered some support as well.<sup>209</sup> But the

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<sup>208</sup> See *supra* text accompanying notes 198-202.

<sup>209</sup> To some extent, the more interesting case on these issues was Sun’s suit against Microsoft for violating the Java license in its development of a version that would run only on Windows. The case, filed before the Justice Department’s complaint in *United States v. Microsoft*, was resolved via a settlement after the trial and lower court decisions in the latter case were completed. See *supra* note 124.

theory, apart from its role as a motive, was not directly given the support necessary to establish it in economic terms as the basis for antitrust liability.

Were this path followed, the appropriate remedy, following the economic characterization of ideal antitrust cases above,<sup>210</sup> would be to limit Microsoft’s share of “inputs to future application platforms” to prevent its monopolization of that market. Assuming that there would be no effective way to truncate Microsoft’s share by reducing its share of the desktop operating system business, the direct remedy would be to divest its browser, on the grounds that developing a browser (and impeding Netscape) gave it too great a share in this “input” market. A remedy based on the theory would entail something the plaintiffs’ were likely and understandably reluctant to do, namely, to limit Microsoft’s ability to innovate.<sup>211</sup> Microsoft claimed all along that this was what the plaintiffs had in mind.<sup>212</sup> Had the case been conducted more explicitly along the lines of protecting the potential for competition in future applications platforms by limiting Microsoft’s share of inputs into that market, Microsoft may have been right. Yet, the plaintiffs might also have been right to insist on that outcome, had they developed the required evidence.

This path of evidence and remedy are summarized in the row below.

	<b>Theory</b>	<b>Evidence</b>	<b>Remedy</b>
<b>Protecting the OS monopoly:</b>	<b>MS developed IE and Windows-specific JAVA to impede OS, application platform entry</b>	<b>Netscape + JAVA best/only entry path into Windows’ future market</b>	<b>Bite the bullet: Limit MS innovation, divest IE</b>

That this evidence and remedy were substantially bypassed suggests that, in the trenches, hewing carefully to a strategic, post-Chicago analysis will be rejected for an impressionistic, intent-based pre-Chicago case.

*C. Tensions and contradictions in the “Conclusions of Law”*

One way to test whether the theory and evidence really did fit together coherently would be to look at the trial court’s determinations, particularly Judge Jackson’s “Conclusions of Law,” which stated his holdings regarding Microsoft’s legal liability, based upon his “Findings of

<sup>210</sup> See *supra* text accompanying notes 179-81.

<sup>211</sup> As noted above, the proposed remedy in *United States v. Microsoft* included divestiture of the browser, but as we see below, that divestiture was not based on this theory and evidence. Moreover, the proposed remedy included not just the browser, but every application not defined by the plaintiffs to be part of the operating system. We discuss this in the following part of the article.

<sup>212</sup> Bill Gates, *We’re Defending Our Right To Innovate*, WALL ST. J., May 26, 1998, at A14.

Fact.”<sup>213</sup> Unfortunately, the “Conclusions of Law” included internal tensions, if not contradictions, in its economic implications. In that sense, the Conclusions of Law exemplify the paraphrased adage in the title of the paper—an easy case (clearly won at trial) makes for bad law (in giving little weight to economic consistency).

The first tension involves market definition. Microsoft was found guilty of monopolization under § 2 of the Sherman Act, in protecting its monopoly in operating systems by impeding the development of competing browsers.<sup>214</sup> To support this conclusion the trial judge needed to find that browsers (with Java) and operating systems would have been competing in the operating system market in which Microsoft had its monopoly. But his finding of Sherman Act § 1 liability for tying browsers to the operating system required that the market for browsers and operating systems were separate.<sup>215</sup> Without such separation, one cannot have two products to tie.<sup>216</sup> Hence, we have browsers and operating systems in the same market in the first substantive part of the decision, and in separate markets in the second.

A second tension involves the effects on consumers. Judge Jackson’s § 2 monopolization finding was based in part on a belief that IE was priced too cheaply relative to its cost, as part of Microsoft’s “predacious” conduct.<sup>217</sup> The heart of a predation claim is that a good is being offered at a price below cost to make it inappropriately attractive to consumers, making it too hard for competitors to survive.<sup>218</sup> But to support the § 1 tying claim in the subsequent section of the Conclusions of Law, the judge apparently needed to find that consumers were harmed by having to get Internet Explorer.<sup>219</sup> If consumers were made worse off by having to get IE, as posited in the tying claim, substitute browsers would have been *more* attractive, not less. So, were consumers hurt by having to get IE? Or were they made so much better off with IE, relative to its zero price, that Netscape was unable to compete?

Last but not least, Judge Jackson found support in his finding that Netscape was “successfully ostracized” by Microsoft’s exclusionary tactics.<sup>220</sup> Yet, in refusing to find Microsoft liable for anticompetitive exclusionary contracting under § 1 of the Sherman Act, he found that Netscape distributed 160 million copies and doubled its user base during the period when it was tar-

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<sup>213</sup> United States v. Microsoft Corp., 87 F. Supp. 2d 30 (D.D.C. 2000) (*Microsoft VII*) (conclusions of law); United States v. Microsoft Corp., 84 F. Supp. 2d 9, 13 (D.D.C. 1999) (*Microsoft VI*) (findings of fact).

<sup>214</sup> See *supra* text accompanying notes 136-39.

<sup>215</sup> *Microsoft* \_\_\_, 87 F. Supp. 2d at 47-51.

<sup>216</sup> A standard example these days is whether a car company is tying air conditioners to cars. At some point, an “air conditioner” becomes part of what it means to be a “car,” and is no longer a separate product. When exactly one crosses the line between being a separate product or not seems to be metaphysics dressed as economics. In this case, it is by no means obvious at which point Internet browsing becomes part of what one expects an operating system to do. Operating systems have come to include graphic user interfaces, equipment drivers, and assorted games and utility programs, all of which were, could be, and still may be available separately.

<sup>217</sup> *Microsoft* \_\_\_, 87 F. Supp. 2d at 44.

<sup>218</sup> GELLHORN & KOVACIC, *supra* note 44, at 137.

<sup>219</sup> *Microsoft* \_\_\_, 87 F. Supp. 2d at 50.

<sup>220</sup> *Id.* at 42.

geted by Microsoft's conduct.<sup>221</sup> In facing these tensions regarding market definition, harm to consumers, and effects on Netscape, the Conclusions of Law, and the case for which it was written, would have been much stronger and unified had it ended after finding § 2 liability, without attempting to deal with tying or exclusionary contracting.

The court of appeals decision did little to resolve these tensions. Although it backed off from the finding that browsers and operating systems are separate products,<sup>222</sup> the court supported Judge Jackson's definition of the market as "Intel-based PC operating systems" and his exclusion of Netscape and Java from the market.<sup>223</sup> However, in supporting the conclusion that Microsoft violated § 2 of the Sherman Act, the court called Netscape and Java a "nascent threat" as a "viable platform substitute,"<sup>224</sup> suggesting that a monopolization finding requires that both Windows and Netscape with Java are in some sort of "applications platform market." The court dismissed the tension concerning whether consumers were harmed or not by the pricing of IE by essentially dismissing claims that it had been priced below cost.<sup>225</sup> Finally, the court, following Judge Jackson, claimed that standards for proving exclusion under § 1 of the Sherman Act are stricter than that for § 2,<sup>226</sup> although it did not address Judge Jackson's finding that Netscape doubled its installed base and distributed 160 million copies.

## VI. The remedy

### A. *Filling in the blanks—Part 3: Supporting the remedy*

However shaky the economic connection between the theory and the evidence may be, the connections between either of them and the remedy proposed by the plaintiff strike me as even more tenuous. The plaintiffs' justification for the remedy began with a claim that the root cause of the problem was Microsoft's monopoly in operating systems and record of anticompetitive conduct.<sup>227</sup> However, direct remedies to eliminate that monopoly by a horizontal division, in which multiple "baby Bills" would have the right to sell and develop Windows, were determined

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<sup>221</sup> *Id.* at 53. Judge Jackson found that to hold Microsoft in violation of § 1 of the Sherman Act for exclusive dealing, it had to "actually shut [Netscape] out of the Web browser market." *Id.*

<sup>222</sup> *United States v. Microsoft Corp.*, 253 F.3d 34, 84-95 (D.C. Cir. 2001)(*Microsoft* \_).

<sup>223</sup> *Id.* at 51-54.

<sup>224</sup> *Id.* at 79.

<sup>225</sup> *Id.* at 97.

<sup>226</sup> *Id.* at 47. The court stated that to show exclusion under § 1, the exclusive contracts have to foreclose competitors from a "roughly 40% or 50% share" rather than the "total exclusion" asserted by Judge Jackson, but nevertheless did not reverse Judge Jackson's ruling. *Id.* The court did not state the market in which this 40-50% share figure applies. Defining the market in terms of distribution would make more economic sense. *See supra* text accompanying notes 182-88. The court, however, makes no mention of any such market. If the market in question refers to that in which the alleged monopolist holds a monopoly, however, it would seem that any market in which there were only two significant sellers would have one with more than 50% of the market, thus subjecting it to a finding that the distribution arrangements it employed violated the antitrust laws.

<sup>227</sup> Plaintiff's Memorandum in Support of Proposed Final Judgment, at 14-24, *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59 (D.D.C. 2000) (*Microsoft*\_ ) (No. 98-1232) (final judgment), available at <http://www.usdoj.gov/atr/cases/f4600/4640.htm>.

to be potentially wasteful and inefficient.<sup>228</sup> The market would lose the network externalities that come from a standard operating system.<sup>229</sup> Injunctive or conduct remedies would impose excessive burdens on the plaintiffs and the court to oversee Microsoft's operations.<sup>230</sup> Moreover, the case itself provided some indication that the injunctive remedies in the earlier, mid-1990s case against Microsoft had not worked.<sup>231</sup>

It is hard to avoid the conclusion that the vertical divestiture was chosen because it was the only remedy left, having eliminated horizontal divestitures and injunctive relief from consideration. The plaintiffs' affirmative case for the remedy rested on three planks.<sup>232</sup> First, and most importantly for the plaintiffs, making the applications arm of Microsoft independent would improve its incentives to write programs for other operating system competitors, such as Linux and Internet-based server systems of the sort Netscape plus Java could support.<sup>233</sup> While the plaintiffs' offered "no guarantee" that such development would occur, this development would, in their view, address the "application lock-in" that discourages users from switching to different operating systems.<sup>234</sup>

A second rationale for the vertical divestiture was potential entry, primarily that a firm offering Microsoft Office and other "middleware" would be a good candidate to develop its own operating system or support other applications.<sup>235</sup> The third plank supporting the remedy was the plaintiffs' contention that the corporate reorganizations of this sort are common and, thus, would not reduce Microsoft's market value.<sup>236</sup>

The most striking aspect of this remedy is the near disappearance of the browser. Whether the case was based on browser distribution directly or to strategically subvert competition in future applications platforms, Netscape and Internet Explorer were the central characters.<sup>237</sup> In the remedy, browsers become little more than a part of the middleware category of software, just one

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<sup>228</sup> *Id.* at 8. For an opposing discussion, see Robert Levinson et. al., *The Flawed Fragmentation Critique of Structural Remedies in the Microsoft Case*, Georgetown University Law Center, Business, Economic, and Regulatory Law Working Paper No. 204874, available at [http://papers.ssrn.com/paper.taf?abstract\\_id=204874](http://papers.ssrn.com/paper.taf?abstract_id=204874), .

<sup>229</sup> *Id.* at 8.

<sup>230</sup> *Id.* at 6-8.

<sup>231</sup> *Id.* at 10.

<sup>232</sup> The court of appeals found that Judge Jackson's own rationales were inadequate. See *supra* note 175 and accompanying text.

<sup>233</sup> *Id.* at 8-10, 28, 34-35. Microsoft has long supplied its major programs for the Apple Macintosh operating system. It has dominated Macintosh software for longer than it has dominated the markets for applications to run on its own operating systems. See *supra* note 81.

<sup>234</sup> *Id.* at 34.

<sup>235</sup> *Id.* at 9, 35-36. For an argument that such "vertical competition" characterizes computer software markets, see Timothy Bresnahan, *New Modes of Competition: Implications for the Future Structure of the Computer Industry*, in COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE 155, 166-77 (J. Eisenach & T. Lenard eds., 1999). Bresnahan was the chief economist at the Antitrust Division during the remedy phase of the case (but not the trial). This proposed remedy and the vertical competition justification for it may not be coincidental.

<sup>236</sup> *Id.* at 37.

<sup>237</sup> The theory of the case and evidence involved browsers. See *supra* text accompanying notes 101-03, 116-23. The plaintiffs' synopsis of the case in their final judgment memorandum says as much, by claiming that they are discussing "middleware" threats but, in their specifics, focusing only on the browser market. *Id.* at 17-22.



component among with email streaming audio and video.<sup>238</sup> To further reduce the prominence of the browser, the central focus of the remedy was not even middleware, but the Office application program suite.<sup>239</sup> The remedy fits a theory premised on the view that Word and Office were the core monopolies that Microsoft used to limit competition from other operating systems. As the plaintiffs said in their brief proposing the remedy, the “court must use the record of [the] trial to fashion . . . relief,”<sup>240</sup> but that record was not based on a theory that put Office (or the broad category of middleware) at the hub of the competitive problem. As far back as the first Microsoft case, critics of Microsoft have long complained that it favored its applications over others, e.g., in receiving access to undisclosed APIs, but that was not a part of this case.<sup>241</sup>

The case here was not concerned with whether Microsoft Office was the best entrant into operating systems, or whether it in fact had a monopoly in its own application markets. “Application lock-in” does not depend on the applications in question being Microsoft applications. Computer users are just as locked in to Windows if they are accustomed to using programs by other companies (e.g., the WordPerfect word processing program) designed to run on it. Finally, if firms in the computer industry are vulnerable to competition from vertically related firms, perhaps Microsoft’s monopoly was not as secure as the plaintiffs’ portrayed.

An economically consistent post-Chicago case with Microsoft Word and Microsoft Office as the monopoly lynchpin, leading to the plaintiffs’ proposed remedy, may well have been possible. But that case would have had a different theory and set of evidence than in *United States v. Microsoft*. The following row encapsulates what such a case would entail.<sup>242</sup>

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<sup>238</sup> *Id.* at 6; Plaintiffs’ Proposed Final Judgment, *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59 (D.D.C. 2000) (*Microsoft*\_ ) (No. 98-1232) (final judgment), available at <http://www.usdoj.gov/atr/cases/f4600/4639.pdf>.

<sup>239</sup> Plaintiff’s Memorandum in Support of Proposed Final Judgment at 9, 28, 38-5, *Microsoft*\_ (No. 98-1232). This memorandum refers to Microsoft Office as a “killer application” in the sense that it “provides functions that nearly everyone needs.” *Id.* at 34.

<sup>240</sup> *Id.* at 27.

<sup>241</sup> See *supra* text accompanying notes 99-145. The absence of API and applications issues in the 1994 case against Microsoft was what led the trial judge in the 1994 case to reject the decree in that matter when it was initially proposed—a rejection reversed by the D.C. Circuit Court of Appeals. See *supra* note 85.

<sup>242</sup> We ought not neglect the plaintiffs’ contention that Microsoft’s market value will not fall because such reorganizations are common. Plaintiff’s Memorandum in Support of Proposed Final Judgment at 37, (*Microsoft*\_ ) (No. 98-1232). The first question this contention begs is where the monopoly profits are. If the remedy would reduce or eliminate Microsoft’s market power, on whatever theory, Microsoft’s profits and market value would presumably fall, since, all else being equal, more market power leads to more profits. The only argument to the contrary, implied if not explicitly stated in the plaintiffs memorandum, would be that Microsoft would be better off undertaking a vertical divestiture, and that it is irrationally foregoing profits by doing so. *Id.* It is one thing for the government to recommend a divestiture on the grounds that it would alleviate harms to competition, and quite another to do so because it believes it knows better than the firms managers and stockholders what forms of organization would maximize the firm’s value.

Case	Theory	Evidence	Remedy
<b>OS/applications split:</b>	<b>Protect Windows by not developing Word, Office for Linux, Internet</b>	<b>Word, Office killer apps; MS favored its own applications</b>	<b>Vertically divide MS into OS and applications companies</b>

*B. The failed analogy to United States v. AT&T*

A more troubling contention is that the divestiture in the Microsoft is just like that in *United States v. AT&T*.<sup>243</sup> The divestiture in that case, as with Microsoft, was vertical. As a result of a settlement announced in early 1982, AT&T spun off in 1984 its local telephone companies, retaining its long distance telephone business and equipment manufacturing operations.<sup>244</sup> Except for providing Yellow Pages directory advertising and selling “customer premises equipment,” mainly telephones, the divested “Bell Operating Companies” were prevented from offering long distance telephone and information services, and from manufacturing equipment.<sup>245</sup> In 1990, following the instructions of the D.C. Circuit Court of Appeals, the trial court overseeing the divestiture lifted the information services ban, as neither the Justice Department nor AT&T expressed any interest in retaining it.<sup>246</sup> The remaining terms of the divestiture lasted until passage of the Telecommunications Act in 1996.<sup>247</sup> The Telecommunications Act vacated the consent decree in *United States v. AT&T*, substituting statutory procedures for allowing the Bell Operating Companies to enter these other markets, particularly long distance telephone service.

Any resemblance between these cases beyond the remedy is superficial. The AT&T case was based on the theory that vertical integration served as a means for it to evade regulation of the market power inherent in its local telephone monopolies, which were (and may still be) impervious to entry.<sup>248</sup> One dimension of this case involved claims that AT&T discriminated against its competitors in long distance by offering them low quality access or denying connections altogether.<sup>249</sup> This discrimination resulted in the anticompetitive effect of essentially allowing AT&T to tie its long distance service to its local service.<sup>250</sup> Because the price for the latter was set below the monopoly price, it would be able to capture that monopoly margin by raising the price for the former. A second dimension is “cross-subsidization;” AT&T could disguise the costs of provid-

<sup>243</sup> *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982). Joel Klein, Assistant Attorney General for Antitrust during *United States v. Microsoft*, made this analogy on the PBS News Hour the evening following the plaintiffs’ issuance of their proposed remedy. See Newsmaker with Joel Klein, OnLine News Hour, Jun. 8, 2000, available at [http://www.pbs.org/newshour/bb/cyberspace/jan-june00/klein\\_6-8.html](http://www.pbs.org/newshour/bb/cyberspace/jan-june00/klein_6-8.html), accessed Aug. 20, 2001.

<sup>244</sup> *United States v. AT&T*, 552 F. Supp. at 226-27.

<sup>245</sup> *Id.* at 227, 231.

<sup>246</sup> *United States v. Western Electric Co., Inc.*, 767 F. Supp. 308 (D.D.C. 1991).

<sup>247</sup> Telecommunications Act of 1996 § 271, 47 U.S.C. § 271 (1994)..

<sup>248</sup> For a review of the theory of *United States v. AT&T*, see Timothy Brennan, *Why Regulated Firms Should Be Kept Out of Unregulated Markets*, 32 ANTITRUST BULL. 741 (1987).

<sup>249</sup> *Id.* at 750-57, 775-76; see also *United States v. AT&T*, 552 F. Supp at 142, 161.

<sup>250</sup> Brennan, *supra* note 243, at 775-76.

ing competitive service as cost of providing regulated local telephone service, and use regulation to pass those costs on to its local telephone customers.<sup>251</sup> Such cost shifting would profit AT&T, and perhaps serve to make credible predatory threats to charge below-cost prices for competitive services, because local telephone rates were below the monopoly price.<sup>252</sup>

The divestiture in the AT&T case was based on isolating its competitive businesses from its regulated monopolies, to take away the incentive and ability to capture the profits of those monopolies through diversification into related markets. This rationale does not apply in *United States v. Microsoft*. Unlike AT&T's local telephone monopolies, Microsoft's operating system is not price-regulated.<sup>253</sup> Nothing stops Microsoft from charging what the market will bear; it has no apparent need to diversify just to exploit its market power in desktop operating systems.<sup>254</sup>

Furthermore, the remedy in *United States v. AT&T* was predicated on the idea that firms harm consumers when they straddle the boundary between regulated monopolies and competitive services.<sup>255</sup> This remedy not only mandated a divestiture, but it also prevented the firms from reintegrating into each other's markets.<sup>256</sup> Absent this, the divested local telephone companies could reconstitute the market structure that led to the antitrust concerns motivating the case.<sup>257</sup> In stark contrast, the remedy in *United States v. Microsoft* is predicated in part on the hope that the vertically separated entities might eventually compete with each other.<sup>258</sup> In other words, there is nothing inherently harmful about Microsoft's vertically integrated structure. Rather, the rationale for the divestiture is that it offers hope for some competition in operating systems or applications.

*United States v. AT&T* was a paradigm case in which the theory, evidence, and remedy fit together as a piece of economics. The theory of the case, based on the potential for abuse of monopolies created by the combination of regulation and vertical integration, dictated the litigation and remedy. Unlike in *United States v. Microsoft*, the plaintiffs' remedy and the theory behind it were clearly known from the start of the trial. If the Microsoft case matched the AT&T case in those respects, there would be far less concern with a changing role of economics in antitrust.

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<sup>251</sup> *Id.* at 757-64, 776-77; *see also* *United States v. AT&T*, 552 F. Supp. at 142.

<sup>252</sup> Brennan, *supra* note 243, at 762.

<sup>253</sup> Analyses of Microsoft's pricing of its Windows operating systems proceed by recognizing that there is no regulatory impediment that would keep Microsoft from charging the price that maximizes profits. *See generally* Werden, *supra* note 127, Reddy et. al., *supra* note 127.

<sup>254</sup> We consider below some post-Chicago theories not developed in the case that might support a concern that Microsoft might be able to raise prices overall via a tie. *See infra* text accompanying notes 266-74.

<sup>255</sup> Brennan, *supra* note 243, at 778-84.

<sup>256</sup> *United States v. AT&T*, 552 F. Supp. 131, 227 (D.D.C. 1982).

<sup>257</sup> *Id.* at 165-66, Brennan, *supra* note 243, at 778-79.

<sup>258</sup> *See supra* text accompanying note 230.

## VII. Other neglected or undeveloped theories

### A. Three more stories that could have been told

Criticizing the plaintiffs’ case by no means supports a conclusion that Microsoft’s conduct was benign. In suggesting that the plaintiffs’ theory, evidence, and remedy do not fit a single economically sound case, we identified three different such cases that might have been brought against Microsoft. We can also identify three additional economic cases that might have been brought against Microsoft, based on tying, predation, and an excessively large monopoly in operating systems.

As with the three different cases within *United States v. Microsoft*, we can display these additional potential cases in tabular form.

Case	Theory	Evidence	Remedy
<b>Tying browser (apps) to operating system:</b>	<b>MS captured more monopoly profits via a tie</b>	<b>Browser, evade “transaction costs,” piracy that limit OS market power</b>	<b>Break the tie, disclose APIs (at set price) for browser (apps)</b>
<b>Bill Gates as predator:</b>	<b>MS had, maintained “predacious” reputation</b>	<b>Show MS (Gates) cares more about share than money</b>	<b>Force Gates to divest, to make MS less of a \$300B proprietorship</b>
<b>OS monopoly too large:</b>	<b>Copyright protection too big for OS</b>	<b>OS arbitrary, would’ve been written anyhow</b>	<b>Horizontal divestiture; amend copyright</b>

Had any of these cases been carried out, the plaintiffs would have had an opportunity to expand and clarify the role of post-Chicago economics, rather than implicitly call the role of economics in antitrust into question.

### B. Missed opportunity I: Refining tying

Part of the plaintiffs’ case and the trial court’s decision involved claims that Microsoft had effectively tied its browser, Internet Explorer, to its monopoly in Windows operating systems.<sup>259</sup> From the Chicago perspective, tying cases have been disparaged. The pre-Chicago story argues

<sup>259</sup> Complaint ¶¶ 103-22, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft VI*) (findings of fact), available at <http://usdoj.gov/atr/cases/f1700/1763.htm>, *United States v. Microsoft Corp.* 87 F. Supp. 2d 30, 47-51 (D.D.C. 2000) (*Microsoft VII*) (conclusions of law).

that a tie enables monopoly power to be leveraged in the market for the tying good to be leveraged to thus enabling a monopoly in the market for a second tied good.<sup>260</sup> By Chicago-school lights, such a tie does not help the monopoly, but hurts it.<sup>261</sup> Forcing consumers of a firm's monopoly good to buy the tied good reduces the consumers' choices, depressing demand for the tying good and reducing the profits from selling it.<sup>262</sup> Any premium that it can charge for the tied good must be derived from the price for the tying good, where the monopoly power lies.<sup>263</sup> Breaking the tie would predictably increase the price of the monopoly good. In this case, a tying claim would imply that forcing Microsoft to give up sales of Internet Explorer would lead to an increase in the price of Windows.

If tying for leveraging's sake reduces profits, then tying must have other rationales. One possibility is price discrimination.<sup>264</sup> If a shoe monopolist were to tie (so to speak) shoelaces to shoes, it could charge more for those who use the shoes more intensively, as measured by how many shoelaces they use up. The economic effects of price discrimination are generally ambiguous on both efficiency and equity grounds. Price discrimination tends to raise prices to those more willing or able to pay a lot for something, but to cut prices to those less willing or able to pay.<sup>265</sup> A tactic that enables price discrimination is not necessarily something that ought to be targeted by antitrust law.

The story is more complicated if there were some reason why breaking the tie would not lead Microsoft to raise the price of its operating system. *United States v. AT&T* was a more compelling case because regulation kept AT&T from raising the price of its regulated telephone service after breaking the tie between it and long distance service through the divestiture.<sup>266</sup> While there is no regulation of Microsoft, perhaps there are other impediments to raising its operating system price if the tie to the browser were broken. Perhaps one might argue that Microsoft might fear piracy—unauthorized copying—were it to raise the price of the operating system, but perhaps not for browsers. Microsoft might also not have been able to single out browser users to pay higher prices. In theory, it might do so by charging more to browser customers for use of the operating system, or to charge more to browser companies for access to the APIs necessary to run browsers on Windows. But in practice, it may not be able to segment the market to be able to bring this about.

To put this in economic jargon, the “transaction costs” associated with creating a separate market in operating system access for browser users, or in API access for software companies that want to write browsers to run on windows, may serve as an implicit price regulator. Such market imperfections suggest that Microsoft could effectively increase operating system prices and reduce consumer welfare by tying a browser to its operating system. The evidence for this

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<sup>260</sup> GELLHORN & KOVACIC, *supra* note 44 at 330-31; Bowman, *supra* note 49, at 19-20.

<sup>261</sup> See also BORK, *supra* note 54, at 372-74; POSNER, *supra* note 53, at 173-74.

<sup>262</sup> BORK, *supra* note 54, at 372-74; POSNER, *supra* note 53, at 173-74.

<sup>263</sup> BORK, *supra* note 54, at 372-74; POSNER, *supra* note 53, at 173-74.

<sup>264</sup> GELLHORN & KOVACIC, *supra* note 44, at 331.

<sup>265</sup> JAMES HENDERSON & RICHARD QUANDT, MICROECONOMIC THEORY 217 (1971).

<sup>266</sup> Brennan, *supra* note 243, at 749-50.

economically valid tying claim would entail showing that Microsoft would not raise the price of its operating system were the tie to be broken, because of piracy threats or these transaction costs.<sup>267</sup>

Whether such evidence could have been obtained is beyond the scope of this Article.<sup>268</sup> Were convincing evidence available, the direct remedy suggested by the underlying economic theory would be to break the tie, by allowing developers to write browsers that would run on Windows and to allow users to use those browsers. Making the break effective would require that Microsoft not be able to charge the monopoly price for access to the operating system. The court could make this possible by requiring that Microsoft disclose the APIs at a reasonable price to be set by the court. Because Microsoft might favor itself with undisclosed APIs, a court might require Microsoft to make its source code available for application developers.<sup>269</sup> Developers would not have a right to use the source code in their own products, but they could examine it to ensure that no secret APIs were present. They might even discover ways of getting the operating system to perform certain functions that Microsoft had not anticipated.

### C. Missed opportunity 2: Refining predation

Predation, like tying, ended up being part of the plaintiffs' case, more as a contributor to the holistic sense of Microsoft as a bad actor rather than as a "stand alone" ground for liability.<sup>270</sup> Also, as with tying, Chicago economics has expressed considerable skepticism about predation.<sup>271</sup> Under this conception, a predatory price causes losses while it is being charged, and hence is profitable only if the monopolizing firm can raise the price after its competitors have been driven from the market.<sup>272</sup> Once the price is raised, however, entrants will return to the market.

If predation works, it is not as a tactic to drive out present competitors, but as a threat to discourage potential competitors from entering. This threat is generally not credible. Typically, once the entrant has entered, the firm has to charge such a low price to get the entrant to write off its sunk costs<sup>273</sup> and leave the market that it will be more profitable to let an entrant remain once

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<sup>267</sup> Recall that if the proper case against Microsoft were based on the theory in the plaintiffs' case, breaking the tie would cause the operating system price to fall. In that case, the antitrust cause of action was not leveraging, but rather that browsers and operating systems were both part of a market in inputs into creating a competitive advantage in the sale of future application platforms. See *supra* text accompanying notes 201-02.

<sup>268</sup> The point of this Article is to suggest what sort of evidence should have been adduced at trial had a particular theory (e.g., tying) been alleged. See *supra* text accompanying notes 19-37.

<sup>269</sup> I thank Anocha Yimsirivattana for this suggestion.

<sup>270</sup> *United States v. Microsoft Corp.* 87 F. Supp. 2d 30, 44 (D.D.C. 2000) (*Microsoft VII*) (conclusions of law).

<sup>271</sup> See *supra* note 50 and accompanying text.

<sup>272</sup> GELLHORN & KOVACIC, *supra* note 44, at 141-44. Some commentators define a predatory price (or other tactic) solely in terms of whether the practice is profitable only if it results in driving competitors out of the market. Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 *YALE L.J.* 8, 9-11 (1981).

<sup>273</sup> "Sunk costs" are costs that a firm incurs to supply a product and cannot recover if it decides to exit the market. They are in that sense the irreversible cost of entry. If a potential entrant does not expect to earn enough revenue over operating costs to recover these sunk costs, it will not expect entry to be profitable, and hence will not enter.

it has entered.<sup>274</sup> If there are no substantial sunk costs associated with entry, then entry cannot be readily deterred by a predatory price. Firms can enter, without incurring sunk costs, when the price is raised to recoup the losses from predation.<sup>275</sup>

Calling this story into question, and thus re-establishing predatory pricing as a legitimate antitrust concern, has been a major achievement of post-Chicago strategic economics.<sup>276</sup> A monopolist may have a credible predatory threat if entrants think there is some chance that the monopolist cares more about retaining the monopoly than it does about profits.<sup>277</sup> Essentially, if a firm enters, a monopolist may respond with a predatory price, either because it genuinely cares more about the monopoly than profits, or because it wants to keep future entrants thinking that it does.<sup>278</sup> Perhaps paradoxically, a monopolist may be better able to keep a profitable monopoly if it is able to convince potential entrants that it does not care about profits.

These interesting theories have wanted for applications. The typical large firm has dispersed stockholders and management with a fiduciary responsibility to maximize profits and not engage in escapades purely designed to protect market share. That's not to say the theoretical ideal never works, but I would expect it to be difficult to build an antitrust case on the grounds that the management is sufficiently disconnected from the interests of its stockholders to be able to convince competitors that the firm would act to protect market share at the expense of profits.

Microsoft could have been the exception that fit post-Chicago predatory theory. While Microsoft has dispersed ownership, in many respects it was, in effect, a half-trillion-dollar sole proprietorship, under the control of Bill Gates. The plaintiffs might have been able to generate evidence to support the proposition that Microsoft was the rare company that fit the post-Chicago theory of predation.<sup>279</sup> With that theory and evidence, the remedy would be to change Microsoft from Gates's proprietorship to an ordinary dispersed-ownership company, by forcing Gates to sell off the vast majority of his interest in the company, but keeping the company itself intact.

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WILLIAM S. BAUMOL et al., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* 280, 290-92 (1982).

<sup>274</sup> In computer software markets, the problem of predatory pricing is compounded because a firm's penetration in a software market will increase demand for complementary software and hardware that it may sell. Because a firm may want to set prices below cost in one market to boost demand for complements, one cannot infer predatory intent or effect from observing such pricing. We also discuss below, *infra* text accompanying notes 286-88, how competition for software markets with network externalities could lead to below cost pricing.

<sup>275</sup> See *supra* note 48 and accompanying text.

<sup>276</sup> See Patrick Bolton et al, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 *GEORGETOWN L. J.* 2239, 2301 (2000).

<sup>277</sup> David M. Kreps & Robert Wilson, *Reputation and Imperfect Information*, 27 *J. ECON. THEORY* 253, 254 (1982); Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 *J. ECON. THEORY* 280, 281 (1982).

<sup>278</sup> See, e.g., Bolton et al., *supra* note 271, at 2301.

<sup>279</sup> If there is anyone for whom the value of an additional dollar is zero given how many dollars one already has, one might hope it is Bill Gates.

#### D. Missed opportunity 3: The breadth of the monopoly

A third possibility would be to challenge Microsoft's monopoly in the operating system directly. Legally, this might be a stretch, given that Microsoft's monopoly in its operating system seems to be protected by copyright laws.<sup>280</sup> From an economic perspective, however, one may question whether the full extent of copyright protection is necessary in this industry. Some commentators have argued that copyright protection against reverse-engineering operating systems or their interfaces is undesirable altogether.<sup>281</sup> An operating system may be thought of as an arbitrary solution to an obvious problem that had to be done some way, but the particular way it was done does not merit protection.<sup>282</sup> Another argument would be that the firm that develops an operating system has a natural "first mover" advantage over those that can provide only copies, and thus does not require the extra intellectual property protection.<sup>283</sup> Even if some copyright protection is worthwhile, it is not clear that the tens of billions of dollars in market capitalization generated by Windows were necessary to induce investment. The prospect of a mere billion or two might suffice.

A case along these lines under the antitrust laws seems problematic, absent a finding that Microsoft abused its copyright. Achieving a result on these grounds might require statutory change in the copyright laws. If evidence suggests that copyright is unnecessary or that a shorter term would suffice, one could justify breaking up Microsoft along horizontal lines, into separate companies, each of which could compete with one another in selling Windows. Such a remedy would be functionally equivalent to voiding the copyright or letting others use the source code under a mandatory zero-price license.<sup>284</sup>

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<sup>280</sup> Computer software is generally protected as a "literary work" under the copyright law, 17 U.S.C. §1102, *see* U.S. Copyright Office, Circular 1 - Copyright Basics, *available at* <http://www.loc.gov/copyright/circs/circ1.html#wwp>, accessed Aug. 20, 2001.

<sup>281</sup> Kenneth Baseman et al., *The Economics of Intellectual Property Protection for Software*, STANDARD VIEW 7-8 (1995), *available at* <http://elsa.Berkeley.EDU/~woroch/softcopy.pdf>, accessed Jun. 2, 2001. Warren-Boulton was an expert economist testifying for the plaintiffs in *United States v. Microsoft*.

<sup>282</sup> A similar claim was at the heart of *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807 (1st Cir. 1995), (finding that reproducing Lotus's "1-2-3" spreadsheet menus in Borland's QuattroPro software was not copyright infringement).

<sup>283</sup> Timothy J. Brennan, *Harper & Row v. The Nation, Inc.: Copyrightability and Fair Use*, 33 J. COPYRIGHT SOC'Y. AMER. 368, 375 (1986) (arguing *inter alia* that someone who wants to compete against a copyright holder solely by producing copies has to face the possibility that the copyright holder might respond by cutting the price as well, perhaps so low as to prevent the copier from recovering its own sunk costs. *See supra* note 268).

<sup>284</sup> One argument offered for this remedy is that computer software would be better if no one owned it, under an "open source code" model, in which the code in which software is written is freely available to be shared and improved by the community that uses it. *See* Chris DiBona et al., *Introduction*, in OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION (1999). This seems to me more a romantic ideal than a real-world solution to problems of software development. Ownership may not be necessary to give individuals and firms the incentive to devote time and effort to develop and maintain product quality and compatibility. Admittedly, the Internet and many of its important developments, most notably the hypertext transfer protocol and markup language on which browsing and the World Wide Web is based, were volunteer efforts. Robert Wright, *The Man Who Invented the Web: Tim Berners-Lee Started a Revolution, But It Didn't Go Exactly as Planned*, TIME, May 19, 1997 at 64. Linux has had some notable successes on the open source model as well. *See* Linux Online, *available at* <http://www.linux.org/index.html>, accessed at Aug. 20, 2001. Perhaps I am too cynical after years as an economist, but these seem like exceptions rest-



*E. Recapping the stories*

We have suggested that the case against Microsoft was not economically consistent internally, as the theory, evidence, and remedy each fit separate “theory/evidence/remedy” cases. We have also identified three other cases that might have been pursued. The table below summarizes the list, with the plaintiffs’ case components in lighter type.

<b>Case</b>	<b>Theory</b>	<b>Evidence</b>	<b>Remedy</b>
<b>Protecting the OS monopoly:</b>	MS developed IE and Windows-specific JAVA to impede OS, application platform entry	Netscape + JAVA best/only entry path into Windows’ future market	<b>Bite the bullet: Limit MS innovation, divest IE</b>
<b>Blocking Netscape distribution:</b>	Monopolize relevant market in means for distributing browsers	MS used OEM, ISP contracts to block Netscape distribution	<b>Eliminate contracts giving exclusive access to monopoly share of distribution market</b>
<b>OS/applications split:</b>	Protect Windows by not developing Word, Office for Linux, Internet	Word, Office killer apps; MS favored its own applications	<b>Vertically divide MS into OS and applications companies</b>
<b>Tying browser (apps) to operating system:</b>	MS captured more monopoly profits via a tie	Browser, evade “transaction costs,” piracy that limit OS market power	<b>Break the tie, disclose APIs (at set price) for browser (apps)</b>
<b>Bill Gates as predator:</b>	MS had, maintained “predacious” reputation	Show MS (Gates) cares more about share than money	<b>Force Gates to divest, to make MS less of a \$300B proprietorship</b>
<b>OS monopoly too large:</b>	Copyright protection too big for OS	OS arbitrary, would’ve been written anyhow	<b>Horizontal divestiture; amend copyright</b>

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ing on appeals to the residue of a volunteer ethic that worked in the early days of the Internet but most likely cannot sustain commercial initiatives running into the hundreds of millions of dollars.

For none of these cases have we supplied evidence that the theory holds or shows that the benefits of the implied remedy exceed possible costs. Still, the list belies a claim that any lack of economic consistency in *United States v. Microsoft* arose because no economic case could be constructed. Rather, it indicates that the costs of making such a case were less than the benefits from the point of view of one charged with winning a case under the realities of the law and the litigation process, rather than from the point of view from the ivory tower.

*F. Not every post-Chicago theory helps: Tipping, standards*

The extent to which one can come up with innovative economics stories to tell against Microsoft could imply that anything might work. However, not all of the stories used to justify devoting special attention to the computer software industry hold up. One such notable story involves “tipping.”<sup>285</sup> “Tipping” refers to the propensity for markets with network externalities, such as those for computer operating systems, to become “winner take most,” if not “winner take all.”<sup>286</sup> By definition, network externalities imply that all else being equal, consumers would rather have the same product that most other consumers have.<sup>287</sup> In such markets, a small early advantage that one seller might have, real or perceived, that would lead consumers to think that it would have a plurality of sales, could translate into a dominant market share, as everyone wants to jump on the same bandwagon. In the limit, the market would fall all the way toward monopoly.<sup>288</sup> One might analogize to a coin delicately balanced on its end; if tipped a little bit in one direction, it would fall completely in that direction.

On the one hand, the propensity of a market to “tip” warrants additional antitrust vigilance.<sup>289</sup> In ordinary markets, a firm might have to do a great deal to strip market share from its competitors. If the market can tip, however, a firm’s tactic that creates what would normally be a relatively small and harmless competitive advantage could, in markets with network externalities, deter entry altogether.<sup>290</sup>

On the other hand, in markets prone to tipping, competition will be for the market—which firm benefits from the tipping and ends up the monopolist—rather than for competition within the market.<sup>291</sup> Interpreting tactics when competition is for the market becomes problematic. Pricing below cost might be predatory in ordinary markets, but will be the expected price early in a

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<sup>285</sup> As it relates to network externalities, “tipping” figured in at least a small way in the plaintiffs’ case. Direct Testimony of Frederick R. Warren-Boulton ¶ 89, *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (*Microsoft* \_) (findings of fact) available at <http://www.usdoj.gov/atr/cases/f2000/2079.htm>, accessed Aug. 21, 2001. See also *supra* text accompanying notes 109-112.

<sup>286</sup> Michael L. Katz & Carl Shapiro, *Antitrust in Software Markets*, COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE 29, 33 (J. Eisenach & T. Lenard eds., 1999).

<sup>287</sup> Michael L. Katz and Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AMER. ECON. REV. 424, 424 (1985).

<sup>288</sup> Recall that “network externalities” were among the reasons one would expect Microsoft to be a monopolist in operating systems through its Windows software. See *supra* text accompanying notes 109-12.

<sup>289</sup> Michael Katz & Carl Shapiro, *supra* note 281, at 424.

<sup>290</sup> *Id.*

<sup>291</sup> *United States v. Microsoft Corp.*, 253 F.3d 34, 49-50 (D.C. Cir. 2001) (*Microsoft* \_).

tipping-prone market's development, when the expected result is that the winner will get a monopoly.<sup>292</sup> Essentially, firms expecting monopoly profits later will compete them away through offering below-cost discounts to early adopters.<sup>293</sup>

The most telling way in which tipping tends to make a post-Chicago strategic story hard to tell follows from the difference between competition in a market and competition for it. An important post-Chicago analysis of innovation posits that an incumbent monopolist in a market in which intellectual property plays an important role—like computer software—will have a strategic incentive to beat potential entrants in a race to innovate.<sup>294</sup> The key to this and similar theories of preemptive innovation or exclusionary contracting<sup>295</sup> rests on a distinction between the value of entry to the entrant and its cost to the incumbent.<sup>296</sup>

In these models, if the entrant is successful, e.g., gets a patent first, it then competes head-to-head with the incumbent monopolist, and both reap only the profits they would get under such competition.<sup>297</sup> Let  $\Pi_E$  be the entrant's profits if it wins the innovation race, and let  $\Pi_{IC}$  be the incumbent's profits under competition with the entrant. If the incumbent wins, it gets to keep the monopoly and the profits that go with it,<sup>298</sup> which we can label  $\Pi_{IM}$ . Because monopoly profits are the maximum attainable, the incumbent's monopoly profits exceed the profits it and the entrant would reap were they to compete against each other. Symbolically,

$$\Pi_{IM} > \Pi_{IC} + \Pi_E.$$

This equation says that the value of winning to the incumbent is the difference between its monopoly and competitive profits, while the value of winning to the entrant is its post-entry profits. It follows that the profits from winning the innovation race are greater for the incumbent than for the entrant, i.e.,

$$\Pi_{IM} - \Pi_{IC} > \Pi_E.$$

Consequently, the incumbent has an incentive to preempt the entrant, patenting too fast just to retain its monopoly.

This strategic argument fails, however, in markets prone to tipping. The models described above depend on asymmetry between the entrant, which receives only competitive profits if it

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<sup>292</sup> Michael L. Katz & Carl Shapiro, *Technology Adoption in the Presence of Network Externalities*, 94 J. POL. ECON. 822, 825 (1986).

<sup>293</sup> *Id.* at 837-38.

<sup>294</sup> Richard J. Gilbert & David M. G. Newbery, *Preemptive Patenting and the Persistence of Monopoly*, 72 AMER. ECON. REV. 514, 514 (1982).

<sup>295</sup> Steven C. Salop, *Raising Rivals' Costs, Foreclosure and Network Access Restraints*, presented at the Association of the Bar of the City of New York, New York, NY (Apr. 19, 2001). Slides at Antitrust.org, available at <http://www.antitrust.org/vertical/economics/rrc/salop.ppt>, accessed Jun. 1, 2001.

<sup>296</sup> Gilbert & Newbery, *supra* note 289, at 516.

<sup>297</sup> *Id.* at 515. "Competition" here can involve less-than-perfect duopoly competition. As long as the entrant and incumbent do not collude to keep prices at the monopoly level, the argument in the following text holds.

<sup>298</sup> *Id.*

innovates, and the incumbent, who gets to keep a monopoly if it innovates.<sup>299</sup> Suppose that because of tipping, a successful entrant would not only survive but be the next monopolist, driving out the incumbent. The entrant would get the monopoly profit and the losing incumbent would get nothing. In our notation,

$$\Pi_{IC} = 0$$

and

$$\Pi_{IM} = \Pi_E.$$

The rewards for winning the innovation race are the same for both incumbent and entrant. Tipping eliminates the asymmetry that gives the incumbent a strategic advantage. If markets for browsers, operating systems, or application platforms are prone to tipping, it makes it harder, not easier, to tell a story by which Microsoft could have discouraged Netscape from competing.<sup>300</sup>

A related concern is that in a competition in a tipping-prone operating system or browser market, the “right” monopoly would not emerge to be the next industry standard.<sup>301</sup> For example, standards may last too long because of inertia.<sup>302</sup> Network externalities discourage users from departing from the prevailing standard, even if the newer standard would be better for all if all adopted it.<sup>303</sup> Standards may also be adopted too easily, if everyone adopts because they expect others to switch.<sup>304</sup> The expectations may be rational in the sense of being self-fulfilling, even if the original standard had been preferred by all had everyone stayed with it.

The real-world relevance of these theoretical possibilities continues to be a matter of considerable debate.<sup>305</sup> Even if markets may choose the wrong standard, whether the public sector would systematically do a better job is arguable.<sup>306</sup> Even if Microsoft’s operating systems were an inferior standard compared to Linux, Macintosh, Netscape plus Java, or anything else, Microsoft’s success in the market notwithstanding probably ought not be an antitrust violation purely on those grounds.<sup>307</sup>

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<sup>299</sup> *Id.* at 516.

<sup>300</sup> That Netscape’s browser preceded Microsoft’s is yet another reason why models based on an incumbency advantage may be difficult to employ against Microsoft in this context.

<sup>301</sup> Joseph Farrell & Garth Saloner, *Standards, Compatibility, and Innovation*, 16 RAND J. ECON. 70, 70 (1985).

<sup>302</sup> *Id.* at 72.

<sup>303</sup> *Id.*

<sup>304</sup> Katz & Shapiro, *supra* note 287, at 825.

<sup>305</sup> For a view that markets find the right standard, see S. J. Liebowitz & Stephen E. Margolis, *The Fable of the Keys*, 33 J. L. ECON 1, 21 (1990) (arguing that the alleged inefficiency of standard typing keyboard compared to alternatives is a myth and does not indicate a market failure). As someone with a Beta-format VCR and old Apple computers gathering dust, I’m less sanguine about the ability of markets to find the right standard. Perhaps I’m just gifted at finding the wrong ones. See *supra* note 111.

<sup>306</sup> Comments of 37 Concerned Economists at 23, In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, WT Docket No. 00-230 (F.C.C., filed Feb. 7, 2001), available at <http://www.aei.org/ct/hazlett010207.pdf>, accessed Aug. 21, 2001.

<sup>307</sup> Many of us interested in this case have found themselves in conversations where someone wishes that Microsoft would be found guilty of an antitrust violation because Microsoft’s software is bloated, his Window’s computer

## VIII. Beyond an economic case: Holistic patterns, intent

### A. Holistic approaches

Another view of the Microsoft case is that the defendant's guilt is established not as the result of a single defined economic story, but as the sum of a number of episodes each of which adds to a sense of antitrust culpability.<sup>308</sup> In this conception, the browser story, rather than being central, is just one pixel of a larger image. The more important task is to establish a pattern of conduct, going beyond the Netscape and Java core concerns. These expansive concerns include accusations that Microsoft threatened other firms who were thinking of entering its markets, such as Intel, Apple, and IBM.<sup>309</sup> It includes the allegation that Microsoft initially attempted to conspire with Netscape to divide the personal computer market into subsets over which each would retain a monopoly.<sup>310</sup> While this might have been an antitrust violation on its own, it played a role here only to corroborate Microsoft's inclination to resist competition.<sup>311</sup> The same could be said of the claims that Microsoft acted in a predatory fashion by giving away Internet Explorer—it was characterized not as a specifically illegal act, but as part of a “predacious” pattern.<sup>312</sup>

This reading of Microsoft's conduct may be effective legally, but it does not follow from an economic construction of an antitrust case. The complaint in the case centered on the evidence on and effects of impeding Netscape, whether in the narrow terms of browser distribution or in the larger, if more vaguely stated, context of monopolizing future application platforms.<sup>313</sup> The browser story, however, can hardly be only a component in a larger story if the importance of monopolizing browser distribution comes from the expectation of future success as an application platform.

Moreover, a broader, impressionistic approach makes any of the specific economic stories—the three fitting the theory, evidence, or remedy in the case, or the others listed—harder to tell. The nature of economics is to wean litigants away from impressions and to focus on specific evidence to support a specific theory that would, if validated, imply a specific remedy. If the plaintiffs and courts in *United States v. Microsoft* had relied a more expansive, holistic approach, one might ask whether such expansion is consistent with the purposes of antitrust. Delineating competitive from anticompetitive conduct and deterring the latter while encouraging the former are

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crashes repeatedly, or Word lacks features that WordPerfect possesses. While I have some sympathy for those reactions, especially as network externalities finally drove me to the Windows environment (*see supra* notes 111, 313), these operational vagaries ought not be the basis for antitrust liability, however annoying they may be.

<sup>308</sup> *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 44 (D.D.C. 2000) (*Microsoft* \_)(conclusions of law).

<sup>309</sup> *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 34 (D.D.C. 1999)(*Microsoft* \_)(findings of fact).

<sup>310</sup> *Id.* *See also Microsoft* \_, 87 F. Supp. 2d at 45-46.

<sup>311</sup> Agreements among competitors to divide markets normally violate § 1 of the Sherman Act. GELLHORN & KOVACIC, *supra* note 44, at 196-204. The plaintiffs' complaint mentioned this attempt, but only incorporated it by reference into its claims for relief and did not list the attempt as a separate violation, perhaps because the attempt did not succeed. Complaint ¶ 14, 130-141, *Microsoft* \_ (No. 98-1232). Judge Jackson's § 1 conclusions regarding Microsoft's liability dealt only with tying and exclusive dealing, and did not include any market allocation agreement. *Microsoft* \_, 87 F. Supp. 2d at 46-54.

<sup>312</sup> *Microsoft* \_, 87 F. Supp. 2d at 19-21.

<sup>313</sup> Complaint ¶¶ 17-38 *Microsoft* \_ (No. 98-1232). *See also supra* text accompanying notes 198-99.

better served if defendants know the rationale of an antitrust case before its trial starts.<sup>314</sup> The Court of Appeals commendably rejected Judge Jackson's holding that Microsoft's "course of conduct" was a separate antitrust violation apart from the component claims.<sup>315</sup>

### B. *The role of intent in antitrust*

Another possibility is an interpretation of *United States v. Microsoft* based on intent. One commentator has claimed that Microsoft's intent to monopolize is the basis of its culpability.<sup>316</sup> This Article is not the place to fully examine of the role of intent in antitrust.<sup>317</sup> From an economic perspective, which focuses on effects, an emphasis on intent seems misplaced.

Economics recognizes a role of intent in some legal settings. In the economic analysis of torts, intent is used to differentiate between accidental and purposeful conduct.<sup>318</sup> In the case of accidents, the absence of specific intent indicates that the costs of negotiating an agreement between the tortfeasor and victim *ex ante* would be prohibitive.<sup>319</sup> These high "transaction costs"<sup>320</sup> justify allowing courts to set the price of negligence as an inducement to exercise due care. With purposeful conduct, the potential injurer (e.g., car thief) has an identified victim. The transaction costs of finding and negotiating with the potential victim, to see if the conduct (e.g., taking the victim's car) would be part of a mutually agreeable bargain, are relatively low.<sup>321</sup> High criminal penalties can be used to force potential injurers into the market to negotiate with potential victims, preventing transfers of wealth that are not mutually beneficial.<sup>322</sup>

This economic rationale for looking at intent in legal settings, however stretched it may be to apply to torts, has little purpose in antitrust generally and in this case in particular. In no sense could Microsoft's conduct here, for good or ill, be taken to be accidental. It was never contended that one day Microsoft discovered that Windows 95 serendipitously happened to be able to do browsing as well.<sup>323</sup> More generally, in business contexts, efforts to acquire market share at the

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<sup>314</sup> See *supra* note 18.

<sup>315</sup> *United States v. Microsoft Corp.*, 253 F.3d 34, 78 (D.C. Cir. 2001) (*Microsoft* \_). The Court of Appeals did agree with Judge Jackson regarding Microsoft's efforts to dissuade Intel from supporting a version of Java that would work on all operating systems, not just Windows, but did so as a separate count regarding Java, not as part of a course of conduct. *Id.* at 77-78.

<sup>316</sup> Robert Litan, *Fair Use of Antitrust Law*, WASH. POST, Sep. 13, 2000, at A35. Litan was the Deputy Assistant Attorney General for Antitrust during the first Microsoft case in the mid-1990s.

<sup>317</sup> For a more extensive discussion, see Ronald A. Cass & Keith N. Hylton, *Antitrust Intent*, 74 S. CAL. L. REV. 657 (2001).

<sup>318</sup> WILLIAM LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 149-53 (1987).

<sup>319</sup> Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1108, 1119-21 (1972).

<sup>320</sup> The term "transaction costs" refers to costs associated with searching and bargaining to reach agreements. It comes from R.H. Coase, *The Problem of Social Cost*, 3 J.L. & Econ. 1 (1960), which, among other things, initiated the use of economics as a tool for understanding and evaluating legal rights and procedures.

<sup>321</sup> Richard A. Posner, *An Economic Theory of the Criminal Law*, 85 COLUMBIA L. REV. 1193, 1196 (1985).

<sup>322</sup> *Id.* at 1195.

<sup>323</sup> The trial judge concluded that Microsoft's design decisions were intentional. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 49-51 (D.D.C. 2000) (*Microsoft* \_) (conclusions of law) (referring to Microsoft's "decisions" to integrate its browser with its operating system).

expense of one's competitors is typical in all but the most textbook-like, atomistic settings.<sup>324</sup> If so, attributing guilt to allusions to beating competitors or driving them out of the market would probably expose most firms to antitrust liability.

In this case, the court of appeals held that whether conduct violates § 2 of the Sherman Act is based only on the effect of the content.<sup>325</sup> Intent-like statements could be evidence of effect.<sup>326</sup> One could help verifying one of the above theories by investigating whether Microsoft's executives expressed and believed it. But making intent the basis for culpability suggests that a firm instituting a practice or structuring itself to lead to anticompetitive effects might be excused from antitrust liability if it did not intend to restrain trade or monopolize a market.<sup>327</sup> To hold intent itself as the basis for culpability suggests that Microsoft was guilty of a hate crime rather than subversion of competition.

## IX. Conclusions

We have reviewed the arguments in *United States v. Microsoft* and discussed the tensions and inconsistencies among the theory, central evidence, and remedy in the case. We have also reviewed alternative cases that might have been brought and assessed other approaches involving holistic patterns of conduct or intent. The review suggests that major antitrust litigation is more comfortable with economics as a peripheral player than with the careful refinement necessary to build an economically consistent case from theory through evidence to remedy. That the Microsoft case could be viewed as a traditional case, along with its success (subject to appeals), is exactly the problem. The success shows that it is easier and more rewarding to revert to traditional approaches than to engage in the complicated and problematic tasks necessary to show that innovative, post-Chicago theories could and should apply. Reliance on holistic impressions and intent further indicates a pre-Chicago reversion of the role of economics in antitrust policy.

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<sup>324</sup> GELLHORN & KOVACIC, *supra* note 44, at 92-93.

<sup>325</sup> *United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001) (*Microsoft* \_) (“[O]ur focus is on upon the effect of the conduct, not upon the intent behind it. Evidence of the intent behind the conduct of a monopolist is relevant *only* to the extent it helps us understand the likely effect of the monopolist’s conduct [emphasis added].) *But see id.* at 77, where the Court stated in regard to Microsoft’s efforts to discourage Intel from supporting cross-platform Java, that “Microsoft’s internal documents and deposition testimony confirm both the anticompetitive effect and intent of its actions.” This suggests that the court continues to view intent as separate from effect in establishing culpability. The court also regards intent as a necessary condition for a holding of liability for attempted monopolization. *Id.* at 80.

<sup>326</sup> *Id.* at 59.

<sup>327</sup> Gellhorn and Kovacic state that the Supreme Court has three requirements for proving attempted monopolization: (1) predatory or anticompetitive conduct, (2) intent to monopolize, and (3) dangerous probability of achieving monopoly power. GELLHORN & KOVACIC, *supra* note 44, at 154, citing *Spectrum Sports, Inc. v. McQuillan*, 113 S. Ct. 884 (1993). Suppose that the first and third items in the list are present, but the second one is not. Should a firm be free to act in that case? One can see perhaps not holding it criminally culpable, but there seems little reason to permit conduct that is anticompetitive and would create monopoly power, even if the firm engaged in the conduct didn’t mean to become a monopolist. As stated in the text accompanying this note, intent documents may be evidence that the conduct was anticompetitive or that it would create a dangerous probability of market power, but the absence of such evidence should not place such conduct outside the reach of antitrust enforcement.

One could celebrate rather than regret that economics, or policy analysis apart from legal considerations, may be losing a twenty-five year effort to take a major role in constraining the implementation of the antitrust laws. Whether one regards this as shedding the shackles of Chicago economics or reverting to the era when economics did not matter, the cat may be irretrievably out of the bag. There may be nothing a court of appeals or the Supreme Court could or should do to turn back the clock to an era where simpler but more robust economic theory was a useful contributor to antitrust practice and policy. The appellate courts in *United States v. Microsoft* might have issued a substantive ruling to force the remedy to be tied to the theory and evidence in the case. They could have intervened more deeply and reverse all or part of the trial court's findings to reduce tensions and inconsistencies identified above. So far, however, those tensions remain largely in place.<sup>328</sup>

If the root cause of the reduced role of economics is that antitrust precedent and litigation process make antitrust trials a poor venue for getting the economics right, the alternatives may be even worse. It is far from obvious that other institutions—the executive branch, a regulatory agency, or Congress—would be more effective venues. Perhaps specialized courts, with judges specifically appointed on the basis of expertise in antitrust law and economics, would be helpful.<sup>329</sup> Ultimately, uncertainty about whether any institution could rectify the situation, rather than the substance of Microsoft's conduct, may be the best reason for having left this matter to the market.

Regarding remedies, we have identified many that could have been imposed, depending on which theory would best be supported by available evidence. The identified remedies, in addition to the proposed remedy (structured around a different case), included:

- limiting Microsoft's ability to provide browsing
- eliminating some of its exclusionary contracts with OEMs or ISPs
- providing equal access at reasonable terms to APIs, perhaps through publishing Windows source code
- forcing Bill Gates to divest his stock in Microsoft
- reducing copyright protection, perhaps through horizontal divestiture.

Suggesting which theories would be best supported by the evidence and lead to the most beneficial remedies has been beyond the scope of this Article. All of these may be problematic. Perhaps the best alternative would be to follow Lawrence White's suggestion and simply impose a hefty fine on Microsoft, assuming one has concluded that it acted illegally, in the \$10 billion range, to deter similar conduct by it and others in the future.<sup>330</sup>

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<sup>328</sup> See text accompanying notes 217-21.

<sup>329</sup> I owe this suggestion to John Kwoka.

<sup>330</sup> Lawrence J. White, *A \$10 Billion Solution to the Microsoft Case*, N.Y. TIMES, Dec. 23, 2000, at A19.



We conclude by observing that antitrust is not the only area subject to the possibility that progress in economic theory could lead to regress in economic policies. International trade theory is undergoing a similar conflict between academic progress and policy application. In a pre-economic era, free trade was dominated by protectionist and mercantilist beliefs that the purpose of trade was to sell exports but to limit imports.<sup>331</sup> Neoclassical economics, akin to Chicago-school antitrust, displaced this perspective with a view that international trade, like domestic trade, makes both countries wealthier and should be promoted.<sup>332</sup> In recent years, strategic trade theory has identified circumstances in which trade protections could benefit a country, much as post-Chicago industrial organization has identified special cases in which trade barriers, such as quotas or tariffs, can benefit a nation.<sup>333</sup> Reacting to the use of that theory to rekindle protectionist opposition to trade, the major contributor to that literature, Paul Krugman, has become a strident opponent to what he sees as their inappropriate use in justifying a general reaction against international trade.<sup>334</sup>

One has or can expect to see similar effects in other policy areas, such as environmental protection<sup>335</sup> or minimum wage laws.<sup>336</sup> Whether advances in economics lead to advances in public policy, or simply reduce social science to part of the cannon fodder for advocates, is thus a wider and more pressing question than even an antitrust case as prominent as *United States v. Microsoft* would indicate. Encouraging real world institutions, with all of their limitations and imperfections, to use sophisticated social science as a means to promote the general welfare rather than as an excuse to indulge in naïve predilections or to favor special interests, will be a challenge for all concerned with the aims of policy, regulation, and law.

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<sup>331</sup> ERICH ROLL, A HISTORY OF ECONOMIC THOUGHT 66 (1940).

<sup>332</sup> ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 397-406 (1964).

<sup>333</sup> K.C. Fung, Book Review, 32 J. ECON. LIT. 1891 (1994).

<sup>334</sup> PAUL KRUGMAN, POP INTERNATIONALISM xii, 30-33 (1987).

<sup>335</sup> The standard recommendation of environmental economics is that polluters should pay taxes equal to the costs their pollutants impose on others. Recent theoretical studies, however, have identified situations where such taxes should be avoided because the potential environmental benefits would be outweighed by the additional inefficiencies created by the compounding effect of such taxes with other taxes, such as income taxes. Ian W.H. Parry and Wallace E. Oates, *Policy Analysis in the Presence of Distorting Taxes*, 19 J. PUB. POL'Y. ANALYSIS & MGMT. 603 (2000). A second consideration is that with imperfect information, pollution taxes may be inferior to the putatively inefficient "command-and-control" regulations, when compliance with the latter is relatively easy to monitor. One may well expect that this literature may be used by those opposed to environmental policies based on forcing polluters to bear the costs of their actions, without careful regard to whether the theoretical possibilities in these models are borne out in the actual economy.

<sup>336</sup> *Debating the Minimum Wage*, THE ECONOMIST, Feb. 3, 2001, at 80 (summarizes and criticizes articles claiming that minimum wage laws increase employment rather than reduce it, as basic supply-and-demand would predict).

## Epilogue

### A. Events since the Court of Appeals decision

As ordered by the Court of Appeals for the D.C. Circuit, the remanded case returned to a different judge.<sup>337</sup> On August 28<sup>th</sup>, 2001, Judge Colleen Kollar-Kotelly ordered the parties in the case to file by September 14<sup>th</sup> a “Joint Status Report” to identify the issues for the court’s resolution, the extent of discovery remaining, and further litigation foreseen.<sup>338</sup> Prior to the filing of the Joint Status Report, the Department of Justice notified Microsoft on September 6<sup>th</sup> that it would neither pursue the divestiture remedy that the court of appeals had vacated nor litigate a “tying” count that the court of appeals had reversed and remanded.<sup>339</sup> In a Joint Status Report filed on September 20<sup>th</sup>, the parties agreed that the sole issue remaining for litigation was an injunctive, conduct-based remedy pursuant to the monopolization count upheld by court of appeals.<sup>340</sup>

A week after the Joint Status Report was submitted, Judge Kollar-Kotelly ordered the parties to attempt to negotiate a settlement by November 2, 2001,<sup>341</sup> with the expectation that they would “engage in an all-out effort . . . meeting seven days a week and around the clock.”<sup>342</sup> The judge’s interests in a rapid settlement were the benefits “in light of the recent tragic events affecting our Nation” following the September 11 attacks, to minimize further litigation expense and delay after the case had gone on for four years, “an eternity in the computer industry.”<sup>343</sup> If the parties had not reached a settlement by October 12<sup>th</sup>, she would appoint a mediator.<sup>344</sup> While settlement talks ensued, the Supreme Court on October 9 denied without comment Microsoft’s appeal of the court of appeals ruling.<sup>345</sup> The same day, New Mexico withdrew from the case.<sup>346</sup> On October 12<sup>th</sup>, the parties had not yet reached a settlement, but satisfied with their diligence, the judge accepted their proposal offering Professor Eric Green of the Boston University School of Law as a mediator.<sup>347</sup>

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<sup>337</sup> See *supra* note 183 and accompanying text.

<sup>338</sup> Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Aug. 28, 2001), available at <http://www.dcd.uscourts.gov/98-1232w.pdf>.

<sup>339</sup> Press Release, Department of Justice, Justice Department Informs Microsoft of Plans for Further Proceedings in the District Court (Sept. 6, 2001), available at [http://www.usdoj.gov/atr/public/press\\_releases/2001/8981.pdf](http://www.usdoj.gov/atr/public/press_releases/2001/8981.pdf).

<sup>340</sup> Joint Status Report at \*2, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Aug. 28, 2001), available at <http://www.usdoj.gov/atr/cases/f9000/9085.pdf>. Following the September 11, 2001 attacks, the Judge extended the deadline to Sept. 20, 2001. Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Sept. 17, 2001), available at <http://www.dcd.uscourts.gov/98-1232bb.pdf>.

<sup>341</sup> Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Sept. 28, 2001), available at <http://www.dcd.uscourts.gov/98-1232gg.pdf>.

<sup>342</sup> *Id.*

<sup>343</sup> *Id.* (quoting the court of appeals).

<sup>344</sup> *Id.*

<sup>345</sup> *Microsoft Corp. v. United States*, 122 S. Ct. 350 (2001).

<sup>346</sup> Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Oct. 9, 2001), available at <http://www.dcd.uscourts.gov/98-1232nn.pdf>.

<sup>347</sup> Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Oct. 12, 2001), available at <http://www.dcd.uscourts.gov/98-1232oo.pdf>.

On Friday November 2<sup>nd</sup>, Judge Kollar-Kotelly’s deadline, the Department of Justice and Microsoft announced that they had reached a settlement agreement.<sup>348</sup> The following Monday, nine of the remaining eighteen states signed on to the settlement, with minor modifications.<sup>349</sup> Two days later, on November 8<sup>th</sup>, Judge Kollar-Kotelly ordered that the proceedings continue on two “tracks.”<sup>350</sup> “Track I” would be a review of the proposed settlement under the Tunney Act.<sup>351</sup> As part of that track, the Department of Justice published the proposed Final Judgment and Competitive Impact Statement in the Federal Register on November 28<sup>th</sup>, 2001.<sup>352</sup> “Track II” involves continuation of the litigation between Microsoft and the nine state plaintiffs who did not agree to the settlement; the judge scheduled a pre-hearing conference for March 4, 2002.<sup>353</sup> Those state plaintiffs filed their proposed remedy on December 7, 2001.<sup>354</sup>

### B. *The proposed decrees*

The DOJ-Microsoft Settlement would last five years after entered by the Court.<sup>355</sup> Its key provisions are:

- Microsoft would be prohibited from retaliating against personal computer manufacturers (OEMs) and independent software or hardware vendors that use or ship computers with non-Microsoft software, including computers that run more than one operating system.<sup>356</sup>
- Microsoft would have to offer operating system licenses to OEMs on uniform terms and conditions, although royalties can reflect “reasonable volume discounts” and the costs of marketing programs available to all OEMs.<sup>357</sup>

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<sup>348</sup> Press Release, Department of Justice, Department of Justice and Microsoft Corporation Reach Effective Settlement on Antitrust Lawsuit (Nov. 2, 2001), *available at* [http://www.usdoj.gov/atr/public/press\\_releases/2001/9463.pdf](http://www.usdoj.gov/atr/public/press_releases/2001/9463.pdf).

<sup>349</sup> Revised Proposed Final Judgment, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Nov. 6, 2001), *available at* <http://www.usdoj.gov/atr/cases/f9400/9495.pdf>. This abbreviation is not intended to minimize the role of the nine states, but only to provide a short name for distinguishing this proposed settlement from that of the litigating states. We discuss the terms of the proposed settlement *supra* at text accompanying notes 356-74.

<sup>350</sup> Order, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Nov. 8, 2001), *available at* <http://www.dcd.uscourts.gov/98-1232qq.pdf>.

<sup>351</sup> *Id.* The “Tunney Act” is the familiar name for the Antitrust Procedures and Penalties Act, 15 U.S.C. §16(b)(1994). *See supra* note 55.

<sup>352</sup> United States v. Microsoft Corporation; Revised Proposed Final Judgment and Competitive Impact Statement, 66 Fed. Reg. 59452, 59460 (Nov. 28, 2001).

<sup>353</sup> Order at \*4, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Nov. 8, 2001), *available at* <http://www.dcd.uscourts.gov/98-1232qq.pdf>.

<sup>354</sup> Plaintiff Litigating States’ Remedial Proposals, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Dec. 7, 2001), *available at* [http://www.naag.org/features/microsoft/ms-remedy\\_filing.pdf](http://www.naag.org/features/microsoft/ms-remedy_filing.pdf).

<sup>355</sup> Revised Proposed Final Judgment at \*15, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Nov. 6, 2001), *available at* <http://www.usdoj.gov/atr/cases/f9400/9495.pdf>.

<sup>356</sup> *Id.* at \*1.

<sup>357</sup> *Id.* at \*2.

- Subject to some nondiscrimination limitations, OEMs would be free to place icons for competing software in the Windows “Start Menu” (listing available programs) or desktop.<sup>358</sup> They would also be free to have competing programs start automatically when a computer is turned on or the Internet is accessed, if a Microsoft product “would otherwise be launched automatically.”<sup>359</sup>
- Microsoft would be required to disclose to all software and hardware vendors the application program interfaces and communication protocols used by its applications to work with Windows operating systems.<sup>360</sup>
- End users would be allowed to remove icons for Microsoft middleware from the Start Menu or desktop, and to designate non-Microsoft middleware as the default when Microsoft products would otherwise be started automatically.<sup>361</sup>
- Microsoft would not be able to enter into exclusive distribution agreements with hardware or software vendors.<sup>362</sup> It also could not enter into contracts to distribute a fixed percentage of Microsoft operating systems or middleware<sup>363</sup> unless Microsoft shows “it is commercially practicable for the entity to provide equal or greater distribution, promotion, use or support for software that competes with” such software.<sup>364</sup>
- Microsoft would have to license, on “reasonable and non-discriminatory” terms, whatever intellectual property is necessary to carry any of these options.<sup>365</sup>

Microsoft need not disclose APIs or protocols that compromise anti-piracy, anti-virus, or other security-related systems unless the recipient has no record of violating intellectual property rights, has a reasonable business need for the API, and agrees to let Microsoft-approved third parties verify compliance with Microsoft specifications that ensure “proper operating and integrity” of these systems.<sup>366</sup> Microsoft can also keep OEMs from displaying icons or automatically starting software that has “a user interface of similar size and shape to the user interface displayed by the corresponding” Microsoft middleware.<sup>367</sup> Microsoft’s operating system may launch Microsoft software if the use involves a server maintained by Microsoft or the competing software fails “to supply the end user with functionality consistent with a Windows Operating System Product,” as long as the reasons are disclosed “in a reasonably prompt manner.”<sup>368</sup>

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<sup>358</sup> *Id.* at \*2-3.

<sup>359</sup> *Id.* at \*3.

<sup>360</sup> *Id.* at \*3.

<sup>361</sup> *Id.* at \*5-6.

<sup>362</sup> *Id.* at \*4.

<sup>363</sup> See *supra* notes 237-41 and accompanying text.

<sup>364</sup> Revised Proposed Final Judgment at \*4, *Microsoft* (No. 98-1232).

<sup>365</sup> *Id.* at \*6-7.

<sup>366</sup> *Id.* at \*7.

<sup>367</sup> *Id.* at \*3.

<sup>368</sup> *Id.* at \*6.

To enforce the decree, the plaintiffs will have continuing rights of access to Microsoft documents, correspondence, and code, and can interview Microsoft employees and get written reports from Microsoft on matters related to the settlement.<sup>369</sup> The direct enforcement responsibility will be vested with a three-person Technical Committee.<sup>370</sup> The Technical Committee will have the same rights of access to information as the plaintiffs, and will provide written compliance reports every six months.<sup>371</sup> The Committee's most important role is as the vehicle for investigating complaints from third parties and proposing responses to those it deems worthwhile. The Committee's "work product, findings or recommendations" are not to be admissible in any court proceeding, however, and Committee members may not testify on any settlement-related matter.<sup>372</sup> If a court does find that Microsoft has "engaged in a pattern of willful and systematic violations," the plaintiffs can ask for a two-year extension of the decree and "other relief as the Court may deem appropriate."<sup>373</sup>

The nine state plaintiffs that continue to litigate would add to the DOJ-Microsoft Settlement certain requirements that would bind Microsoft for ten years (instead of five).<sup>374</sup> Such requirements include:

- Offering versions of its operating system that do not include middleware, at a discount equal to "the ratio of the development costs of each omitted Microsoft Middleware Product to the relative development costs of that version of the Windows Operating System Product",<sup>375</sup>
- Continuing to provide older versions of its operating systems after it introduces new ones, at a license fee "no more than the lowest royalty paid" by a licensee prior to that introduction;<sup>376</sup>
- Disclosing and licensing at a zero price and without restrictions the source code for Internet Explorer and other browser products;<sup>377</sup>
- Bundling the industry-standard version of Java free of charge with all copies of Windows operating systems.<sup>378</sup>

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<sup>369</sup> *Id.* at \*8.

<sup>370</sup> *Id.* at \*9-12.

<sup>371</sup> *Id.* at \*11.

<sup>372</sup> *Id.* at \*14.

<sup>373</sup> *Id.* at \*15.

<sup>374</sup> Plaintiff Litigating States' Remedial Proposals at \*30, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Dec. 7, 2001), available at [http://www.naag.org/features/microsoft/ms-remedy\\_filing.pdf](http://www.naag.org/features/microsoft/ms-remedy_filing.pdf).

<sup>375</sup> *Id.* at \*5-6.

<sup>376</sup> *Id.* at \*9.

<sup>377</sup> *Id.* at \*17.

<sup>378</sup> *Id.* at \*18.

- Auctioning off to three independent providers licenses to develop versions of Office that run on non-Windows operating systems, including rights to all Office and Windows source code necessary to achieve portability.<sup>379</sup>

The litigating states also recommend changes in the procedures for enforcing the settlement. It would replace the Technical Committee, as described above in the settlement filed by the other parties,<sup>380</sup> with a court-appointed Special Master. This Special Master would have the right to hold hearings and file reports directly to the court, which the court could then use (along with acting on its own volition) to institute further proceedings against Microsoft.<sup>381</sup> Unlike the work of the Technical Committee in the alternative proposal, the work of the Special Master would be admissible in court.<sup>382</sup> If the court finds a “knowing act of material non-compliance” with this settlement, it may, among other things, force Microsoft to license the source code for the software “implicated” in this act.<sup>383</sup> A “pattern or practice of material non-compliance” could lead to civil penalties and further conduct remedies.”<sup>384</sup> These go beyond the penalty in the DOJ-Microsoft settlement that envisions a penalty of extending the decree two years beyond its original five-year term.<sup>385</sup>

### C. Assessment

Our purpose in this Article has not been to evaluate the legal merits of the antitrust case against Microsoft. Rather, it has been to ascertain any lessons it might offer regarding the need that cases follow an economic framework in which a theory implies a set of confirming evidence that, if obtained, would imply a particular remedy.<sup>386</sup>

It is most useful to reverse the order in which we evaluated the case above, and begin with the remedy, followed by the theory, and ending with the evidence. The relief plan that was initially won at trial was a vertical breakup of Microsoft into two firms, one providing operating systems and the other providing everything else.<sup>387</sup> The court of appeals vacated that divestiture, largely because the trial judge failed to hold hearings and exhibited a potential lack of impartiality.<sup>388</sup>

The Department of Justice elected not to pursue the breakup, and that remedy no longer remains in either its settlement with Microsoft or that of the states that seek stronger sanctions. In

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<sup>379</sup> *Id.* at \*18-19.

<sup>380</sup> *See supra* notes 370-72 and accompanying text.

<sup>381</sup> Plaintiff Litigating States’ Remedial Proposals at \*25-27, *Microsoft* (No. 98-1232).

<sup>382</sup> *Id.* at \*27; *see also supra* note 373 and accompanying text.

<sup>383</sup> Plaintiff Litigating States’ Remedial Proposals at \*28, *Microsoft* (No. 98-1232).

<sup>384</sup> *Id.*

<sup>385</sup> *See supra* note 373 and accompanying text.

<sup>386</sup> *See supra* text accompanying notes 18-40, 185-86.

<sup>387</sup> *See supra* text accompanying notes 148-53.

<sup>388</sup> *See supra* text accompanying notes 178-82.

its September 6, 2001 press release announcing the decision, the Department said that it would not pursue the divestiture (nor antitrust liability for tying the browser to the operating system) “in an effort to obtain prompt, effective and certain relief for consumers,”<sup>389</sup> and that its decision was made “in light of the Court of Appeals opinion.”<sup>390</sup> The Department’s Competitive Impact Statement only repeats these statements with no further elaboration.<sup>391</sup>

These reasons are undeniably valid, but they are not obviously compelling. The court of appeals vacated the order largely on procedural grounds.<sup>392</sup> It did state that divestitures are costly and that hearings would be required to determine that the benefits of a breakup would outweigh those costs.<sup>393</sup> Those findings, however, could fairly be read as justifications for the court’s decision that hearings are necessary. That pushing for a divestiture would tend to extend the proceedings, creating delay and uncertainty, should also not have come as a surprise. One might believe, as Judge Kollar-Kotelly expressed, that the attacks of September 11, 2001 increased the importance of expediting the resolution of this case,<sup>394</sup> but the Department notified Microsoft that it was electing not to pursue a divestiture on September 6, 2001.<sup>395</sup> Perhaps the Department reached the conclusion expressed in this Article that the vertical breakup was at best poorly connected to either the theory of this case or the evidence presented during the trial, but that would be utter speculation.

The litigating states’ proposal retains some aspects of the original remedy, in requiring that Microsoft allow independent software vendors to develop versions of Office that would run on non-Windows operating systems.<sup>396</sup> The basis for the recommendation, made earlier by the plaintiffs in support of the breakup, is that new versions of Office would mitigate “application lock-in” that discourages consumers from switching operating systems.”<sup>397</sup> The litigating states’ proposal, however, cannot change the fact that the record in the case was about Windows, not Office, as the source of relevant monopoly power, nor that “application lock-in” applies to all applications that run on Windows, not just those provided by Microsoft.<sup>398</sup>

The theory of the case, that (as we put it here) Microsoft acted to enhance its ability to monopolize future markets in applications platforms,<sup>399</sup> also is not reflected well in the DOJ-Microsoft Settlement. The key provisions of that settlement mostly deal with preserving rights of

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<sup>389</sup> Department of Justice Press Release, *supra* note 339.

<sup>390</sup> *Id.*

<sup>391</sup> Department of Justice Antitrust Division, *United States v. Microsoft Corp.*, Revised Proposed Final Judgment and Competitive Impact Statement, 66 Fed. Reg. 59,452, 59,461 (Nov. 28, 2001).

<sup>392</sup> *See supra* notes 178-82 and accompanying text.

<sup>393</sup> *See supra* note 181.

<sup>394</sup> *See Order, United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Sept. 28, 2001), *available at* <http://www.dcd.uscourts.gov/98-1232gg.pdf>.

<sup>395</sup> Department of Justice Press Release, *supra* note 339.

<sup>396</sup> *See supra* note 379 and accompanying text.

<sup>397</sup> *Id.*, *see also supra* notes 115-17, 233-234 and accompanying text.

<sup>398</sup> *See supra* text accompanying notes 239-42.

<sup>399</sup> *See supra* text accompanying notes 203-208.

personal computer makers, software vendors, Internet service providers, and consumers to use other operating systems or middleware that competes with Microsoft without penalty. Browsing, the alleged threat to the Windows operating system, is but a subset of middleware.<sup>400</sup> As with the remedy proposal, it is given no special status in this proposed settlement.<sup>401</sup> If monopolization of future application platforms were the justification for these restrictions, one would need to show that the other forms of middleware were also nascent competitors in that market—a showing that has not been made.<sup>402</sup> In addition, if these other middleware services are also routes into which new operating system competitors may develop, the ground for a monopolization case in which Netscape was the target shrinks if not disappears.<sup>403</sup> If all middleware is significant, eliminating one particular form would have little if any effect on the degree to which Microsoft's alleged elimination of Netscape would allow it to preserve and extend its dominance in operating systems.

The litigating states' proposal shares this failure to discriminate between middleware that would threaten Microsoft's future dominance of application platform markets and middleware that would not—with two significant exceptions. The first is that its proposal would require that Microsoft bundle the latest version of Java, the complement to browsers that allows them to run applications on any operating system.<sup>404</sup> Even more important, the litigating states would require that Microsoft essentially give away the source code for Internet Explorer and other browser products.<sup>405</sup> As those states say, not only would this strip Microsoft of its allegedly ill-gotten gains achieved through its attacks on Netscape, but it would enable other software companies to develop browser-based platforms for Internet-delivered applications, which might make competitive inroads against Microsoft's dominance of the desktop.<sup>406</sup> One might doubt whether the case

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<sup>400</sup> Revised Proposed Final Judgment at \*16, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Nov. 6, 2001), available at <http://www.usdoj.gov/atr/cases/f9400/9495.pdf>.

<sup>401</sup> See *supra* notes 237-38 and accompanying text; *United States v. Microsoft Corp.*, Revised Proposed Final Judgment and Competitive Impact Statement, 66 Fed. Reg. 59,452, 59462-63 (Nov. 28, 2001). The Department of Justice defines middleware as “platform software the runs on top of an operating system . . . and simultaneously exposes its own APIs so that applications can run on the middleware itself.” *United States v. Microsoft Corp.*, Revised Proposed Judgment and Competitive Impact Statement, 66 Fed. Reg. at 59,462. However, the subsequent discussion focuses only on Netscape and Java, and does not discuss other forms of middleware. *Id.*

<sup>402</sup> See *supra* notes 237-38 and accompanying text. Complaints along these lines were also made by opponents of Microsoft's decision to bundle middleware functions such as video streaming and instant messaging into the latest version of its operating system, Windows XP. For a discussion of the details of Windows XP and the absence of any showing that these other middleware features would support major applications, e.g., word-processing or spreadsheets, see ROBERT W. HAHN, AEI-BROOKINGS JOINT CENTER FOR REGULATORY STUDIES, AN ANALYSIS OF THE COSTS AND BENEFITS OF DELAYING THE RELEASE OF WINDOWS XP (2001), available at <http://www.aei.brookings.org/publications/related/xp.pdf>.

<sup>403</sup> See *supra* text accompanying notes 207-08.

<sup>404</sup> See *supra* note 378.

<sup>405</sup> See *supra* note 377.

<sup>406</sup> Plaintiff Litigating States' Remedial Proposals at \*16-17, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Dec. 7, 2001), available at [http://www.naag.org/features/microsoft/ms-remedy\\_filing.pdf](http://www.naag.org/features/microsoft/ms-remedy_filing.pdf).



at trial articulated the theory and developed evidence necessary to support this claim,<sup>407</sup> but these aspects of the proposed remedy, unlike the remedy proposed at trial, at least fit that theory.<sup>408</sup>

This brings us to the economic picture of the case most consistent with the evidence, that Microsoft effectively monopolized browser distribution.<sup>409</sup> As noted above, virtually all of the DOJ-Microsoft Settlement and most of the litigating states' proposal deals with impediments to the use and distribution of competing middleware.<sup>410</sup> Although that concern is not well tied to the monopolization of application platforms (or, as unfortunately put, maintaining a monopoly in "Intel-based PC operating systems"<sup>411</sup>), it is well tied to a claim that monopolizing outlets for distributing browsers also monopolizes outlets for distributing middleware generally. If that is factually the case—we do not here claim that it is or is not—a broad concern with preserving opportunities for competing middleware suppliers to distribute their products is justified.<sup>412</sup> But such a theory stands independently of whether or not Microsoft successfully preempted potential competition in future application platforms.<sup>413</sup> It would be ironic, to say the least, if the end result of this lengthy and prominent antitrust case ends up to be about the mundane concern that Microsoft monopolized markets in channels for software distribution.

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<sup>407</sup> See *supra* text accompanying notes 207-08.

<sup>408</sup> See *supra* text accompanying notes 210-11 *supra*.

<sup>409</sup> See *supra* text accompanying notes 187-90 *supra*.

<sup>410</sup> See *supra* notes 356-68, 375-78 and accompanying text.

<sup>411</sup> See *supra* note 204 and accompanying text.

<sup>412</sup> See *supra* text accompanying notes 189-90.

<sup>413</sup> See *supra* text accompanying notes 190-93.