11-29-2021

Antitrust Error Costs

Herbert J. Hovenkamp
University of Pennsylvania Carey Law School

ANTITRUST ERROR COSTS

Herbert Hovenkamp[*]

Contents

INTRODUCTION

The idea that consideration of error costs should inform judgments about actions with uncertain consequences is well established. When we act on imperfect information, we estimate not only the probability of an event, but also the expected costs of making an error. To take a simple example, if a driver is stopped at the tracks and sees a train coming, she must decide whether to cross or wait for the train to pass. Using her eyes and experience, she can only estimate how far away the train is or how fast it is moving. She may guess wrong. Assume it is equally likely that her estimate will be either too long or too short. However, if she errs on the side of caution, she will have lost a few minutes waiting while the train passes. If she errs in the other direction, however, she might lose her life, those of her passengers, and her automobile.

While the probability of error might be even, the stakes are asymmetric. In the example they are so wildly asymmetric that prudence suggests a strong bias in favor of waiting. For example, assume that the likelihood of a wrong estimate is unbiased and fifty-fifty in either direction. However, if the cost of a false positive (waiting unnecessarily) is $2 in lost time while

the cost of a false negative (getting hit) is $10 million, the driver will be strongly biased in favor of waiting. Even if not getting hit is significantly more likely, the imbalance in consequences will incline her to wait.

Antitrust decision makers, including judges, are in a similar situation. Information about the consequences of a contemplated enforcement action is imperfect. An injunction, divestiture, or other remedy could be overdeterrent, but failure to grant the remedy could be underdeterrent. Should the standard for action be "more likely than not," which is neutral? Or should we have a bias that favors either enforcement or non-enforcement?

The problem of error cost bias has had a broad and deep influence in antitrust cases, long before it was articulated in those words. It affects the formation of presumptions and burdens of proof. For example, it guided the Supreme Court's sixty-year presumption, first developed in the 1940s, that patents posed inherent dangers to competition. As a result, they should be presumed to create market power in at least some cases.[1] In 1950 it resulted in amendments to the Clayton Act that produced a significant pro-enforcement bias in merger policy.[2] That bias led Justice Potter Stewart to observe in a dissent that the "sole consistency" he could find in merger cases was that "the Government always wins."[3]

The modern error-cost argument favoring non-enforcement of antitrust law is popularly attributed to Judge Frank Easterbrook's important 1984 article on *The Limits of Antitrust*. He wrote:

> A fundamental difficulty facing the court is the incommensurability of the stakes. If the court errs by condemning a beneficial practice, the benefits may be lost for good. Any other firm that uses the condemned practice faces sanctions in the name of stare decisis, no matter the benefits. If the court errs by permitting a deleterious practice, though, the welfare loss decreases over time. Monopoly is self-destructive. Monopoly prices eventually attract entry. True, this long run may be a long time coming, with loss to society in the interim. The central purpose of antitrust is to speed up the arrival of the long run. But this should not obscure the point: *judicial errors that tolerate baleful practices are self-correcting while erroneous condemnations are not*.[4]

---

[1] Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488 (1942) (speaking of patent monopoly as making post-patent practices competitively suspect); International Salt Co. v. United States, 332 U.S. 392 (1947) (applying the presumption of monopoly power in an antitrust case). Both decisions were overruled by Illinois Tool Works, Inc. v. Indep. Ink, Inc., 547 U.S. 28 (2006).

[2] *See* discussion *infra*, text at notes 107-110.

[3] United States v. Von's Grocery Co., 384 U.S. 270, 301 (1966) (Steward, J., dissenting).

[4] Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 2-3 (1984) (emphasis added). Judge Easterbrook was a law professor at the University of Chicago at the time but became a judge on the Seventh Circuit in 1985. The error costs of rule-making had been explored, although in different contexts, in Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEG. STUD. 257 (1974). For particular application to predatory pricing law, see Paul L. Joskow & Alvin K. Klovorick, *A Framework for Analysis Predatory Pricing Policy*, 89 YALE L.J. 213 (1979).

Easterbrook found support in the belief that monopoly is "self-destructive" and that the social cost of an anticompetitive practice "decreases over time."[5] In the long run markets move themselves toward greater competition, he argued, provided that the legal system does not intervene. A false positive will delay the arrival of this long run, while a false negative will let the market move unmolested to its more competitive equilibrium. An unfortunate, overly aggressive antitrust decree can force firms to pull their competitive punches or even prohibit efficient activity. In that case the purifying process would be slowed or even stopped.[6]

Important Supreme Court decisions in subsequent years used the error cost framework to justify rules limiting liability. For example, in *Matsushita*, which greatly increased the likelihood of summary judgment in favor of defendants in antitrust cases, the Court concluded that "mistaken inferences" in favor of plaintiffs are "especially costly."[7] Later, in its *Trinko* decision, which did a version of the same thing for motions to dismiss, the Court spoke at length of the social cost of false positives.[8] In sum, the antitrust error cost framework shifted the ground radically against plaintiffs in the two most important procedural antitrust decisions in decades.[9] Expansive anti-enforcement rules for motions to dismiss and summary judgment have had a considerable influence on antitrust litigation, upending a more neutral balance that had existed for decades.[10]

This error cost framework also motivated the liability-limiting Guidance on §2 of the Sherman Act that the Antitrust Division issued near the end of the George W. Bush administration in 2008. The government's statement concluded that decisions about whether to bring §2 cases should take error costs into account.[11] "Decision theory teaches that optimal legal standards should minimize the inevitable error and enforcement costs. . . ."[12] The statement then went on to identify the costs of false positives and false negatives, arguing that the cost of false positives was higher than the cost of false negatives.[13]

---

[5] Easterbrook, *supra* note 4, at 2. For insightful objections, see Jonathan B. Baker, *Taking the Error out of "Error Cost" Analysis: What's Wrong with Antitrust's Right*, 80 ANTITRUST L.J. 1 (2015).

[6] In other contexts, see Erik Hovenkamp & Steven C. Salop, *Asymmetric Stakes in Antitrust Litigation* (USC Legal Stud. Res. Papers Series, Working Paper No. 20-12 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3563843 [perma.cc/MR53-8ZPU].

[7] Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 594 (1986) (citing Easterbrook, *supra* note 4).

[8] Verizon Comm'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 414-15 (2004).

[9] *See also* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 233 (1993) (emphasizing that competitive explanations must be preferred when evidence is ambiguous, citing Easterbrook, supra note 4); Atlantic Richfield Co. v. USA Petroleum Co., 495 U.S. 328, 345 (1990) (arguing similar principles related to resale price maintenance, citing Easterbrook, *supra* note 4).

[10] *See* Arthur R. Miller, *Simplified Pleading, Meaningful Days in Court, and Trials on the Merits: Reflections on the Deformation of Federal Procedure*, 88 N.Y.U. L. REV. 286, 364-66 (2013) (discussing trends in judicial procedure, especially dismissal mechanisms).

[11] *Single-Firm Conduct and Section 2 of the Sherman Act: An Overview*, U.S. DEP'T OF JUST. (Sept. 8, 2008), https://www.justice.gov/atr/competition-and-monopoly-single-firm-conduct-under-section-2-sherman-act-chapter-1#N_106_ [perma.cc/LB7Z-MQ8L]. The FTC did not join the Antitrust Division in the Report.

[12] *Id.* at part III-G.

[13] *Id.*, the statement continued:

The Antitrust Division's statement on §2 was withdrawn less than a year later, during the first year of the Obama administration.[14] The withdrawal statement concluded that the earlier document "raised too many hurdles to government antitrust enforcement. . . ."[15] Christina A. Varney, head of the Antitrust Division, stated that "The Division will return to tried and true case law and Supreme Court precedent in enforcing the antitrust laws."[16]

The Justice Department's antitrust division once again used the error cost idea in its statement of the "New Madison" doctrine during the Trump administration. Under the statement, the Justice Department would largely avoid antitrust enforcement of licensing agreements involving patents, particularly patents that are essential to network standards.[17]

At this writing the statement of the "New Madison" doctrine appears to be on life support.[18] This pushback notwithstanding, the error cost framework continues to capture some conservatives. It appeared in 2018 in the oral argument of the *Ohio v. American Express* case.[19] Justice Gorsuch queried, "why shouldn't we take Judge Easterbrook's admonition seriously, that

---

> In the common law regime of antitrust law, stare decisis inhibits courts from routinely correcting errors or updating the law to reflect the latest advances in economic thinking. Some believe that the persistence of errors can be particularly harmful to competition in the case of false positives because "[i]f the court errs by condemning a beneficial practice, the benefits may be lost for good. Any other firm that uses the condemned practice faces sanctions in the name of stare decisis, no matter the benefits." In contrast, over time "monopoly is self-destructive. Monopoly prices eventually attract entry. . . . [Thus] judicial errors that tolerate baleful practices are self-correcting, while erroneous condemnations are not." This self-correcting tendency, however, may take substantial time. As a result, courts and enforcers should be sensitive to the potential that, once created, some monopolies may prove quite durable, especially if allowed to erect entry barriers and engage in other exclusionary conduct aimed at artificially prolonging their existence.

(citations omitted).

[14] *Justice Department Withdraws Report on Antitrust Monopoly Law*, U.S. DEP'T OF JUST. (May 11, 2009), https://www.justice.gov/opa/pr/justice-department-withdraws-report-antitrust-monopoly-law [perma.cc/X35U-EWNT].

[15] *Id.*

[16] *Id.*

[17] Makan Delrahim, Assistant Attorney General, U.S. Dep't of Just., The "New Madison" Approach to Antitrust and Intellectual Property Law (Mar. 16, 2018) (transcript available at *Assistant Attorney General Makan Delrahim Delivers Keynote Address at University of Pennsylvania Law School*, U.S. DEP'T OF JUST. (Mar. 16, 2018), https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-keynote-address-university [perma.cc/VXB2-GECD]). For a critique, see Herbert Hovenkamp, *The DOJ's "New Madison" Doctrine Disregards Both the Economics and the Law of Innovation*, PROMARKET (Sept. 8, 2021), https://promarket.org/2021/09/08/doj-madison-doctrine-antitrust-innovation/ [perma.cc/QD7F-YLWW].

[18] *See* Kathryn Mims et al., *DOJ Antitrust Division Quietly Walks Back Prior Administration-Era Support of Standard Essential Patent Holders*, WHITE & CASE (May 26, 2021), https://www.whitecase.com/publications/alert/doj-antitrust-division-quietly-walks-back-prior-administration-era-support [perma.cc/F52C-U3PS] (discussing the Antitrust Division's reclassification of the 2020 Supplement as "advocacy").

[19] 138 S. Ct. 2274 (2018).

judicial errors are a lot harder to correct than an occasional monopoly where you can hope and assume that the market will eventually correct it. Judicial errors are very difficult to correct."[20]

Justice Gorsuch's question suggests a premise that has by no means been established–namely, that judicial errors are harder or more costly to correct than errors that lead to monopoly or other anticompetitive market structures. Suppose that the two assumptions underlying the anti-enforcement error cost approach are incorrect. First, suppose that competition is actually the more fragile state. Second, what if courts correct pro-enforcement errors more quickly than Easterbrook assumed? If one or both of these things are true, we could have the error-cost presumption backwards. The consequence could be socially costly under-enforcement.

In his 2021 opinion for the Court in *NCAA v. Alston*, Justice Gorsuch himself observed one strong consequence of anti-enforcement error cost bias: plaintiffs lose nearly all of their rule of reason antitrust cases.[21] Under antitrust's rule of reason, the plaintiff must make out a prima facie case of competitive harm. The burden of proof then shifts to the defendant to provide a justification. If the defendant succeeds, the burden shifts back to the plaintiff to show that the same effect could have been achieved with a less competitively harmful alternative.[22] This three-step burden-shifting framework is designed to be based on such enforcement-neutral factors as the presence of market power and the nature and availability of evidence.[23] Courts have responded by loading so many requirements into the plaintiff's prima facie case, however, that the burden rarely shifts. That is to say, it is not really a "prima facie" case. Justice Gorsuch observed that the courts have "disposed of nearly all rule of reason cases in the last 45 years" without ever getting to the second step.[24] Given that the best evidence for the motives and effects of the defendant's conduct is in the defendant's control, the result is a lopsided rule that ends up overlooking instances of competitive harm.

Easterbrook's observations were based on a model of perfect competition that was dominant at one time within Chicago School economics, but by that time was already falling apart.[25] The consequences of a change in assumptions are difficult to exaggerate. If markets naturally move away from competitive equilibria toward more dominated or less competitive ones, then false negatives could be more costly than false positives. For example, even an overly broad merger rule that prevented a firm from attaining all available efficiencies via acquisition might be preferable if it prevented the emergence of monopoly. This would be particularly likely if the monopoly were costly, or if firms could develop similar efficiencies without the need to merge.[26] Merger analysis under the antitrust enforcement Agencies' 2010 Horizontal Merger

---

[20] Transcript of Oral Argument at 18, Ohio v. Am. Express Co., 138 S. Ct. 2274 (2018) (No. 16-1454).

[21] Nat'l Collegiate Athletic Ass'n v. Alston, 141 S. Ct. 2141 (2021).

[22] *Id.* at 2160 (citing Ohio v. Am. Express Co., 138 S. Ct. at 2284).

[23] *See* 7 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶1507 (4th ed. 2018).

[24] *Alston*, 141 S. Ct. at 2161.

[25] *See* discussion *infra*, text at notes 221-251.

[26] On this point, see Louis Kaplow, *Efficiencies in Merger Analysis*, 83 ANTITRUST L.J. 557 (2021), who observes that most efficiencies are not merger specific because there are good contractual alternatives. For a similar argument with respect to vertical mergers, see Herbert Hovenkamp, *Competitive Harm from Vertical Mergers,* 39

Guidelines insists that efficiencies must be shown to be "merger specific." This means that they would be unlikely to result from mechanisms other than the merger.[27]

By the 1980s Easterbrook was already writing defensively. The framework he offered was relatively novel in law schools. However, the economics upon which it was based was rapidly losing ground in mainstream economics departments, replaced by alternatives that did better under testing and provided more explanatory power for policy purposes.[28] Further, they favored intervention more frequently.[29]

The same thing was also true of the second blade of the scissors: by the mid-eighties it was already quite clear that courts were readily capable of correcting judicial errors of over-enforcement. There is no ratchet in antitrust law making. While res judicata might require a court to adhere to a ruling governing the same conduct by the same parties, beyond that both courts and legislators are free to change their minds when new information or policy initiatives emerge. Stare decisis tends to preserve some precise rulings, but courts construe their own rulings more broadly or narrowly as perspectives change. For example, in the early 1990s the Supreme Court developed an aggressive "lock-in" theory of market power,[30] but resistance proved so substantial that few courts have applied it.[31]

By the time of Easterbrook's error cost essay, the Supreme Court was already well on its way to developing a more neutral way of dealing with error costs.[32] Further, some of the errors had not persisted all that long. For example, in *Continental TV v. GTE Sylvania* the Supreme Court overruled a per se rule against vertical nonprice restraints that at the time was only ten years old.[33] That rule had reflected a strong pro-enforcement bias that was based on a severe misunderstanding of vertical distribution systems in a product differentiated economy. By that time the Court had also significantly strengthened the market power requirement for tying cases,[34] raised the requirements for proof of competitive harm in private antitrust actions,[35] and

---

Rev. Indus. Org. (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3683386 [perma.cc/2DPC-NKF7].

[27] U.S. DEP'T OF JUST. & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES §10 (2010), https://www.justice.gov/atr/horizontal-merger-guidelines-08192010 [perma.cc/2USF-T5VG].

[28] For a good contemporary illustration, see FED. TRADE COMM'N, STRATEGY, PREDATION AND ANTITRUST ANALYSIS (Steven C. Salop ed., 1981), https://www.ftc.gov/reports/strategy-predation-antitrust-analysis [perma.cc/6Q4V-MDJM] (recognizing that predatory and other exclusionary pricing strategies were rising in the economics literature just as they were being denigrated in the legal literature).

[29] *See* discussion *infra*, text at notes 221-251

[30] Eastman Kodak Co. v. Image Tech. Servs., 504 U.S. 451 (1992).

[31] *See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §3.3a (6th ed. 2020) (discussing "lock-in").

[32] *See generally* Carl Shapiro, *Antitrust: What Went Wrong and How to Fix It,* 35 ANTITRUST, Summer 2021, at 33, http://faculty.haas.berkeley.edu/shapiro/fixingantitrust.pdf [perma.cc/28EP-83J3] (discussing the historical disconnect between federal antitrust enforcement and microeconomics).

[33] Continental TV, Inc. vs. GTE Sylvania, Inc., 433 U.S. 36 (1977) (overruling United States v. Arnold, Schwinn & Co., 388 U.S. 365 (1967)).

[34] U.S. Steel Corp. v. Fortner Enter., 429 U.S. 610 (1977).

[35] Associated Gen. Contractors v. California State Council of Carpenters, 459 U.S. 519 (1983) (narrowing private plaintiff standing); Brunswick Corp. v. Pueblo Bowl-O-Mat, 429 U.S. 477 (1977) (requiring "antitrust injury").

considerably cut back on the strongly structural premises of merger enforcement in the 1960s.[36]
All of these were positive developments that aligned antitrust with more centrist economic
theory. Two years after *The Limits of Antitrust* was written, the Court would dramatically alter
the doctrine of summary judgment, making it considerably more difficult for plaintiffs to get to
trial.[37] By 1984 both of the premises of the anti-enforcement error cost bias were demonstrably
false.

This article explores the origins of the error-cost anti-enforcement bias in antitrust. It
focuses mainly on the first of Judge Easterbrook's premises, which is that markets tend to correct
themselves unless overly aggressive antitrust rules get in the way. The origins of that premise
stretch back to the Chicago School's development in the 1940s.[38] Many of its founders were
members of the libertarian and positivist Mont Pelerin Society.[39] The Society's stated
commitment to scientific testability proved to be its undoing, as imperfect competition models
came to win the testability battle.[40]

The Chicago School approach to antitrust economics began its ascendancy in American
law schools in the late 1970s, just as its influence was waning in economics departments.[41]
Today it is in sharp decline even among legal academics.[42] Further, there is ample evidence that,
at least at the market level, monopoly is hardly uncommon and that it often fails to correct
itself.[43] The social cost of monopoly today is very likely much higher than the literature from the
Chicago School's early period imagined.[44] Both the ubiquity and the persistence of monopoly in

---

[36] United States v. General Dynamics Corp., 415 U.S. 486 (1974) (weakening merger presumptions based on market share).

[37] Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574 (1986).

[38] *See generally* Herbert Hovenkamp & Fiona Scott Morton*, Framing the Chicago School of Antitrust Analysis*, 168 Univ. Pa. L. Rev. 1843 (2020) (placing the Chicago School in the antitrust framework).

[39] *Id.* at 1847-1848; Rob Van Horn and Philip Mirowski, *The Rise of the Chicago School of Economics and the Birth of Neoliberalism*, *in* THE ROAD FROM MONT PELERIN: THE MAKING OF THE NEOLIBERAL THOUGHT COLLECTIVE, 158 (Philip Mirowski & Dieter Plehwe eds., 2015). For a good short essay on the relationship among the Mont Pelerin Society and Chicago School intellectuals such as Aaron Director, see William Kolasky, *Aaron Director and the Origins of the Chicago School of Antitrust, Part II—Aaron Director: The Socrates of Hyde Park*, 35 ANTITRUST 101 (2020). On the early development, focusing on the Chicago economics department, see BUILDING CHICAGO ECONOMICS: NEW PERSPECTIVES ON THE HISTORY OF AMERICA'S MOST POWERFUL ECONOMICS PROGRAM (Robert Van Horn, Philip Mirowski & Thomas A. Stapleford eds., 2011).

[40] *See* discussion *infra*, text at notes 165-229.

[41] *See* Baker, *supra* note 5 at 1 n.1 (2015) (speaking of Chicago School economics as flourishing until the mid-seventies and of its dominance in law schools arising in the mid- to late 1970s). *See also* Nicola Giocoli, *Old Lady Charm: Explaining the Persistent Approach of Chicago Antitrust*, 22 J. ECON. METHODOLOGY 96 (2015) (searching for explanations why the Chicago School has persisted in law schools long after it faded in economic departments).

[42] Although not among all. *See, e.g.*, Thomas A. Lambert, *The Limits of Antitrust in the 21ˢᵗ Century*, 68 U. KAN. L. REV. 1087 (2020); George L. Priest, *The Limits of Antitrust and the Chicago School Tradition*, 6 J. COMP. L. & ECON. 1 (2009) (both defending the error cost model).

[43] *See* discussion *infra*, test at notes 252-262.

[44] *See, e.g.*, Arnold Harberger, *Monopoly and Resource Allocation*, 77 AM. ECON. ASSN. PAPER & PROC. 77 (1953) (limiting social cost of monopoly to its formal deadweight loss cause by inefficient customer substitutions). *Contra,* Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807 (1975) (social cost of

the economy have been well established under a variety of methodologies.[45] Monopoly markups are significantly higher than they were in the 1980s, and by some measures have tripled.[46] This sounds like a great deal more than the "occasional" and ephemeral monopoly that Justice Gorsuch acknowledged.

Judge Easterbrook suggested that the cost of any monopoly resulting from an underdeterrent legal rule will decrease over time. Whether or not that is true, it is clearly the case for overdeterrent rules. Firms are pretty good at inventing around legal rules. An incorrectly issued injunction might have very little consequence if those bound by it can simply select another route. The urge to compete is particularly robust and firms often can invent around an unreasonably restrictive legal rule. For example, the per se rules against resale price maintenance and tying were excessive, but firms developed workarounds.[47] An overly aggressive decision condemning a merger might not cause that much harm if the firms can attain the benefits of merging by another route.

The economic case for an error cost bias against antitrust enforcement was losing ground at the time it was articulated in the 1980s and is even less defensible today. Further, it fails to protect antitrust's goals of facilitating high output and low prices. That leaves the question of whether there should be such a presumption at all and, if so, what it should be.

Given what we know about markets today, if we were forced to make a presumption, a pro-enforcement bias would be preferable, at least in trouble-prone markets.[48] But I am not advocating for that. Rather, the screens that antitrust already uses in the formation of substantive rules should suffice. Among these, the most important are the rule of reason and its accompanying requirement of market power. When these prerequisites are taken seriously, an error cost bias in either direction represents a form of double counting that threatens to undermine sound enforcement goals.

---

monopoly much higher when rent seeking is acknowledged). The literature is evaluated in Herbert Hovenkamp, *Antitrust Policy and the Social Cost of Monopoly*, 78 Iowa L. Rev. 371 (1993).

[45] *See* discussion *infra*, text at notes 252-262.

[46] *See* discussion *infra*, text at notes 252-262; Bonnie Kavoussi, *How Market Power Has Increased U.S. Inequality*, Wash. Ctr. for Equitable Growth (May 3, 2019), https://equitablegrowth.org/how-market-power-has-increased-u-s-inequality/ [perma.cc/MG9Z-VP7M]; *Companies Appear to be Gaining Market Power*, Economist (Jul. 6, 2018), https://www.economist.com/graphic-detail/2018/07/06/companies-appear-to-be-gaining-market-power [perma.cc/9PMA-5XFN]; Federico Diez et al., *Global Declining Competition*, Ctr. for Econ. and Policy Res. (Aug. 2, 2019), https://voxeu.org/article/global-declining-competition [perma.cc/MWV3-95G5] (each offering examples of markups as a result of consolidate market power since the 1980s). For a balanced discussion, see Jeff Cockrell, *Does America Have an Antitrust Problem?*, Chicago Booth Rev. (2019), https://review.chicagobooth.edu/economics/2019/article/does-america-have-antitrust-problem?fbclid=IwAR0ZXwFnUE2t0tcobHLcgMa6SviSZUShufBR1nvHUd6sDzm73o4guVOly_k [perma.cc/8ERS-FZ5E].

[47] *E.g.*, Business Electronics Corp. v. Sharp Electronic Corp., 485 U.S. 717 (1988) (construing "price" narrowly in RPM cases); Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984) (strengthening market power requirement for tying cases under per se rule); U. S. v. Colgate & Co., 250 U.S. 300 (1919) (establishing idiosyncratic agreement requirement for resale price maintenance).

[48] *See* discussion *infra*, text at notes 52-85.

Merger policy in particular has waffled between a fairly extreme pro-enforcement bias developed after the 1950 amendments to the merger statute to a fairly extreme anti-enforcement bias developed in the 1970s and 1980s.[49] It would benefit from a stronger pro-enforcement presumption than the one that we currently have, although not as extreme as the ones that the Supreme Court developed in the 1960s.[50] The way to get there, however, is not with an error cost presumption in either direction, but rather by continual empirical testing of post-acquisition results in order to determine whether we have set our sights too high or too low, as well as periodic revision of the Merger Guidelines in order to reflect what we continue to learn.[51] No rule of judicial stare decisis prevents that.

THE WANING OF PERFECT COMPETITION

Easterbrook's article reflected the neoliberal mindset of the 1980s, popularized in antitrust in the work of Robert Bork.[52] Its anti-enforcement framework has persisted among conservatives, as Justice Gorsuch's question suggests.[53] In fact, however, the theoretical and empirical foundations for an anti-enforcement error cost bias were crumbling already by the 1980s, even as Bork and Easterbrook were writing. Their arguments were largely defensive and nostalgic.

The debate in industrial organization economics over market competitiveness began mainly during the 1920s and after.[54] The underlying question was whether the older theory of oligopoly or more recent theories of imperfect competition, including monopolistic competition, described important and durable characteristics of the economy. Or were they simply minor and short-lived deviations from a much more robust perfect competition model in which competition, collusion, and monopoly described all the relevant states of the world? Or worse yet, as Robert Bork would suggest, was oligopoly something that did not exist at all except in economics textbooks?[55]

---

[49] *See* discussion *infra*, text at notes 100-104.

[50] *See* Kevin Bryan & Erik Hovenkamp, *Startup Acquisitions, Error Costs, and Antitrust Policy*, 87 UNIV. CHI. L. REV. 331 (2020); Kevin Bryan & Erik Hovenkamp, *Antitrust Limits on Startup Acquisitions*, 56 REV. INDUS. ORG. 615 (2020) (analyzing historical merger enforcement trends).

[51] *E.g.*, JOHN KWOKA, MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY, 10-29 (2014) (suggesting empirical models for measuring concentrations and changes in concentrations of antitrust enforcement actions).

[52] *See* Hovenkamp & Morton, *supra* note 38 at 1847-48.

[53] *See* discussion *supra*, text at notes 20.

[54] *See* Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial Organization*, 68 Tex. L. Rev. 105 (1989).

[55] ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 221 (1978) ("[N]on-collusive oligopolistic behavior, to the extent that it exists at all (and I am not persuaded that such behavior occurs outside of economics textbooks), rarely results in any significant ability to restrict output. If that estimate is substantially accurate, then most mergers would not involve any dead-weight loss. . . .").

Classical Competition and the Twentieth Century Response

Prior to the 1930s, economists understood markets within a framework that embraced two alternative structures: perfect competition and monopoly. In the course of reviewing attacks on that model, George J. Stigler observed in 1949, "[b]efore the Great Depression . . . economists had generally looked upon the economy as a mixture of industries that approximated conditions of perfect competition and industries that were 'monopolies.'"[56]

That framework was developed and largely unquestioned by the British classical political economists all the way back to Adam Smith. The great marginalist economist Alfred Marshall adhered to it in his *Principles of Economics*, which was published in 1890. His book recognized competition and monopoly but almost nothing in between.[57] While he was aware of Cournot's theory of oligopoly,[58] he did not incorporate it in any systematic way.[59] Marshall's most influential Eighth Edition, published in 1920, cited Cournot a few times for things such as the definition of a market, but not for his theory of oligopoly. Indeed, his book never used the word "oligopoly."[60]

Marshall's approach of ignoring markets that fell between perfect competition and monopoly was described later as a "monstrosity."[61] Marshall had devoted a great deal of attention to a phenomenon, monopoly, that did not exist outside the realm of public utilities or other state granted exclusive franchises, while ignoring phenomena that were far more common in industry. This also meant that Marshall simply assumed that all firms in a market faced the same demand curve. As a result, there was no concept of a distinct "residual" demand for the output of a single firm in a multi-firm market. Outside of monopoly, there was nothing interesting to study about the demand facing a single firm.

The most important protagonists of alternative models were Joan Robinson of Cambridge, a student and admirer of Marshall, and Edward Chamberlin of Harvard. Both published important books in 1933.[62] Robinson never mentioned Cournot in her *Economics of Imperfect Competition*, although she did develop some concepts, such as marginal revenue, that

---

[56] George J. Stigler, *Monopolistic Competition in Retrospect*, *in* FIVE LECTURES ON ECONOMIC PROBLEMS 12 (1949).

[57] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS (1890).

[58] Developed in AUGUSTIN COURNOT, RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH (1838) (Nathaniel T. Bacon trans., 1897).

[59] Alberto Zanni, *Marshall and Sraffa on Competition and Returns in Cournot*, 20 HIST. ECON. IDEAS 75 (2012).

[60] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS (8th ed. 1920), https://oll.libertyfund.org/title/marshall-principles-of-economics-8th-ed [perma.cc/5C9P-YX9K].

[61] Kurt W. Rotschild, *Price Theory and Oligopoly*, 57 ECON. J. 299 (1947).

[62] JOAN ROBINSON, THE THEORY OF IMPERFECT COMPETITION (1933); EDWARD H. CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION (1933). For examples of important and influential predecessors who dealt with the importance of differences among individual firms, see JOHN MAURICE CLARK, STUDIES IN THE ECONOMICS OF OVERHEAD COSTS (1925); Harold Hotelling, *Stability in Competition*, 39 ECON. J. 41 (1929); Steven C. Salop, *Monopolistic Competition with Outside Goods*, 10 BELL J. ECON. 141 (1979).

Cournot himself had either anticipated or developed.[63]   Chamberlin's book began with an extended discussion of Cournot, but then branched off into theories about product differentiation for which his book later became best known.   Later neoliberal critics adhered more to the Marshallian status quo, most notably economists George Stigler[64] and Milton Friedman.[65]

The extensive debate that erupted over Robinson's and Chamberlin's work led to a dramatic increase of interest in Cournot and oligopoly theory.   The influential British economist Sir John Hicks described it in 1935 as a "renaissance."[66]   In fact, it was oligopoly theory more than either Robinson or Chamberlin that in the short run migrated into antitrust enforcement policy.   It contributed to such actions as *Sugar Institute vs. United States*, which condemned an agreement to use a cartel facilitator,[67] as well as the *Interstate Circuit*[68] and *American Tobacco* cases.[69]   In these, the Supreme Court condemned parallel conduct without proof of an explicit agreement.   Indeed, the *American Tobacco* case went further in that direction than the more recent case law.   Another contemporary enforcement phenomenon was greatly increased interest in basing-point pricing, or situations where producers of fungible products could coordinate by eliminating competition on shipping costs.[70]   An area that reflected the influence of monopolistic competition theory was the 1940s Justice Department's greatly increased scrutiny of intellectual property practices.   Patents and trademarks in particular were thought to be important vehicles

---

[63] *See* A.J. Nichols, *Robinson's Economics of Imperfect Competition*, 42 J. POL. ECON. 249, 252 (1934) (discussing marginal revenue).   Alfred Marshall also had a conception of marginal revenue, which he referred to as "net" revenue.   *See* ALFRED MARSHALL, PRINCIPLES OF ECONOMICS, Book V, Chapter XIV, at 477-78 (8th ed. 1920):

> The prima facie interest of the owner of a monopoly is clearly to adjust the supply to the demand, not in such a way that the price at which he can sell his commodity shall just cover its expenses of production, but in such a way as to afford him the greatest possible total net revenue.

[64] *See* discussion *infra*, text at notes 108-116. While Easterbrook discussed Stigler in *The Limits of Antitrust*, he addressed only Stigler's theory of regulation, not his theory of market competition. Easterbrook, *supra* note 4 at 4-5 & notes.

[65] *See* discussion *infra*, text at notes 136-140.

[66] John R. Hicks, *Annual Survey of Economic Theory: The Theory of Monopoly,* 3 ECONOMETRICA 1, 13 (1935). *See* Manuela Mosca, *The Sources of Monopoly Power Before Bain (1956)* 2 (SSRN Working Paper 2009), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1430322 [https://perma.cc/77FB-PV32] (discussing monopoly theories before this era).

[67] Sugar Inst. v. United States, 297 U.S. 553 (1936) (condemning sugar refiners' agreement to post their prices periodically and adhere to them).

[68] Interstate Circuit, Inc. v. United States, 306 U.S. 208 (1939). *See also* Maurice Adelman, *Effective Competition and the Antitrust Laws*, 61 HARV. L. REV. 1289, 1317-18 (1948) (summarizing the *Interstate* case).

[69] American Tobacco Co. v. United States, 328 U.S. 781 (1946).   For contemporary writing relating the decision to the theory of oligopoly, see William H. Nicholls, *The Tobacco Case of 1946*, 39 AM. ECON. REV. (PAPERS AND PROCEEDINGS) 284, 285-88 (1949); Kenneth E. Boulding, *The Economic Consequences of Some Recent Antitrust Decisions*, 39 AM. ECON. REV. (PAPERS AND PROCEEDINGS) 311, 320 (1949). *See also* WILLIAM FELLNER, COMPETITION AMONG THE FEW: OLIGOPOLY AND SIMILAR MARKET STRUCTURES (1949) (noting American Tobacco's large market share in the tobacco industry).

[70] *See* Arthur Smithies, *Economic Consequences of the Basing Point Decisions*, 63 HARV. L. REV. 308 (1949) (relating basing-point schemes to monopolistic competition); Note, *Price Systems and Competition: The Basing-Point Issues*, 58 YALE L.J. 426 (1949) (addressing basing-point pricing as a problem of oligopoly); FTC v. Cement Institute, 333 U.S. 583 (1948) (enforcing FTC order condemning basing point pricing in cement).

for maintaining monopoly and unhealthy product differentiation.[71] One important example was the previously noted Supreme Court's 1947 conclusion in *International Salt Co. v. United States*, at the behest of the Government, that monopoly would be presumed from the existence of a patent.[72] Chamberlin himself was particularly hostile toward trademarks, which he believed were inherently monopolistic because they served to protect space between differentiated products.[73]

Accompanying the increased focus on imperfectly competitive markets was a mathematical revolution in economic writing, including incorporation of game theory in the 1940s and 1950s.[74] In the process, the "pure" versions of Cournot's oligopoly, Robinson's imperfect competition, and Chamberlin's monopolistic competition lost much of their distinctiveness. They gradually became blended together into a set of theories that today go under the name "imperfect competition."[75] These theories departed from their creators' original models in several ways. The departures that were most relevant to competition policy were the accommodation of differentiated products into oligopoly theory, rejection of the classical assumption that new entry is easy and would occur whenever prices were above cost, and game theory.

In the process oligopoly theory became more complex, depending on assumptions about firms' initial choices and reactions. Some explorations were concerned with single periods, but game theory introduced the idea of repeated cycles and a concept of equilibrium that included shared understanding of the anticipated responses of other firms. Although Cournot himself had assumed markets for identical products, the new oligopoly theory also applied Cournot to differentiated products, in the process occupying some of the space belonging to monopolistic

---

[71] *See* HERBERT HOVENKAMP, THE OPENING OF AMERICAN LAW: NEOCLASSICAL LEGAL THOUGHT, 1870-1970 198-203 (2015) (discussing the history of economic thought regarding patents and trademarks as monopoly and differentiation vehicles).

[72] 332 U.S. 392 (1947).

[73] CHAMBERLIN, MONOPOLISTIC COMPETITION, *supra* note 60, at 57-64. On the impact on competition, see Ralph S. Brown, Jr., *Advertising and the Public Interest: Legal Protection of Trade Symbols*, 57 YALE L.J. 1165, 1171 n.29 (1948) (speaking of Chamberlin's influence); Kurt Borchart, *Are Trademarks an Antitrust Problem?*, 31 GEO. L.J. 245 (1943). For contemporary views on the use of patents to segregate markets, see DAVID LYNCH, THE CONCENTRATION OF ECONOMIC POWER 227-31 (1946).

[74] *E.g.*, Oskar Morgenstern, *Oligopoly, Monopolistic Competition, and the Theory of Games*, 38 AM. ECON. REV, PAP. PROCEED. 10 (1948) (discussing the relationship between competition and game theory), as well as the significant work by John F. Nash. *E.g.*, John Nash, *The Bargaining Problem*, 18 ECONOMETRICA 155 (1950) (discussing game theory). *See also* Franklin Fisher, *Games Economists Play: A Noncooperative View*, 20 RAND J. ECON. 113, 113–24 (1989) (outlining a revolution in game theory); Roger B. Myerson, *Nash Equilibrium and the History of Economic Theory*, 37 J. ECON LIT. 1067 (1999) (taking a historical approach to game theory).

[75] Many of these are explored in Carl Shapiro, *Theories of Oligopoly Behavior*, Ch. 6, *in* 3 HANDBOOK OF INDUS. ORG. (Mark Armstrong & Robert Porter eds., 2007). In the same volume, see also Drew Fudenberg & Jean Tirole, *Noncooperative Game Theory for Industrial Organization: An Introduction and Overview*, Ch. 5. John Maurice Clark acknowledged the blending of theories already in 1940. *See* John M. Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241 (1940) (discussing the intersection of imperfect competition and game theory).

competition.[76] In short, the new theory began to reflect in a much more robust and eventually more testable way the manner in which firms in markets for manufactured products actually behave. That was no small revolution in thinking about antitrust economics.

Monopolistic Competition theory basically won by losing. Students of oligopolistic industries began to model situations involving differentiated products. Much of that theory also discarded Chamberlin's assumption of unrestricted entry and focused on markets with small numbers of firms making differentiated products and where entry was thought to be difficult.[77] The policy reactions were increasingly dominated by a belief that oligopoly and product differentiation were more-or-less inevitable features of the business landscape, and the best that antitrust could do is prevent monopoly and otherwise reach peaceful coexistence with oligopolistic structures.[78]

An important difference between Alfred Marshall's image of the economy and that of Robinson and Chamberlin was that Marshall, just as most of the classical economists, had pictured production as consisting mainly of undifferentiated commodities. While he allowed for differences in quality and distribution, the Marshallian world was mainly one in which competitors faced the same demand and competed mainly on price. By contrast, both Robinson and Chamberlin addressed an economy that was more industrial, more differentiated, and more oriented toward distribution and consumers. Important differences existed between the output of one firm and that of another. Some of these differences pertained to differential cost structures, while others applied to product design, engineering, or distribution methods. Further, over an intermediate or long run firms could make strategic choices about product or production design.

The existence of these features was really not in dispute. Rather the questions were whether and how to acknowledge them, and whether they called for any amendments to the general insistence by classical political economists since Adam Smith that the "invisible hand" of the market could maximize value without government intervention.

Joseph Schumpeter's prescient 1934 review of Joan Robinson's *Economics of Imperfect Competition* recognized the challenge her work presented to neoliberal, non-interventionist economics.[79] Schumpeter described how thought about markets up to that time, with Cournot as an exception, had been dominated by a model of perfect competition and an offsetting model of "perfect monopoly."[80] Between the two, however, was a "stretch of ground" that was regarded "as rather unsafe and incapable of yielding determinate results."[81] Schumpeter-himself a

---

[76] Shapiro, *supra* note 73. On the importance of this development, see Donald E. Farrar & Charles F. Phillips, Jr., *New Developments on the Oligopoly Front: A Comment*, 67 J. POL. ECON. 414 (1959).

[77] On Chamberlin's assumptions of easy entry, see Joe S. Bain, *Structure Versus Conduct as Indicators of Market Performance: The Chicago-School Attempts Revisited*, 18 ANTITRUST L. & ECON. REV. 17, 29 (1986).

[78] *E.g.*, John M. Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241 (1940) (describing the conditions for "workable" as opposed to perfect competition); Corwin D. Edwards, *Can the Antitrust Law Preserve Competition?*, 30 AMER. ECON. REV. PAP. PROCEED. 164 (1940) (doubting the efficacy of American antitrust policy).

[79] Joseph A. Schumpeter, *Robinson's Economics of Imperfect Competition*, 42 J. POL. ECON. 249 (1934).

[80] *Id.* at 249.

[81] *Id.* at 249

conservative-observed that this state of affairs was unsatisfactory because "the majority of practical cases" lay on the ground between the two extremes.[82] Further, the two cases at the extremes "are much farther removed from reality and much less likely to be fulfilled" than even Alfred Marshall believed.[83]

Schumpeter's conclusions were ominous: the state need not intervene in perfectly competitive markets, but these were uncommon. Pure monopoly, also relatively rare, was subject to regulatory control. As a result, an economy that exhibited only these two structural choices presented relatively infrequent need for antitrust intervention. In the observed world, however, the vastness of the intermediate situations called for action:

> as soon as we realize the implications of imperfect competition all presumption vanishes for some of those effects to emerge which we used to attribute to the normal working of an economic society which in common parlance would still be called "competitive." Our theorems about maximum satisfaction or maximum national dividend cease to hold true and the list of cases in which collective political action can increase both of them becomes so extended as to make these cases the rule rather than more or less curious exceptions.[84]

Speaking as an economist, he observed, "if it be part of our business to advise on questions of economic policy, then this advice would in very many cases have to be the exact opposite of what it was twenty years ago."[85]

The Attempt to Redefine Oligopoly

Stigler, who began his career in economics in the 1930s, became devoted to proving that Schumpeter's assessment of the competitive landscape was wrong.[86] Rather, he stayed on the path forged by Marshall, seeing perfect competition and monopoly as the only useful models of the industrial economy. Already in 1937, Stigler, then a professor at Iowa State University, complained that the recently emergent theories of imperfect competition were receiving too much attention. They were in fact little more than a "distracting fad" concerned more "with mathematical virtuosity than with desirable economic policy."[87] On that point he was at least

---

[82] *Id.* at 249-50.

[83] *Id.* at 250.

[84] *Id.* at 250-51.

[85] *Id.* at 250-51.

[86] *See* Craig Freedman, *The Chicago School of Anti-Monopolistic Competition: Stigler's Scorched Earth Campaign Against Chamberlin* 165-342, *in* IN SEARCH OF THE TWO-HANDED ECONOMIST: IDEOLOGY, METHODOLOGY AND MARKETING IN ECONOMICS (Craig Freedman ed., 2016) (discussing Stigler's work on competition); Richard S. Schmalensee, *George Stigler's Contribution to Economics*, 85 SCAND. J. ECON. 77 (1983).

[87] George J. Stigler, *A Generalization of the Theory of Imperfect Competition*, 19 J. FARM ECON. 707, 708 (1937).

half correct: the mathematics of oligopoly and monopolistic competition quickly became much more technical than the Marshallian mathematics of competition and monopoly.[88]

Stigler argued that oligopoly was nothing more than a set of narrow exceptions to the traditional theory of collusion within a perfect competition model,[89] and that monopolistic competition was nothing more than a variation on the theory of monopoly.[90] In the process he set himself up as a fierce and lifelong champion of perfect competition and monopoly as the only two market equilibria worthy of study.[91]

Cournot's oligopoly theory was "non-cooperative," meaning that it did not depend on any assumptions about communicated agreement. Rather, each firm observed the output of rivals and equated marginal cost and marginal revenue over the remaining, or "residual," demand. The firms would make continuous adjustments until everyone in the market was in an equilibrium position. That theory adapted itself to repeated iterations, or games, to the extent that firms could observe and then predict the behavior of others and learn from their observations. In 1984, the same year as Easterbrook's error cost article was published, political scientist Robert Axelrod provided both analytic support and breadth beyond industrial economics for this game theory in his influential book, *The Evolution of Cooperation*.[92]

Already by mid-century, many antitrust economists and lawyers had come to believe that, given expansion in firm size and growing market concentration, oligopoly performance was "inevitable."[93] This was an important premise for the 1950 amendments to §7 of the Clayton Act,[94] as well as decisions such as *Brown Shoe* that interpreted it. Contemporary scholar Derek Bok saw oligopoly as one of the defining features of a changing industrial landscape.[95] One

---

[88] On the marginalist revolution in the late nineteenth century and the dramatic increase in economists' use of mathematics, see HERBERT HOVENKAMP, THE OPENING OF AMERICAN LAW: NEOCLASSICAL LEGAL THOUGHT, 1870-1970 at 39-32, 85-87 (2015).

[89] *E.g*., George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964).

[90] *E.g*., George J. Stigler, *Monopolistic Competition in Retrospect* 131-44, *in* READINGS IN INDUSTRIAL ECONOMICS (C.K. Rowley ed., 1972).

[91] *See* George J. Stigler, *Perfect Competition, Historically Contemplated*, 65 J. POL. ECON. 1, 17 (1957) ("[T]he concept of perfect competition has defeated its newer rivals in the decisive area: the day-to-day work of the economic theorist.").

[92] ROBERT AXELROD, THE EVOLUTION OF COOPERATION (1984).

[93] *E.g*., Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655, 666-68 (1962). *Accord* Louis B. Schwartz, *New Approaches to the Control of Oligopoly,* 109 U. PA. L. REV. 31, 33-34 (1978). *See also* CARL KAYSEN & DONALD F. TURNER, ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS 27-28, 46, 111-19 (1959) (referring to "structural oligopoly" and recommending breakup).

[94] Cellar-Kefauver Antimerger Act, ch. 1184, 64 Stat. 1125 (1950), (codified at 15 U.S.C. §18). *See* United States v. Aluminum Co. of Am., 377 U.S. 271, 280-81 (1964) (citing control of oligopoly as rationale for merger law). *See* Simon N. Whitney, *Mergers, Conglomerates, and Oligopolies: A Widening of Antitrust Targets*, 21 RUTGERS L. REV. 187 (1967); James M. Henderson & William H. Henderson, *The Race to Oligopoly*, 1968 DUKE L.J. 637 (1968). For Stigler's evaluation, *see* George J. Stigler, *Monopoly and Oligopoly by Merger*, 40 AM. ECON. REV. (PAPERS & PROC. 23) (1950).

[95] Derek C. Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74 HARV. L. REV. 226, 230, 235 (1960) (noting Congress' assumption that markets were being changed into oligopolies via a wave of mergers).

offered justification of the statutory revision was that "the country was in the midst of a new wave of mergers in which little businesses were being absorbed in large numbers by big firms." As a result, "competitive, small-business industries such as textiles were steadily being transformed by mergers into oligopolies."[96]

Interestingly, the Sherman Act itself, drafted in 1890 long before modern theories of imperfect competition were developed, addressed behavior under the same rubric that both Marshall and the classical political economists had-namely competition and monopoly-ignoring the territory in between. Section 1 of the Sherman Act reached "contracts, combinations, and conspiracies"–all practices that assume the existence of a more-or-less explicit cartel. Section 2 of the Sherman Act is concerned with monopoly. There is no "§1.5" focused on intermediate situations, and antitrust policy ever since has had considerable difficulty in addressing them.[97] Stigler's outlier theory of oligopoly, discussed below,[98] was actually more consistent with this Sherman Act approach.

Although Marshall's *Principles* was published in the year that the Sherman Act was passed, there is no evidence that any member of Congress was familiar with it. In fact, the Sherman Act was simply reflecting the English common law and economics of the time, which abhorred monopoly and disliked most forms of collusion but had no theory of oligopoly or imperfect competition.

By contrast, the Clayton Act's "may substantially lessen competition" formulation did not make the same distinctions. Its lack of an agreement requirement could enable it to reach oligopoly positions that lay between the extremes. What the Clayton Act did not include, however, was a provision that applied directly to coordinated interaction among competitors in the absence of an agreement or merger. The "may substantially lessen competition" formulation in the Clayton Act occurs in three provisions: §2 on price discrimination,[99] §3 on tying and exclusive dealing,[100] and §7 on mergers.[101] Mergers that facilitated oligopoly were reachable, however even in the absence of a provable agreement. As a result, after the 1950 Amendment merger policy emerged as one, although incomplete, way of filling in the gap that the Sherman Act had left.[102]

---

[96] *Id.* at 235. For a complaint that the 1950 Act did not go far enough, see Damuel R. Reid, *Antitrust and the 'Merger-Wave' Phenomenon: A Failure of the Public Policy*, 3 ANTITRUST L. & ECON. REV. 25 (1969) (noting a substantial merger wave in the late 1960s, after the Act was passed). For good commentary, see Daniel A. Crane, *Antitrust and Democracy: A Case Study from German Fascism* (U. of Mich. Law & Econ. Research Paper, No. 18-009, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3164467 [https://perma.cc/34SK-GUE7].

[97] On the numerous difficulties that have arisen in antitrust cases, see 6 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶1407, 1409-15, 1428-36 (4th ed. 2017).

[98] *See* discussion *infra*, text at notes 108-116.

[99] 15 U.S.C. § 13 (2018).

[100] 15 U.S.C. § 14 (2018).

[101] 15 U.S.C. § 18 (2018).

[102] *See* Bok, *supra* note 95, at 230 (making this point).

The 1950 amendments to the merger statute did implicitly recognize imperfect competition, although in the process they also provoked an overreaction.[103] The expressed concern was not with monopoly or cartels, but rather with rising industrial concentration itself. The statute's prohibitions gave no hint of limitation to either mergers that produced an actual monopoly or those that facilitated collusion. Further, the concentration levels that became identified as problematic were far lower than those that are regarded as such today. Indeed, one goal was to protect small business from larger firms–something that could occur at any concentration level.

Brown Shoe, the first Supreme Court decision to interpret the new merger statute, produced a pro-enforcement error cost bias that came to be ridiculed by people such as Robert H. Bork.[104] The *Brown Shoe* theory was driven by its assumption, which was that American industry was exhibiting a "trend toward concentration."[105] This required a bias toward enforcement: "If a merger achieving 5% control were now approved, we might be required to approve future merger efforts by Brown's competitors seeking similar market shares. The oligopoly Congress sought to avoid would then be furthered and it would be difficult to dissolve the combinations previously approved."[106]

The Court also made clear that its opposition to industry concentration was based on "Congress' fear not only of accelerated concentration of economic power on economic grounds, but also of the threat to other values a trend toward concentration was thought to pose."[107]

THE ORIGINS OF THE ERROR COST FRAMEWORK

Stigler and Bork on Oligopoly

George J. Stigler had been one of the founding members of the libertarian Mont Pelerin Society and later served for one term as its President.[108] In 1964, he published "A Theory of

---

[103] Bok, *supra* note 95; Herbert Hovenkamp, *Derek Bok and the Merger of Law and Economics,* 21 J. L. REFORM 515, 534-35 (1988).

[104] ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 198-216 (1978) (describing *Brown Shoe* as the "crash" of merger policy).

[105] Brown Shoe Co. v. United States, 370 U.S. 294, 315-16, 332 (1962), citing Stigler, *Mergers and Preventive Antitrust Policy*, 104 U. OF PA. L. REV. 176, 180 (1955), https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=7445&context=penn_law_review [https://perma.cc/4EUT-PVNM]; S. REP. NO. 619, at 7 (1955). (discussing a need for an amendment to the Clayton Act). The Court also relied on the legislative history. 95 CONG. REC. 11,489, 11,494, 11,498 (1949) (remarks of Representatives Keating, Yates, and Patman); 96 CONG. REC. 16,444 (1950) (remarks of Senators O'Mahoney and Murray).

[106] *Brown Shoe Co.*, 370 U.S. at 343-44.

[107] *Id.* at 316.

[108] *See* Van Horn & Mirowski, *supra* note **Error! Bookmark not defined.**. For Stigler's own account, see his autobiography, GEORGE J. STIGLER, MEMOIRS OF AN UNREGULATED ECONOMIST 116 (1988). *See also Past Presidents*, THE MONT PERLIN SOC'Y, https://www.montpelerin.org/past-presidents-2/ [https://perma.cc/CUC5-XPJL] (last visited Nov. 17, 2021) (listing the Society's roster of past presidents, including George Stigler, 1976-1978).

Oligopoly," now a Chicago School classic.[109] His article never mentioned either Cournot or any other established economists in the literature of oligopoly. Without saying it in so many words, he rejected the theory of oligopoly altogether, seeing the entire problem as one of "policing a collusive agreement, which proves to be a problem in the theory of information."[110]

Stigler's main critique of oligopoly was, first, to reject the proposition that any kind of collusive equilibrium, whether oligopoly or cartel, was stable as a general matter.[111] This was in fact a head on attack against the noncooperative Cournot literature, which had proposed that stable oligopoly equilibria existed when each firm equated its individual marginal cost and marginal revenue over its residual demand. By contrast, in a classic cartel each firm's price is too high and output too low.[112] Thus if one ignores rivals' responses the Cournot equilibrium is more stable than the cartel equilibrium. By contrast, for Stigler the firms in both situations were simply colluding, and they would try to find ways to compete by cheating on the collusive arrangement–that is, by producing more or charging less than a well-behaved cartel member should.

Stigler observed that the contractual deals offered by different firms were quite heterogeneous, even when they were selling the same product. Firms competed by offering slightly different terms than someone else. This was not because the product varied but rather because consumer information and tastes varied. As a result, there is no such thing as a single monopoly price.[113] In fact, the "heterogeneity of purchase commitments . . . is surely often at least as large as that of products within an industry," and "sometimes vastly larger."[114] What Stigler did not acknowledge is that this heterogeneity itself led to a form of monopolistic competition in which equilibrium prices often exceeded marginal cost and firms competed by offering different variations in contract terms.[115]

Successful collusion required the cartel to offer a joint maximizing range of variations to please customers. However, this could require a complex agreement covering many types of transactions. As a result, cartels often resorted to such devices as fixing market shares or output rather than price, or assigning particular buyers to particular sellers.[116] Thus sheltered from competition, firms could then behave more like monopolists over their own sales.

---

[109] George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964).

[110] *Id.* at 44.

[111] On Stigler's other work making a similar argument, *see* Schmalensee, *supra* note 86.

[112] I.e., at the cartel price each firm individually has an incentive to expand output to the point that its own marginal cost equals its individual marginal revenue. *See* William L. Holahan, *Cartel Problems: Comment*, 68 AM. ECON. REV. 942 (1978) (discussing issues with cartel pricing).

[113] Stigler, *supra* note 109, at 45.

[114] Stigler, *supra* note 109, at 45.

[115] In fact, Stigler's own model, presented in an appendix, showed prices above marginal cost, but Stigler did not elaborate the point. Stigler, *supra* note 109, at 59-61. I am indebted to Steve Salop for this observation. For further development, *see* Joseph E. Stiglitz, *Equilibrium in Product Markets with Imperfect Information*, 69 AM. ECON. REV. PAPERS PROC. 339 (1979) (discussing the relationship between heterogeneity and pricing).

[116] Stigler, *supra* note 110, at 46.

For Stigler, the enemy of successful collusion of all kinds was the firm that secretly cut prices or changed the product in order to steal sales from rivals. Given the high price/cost margins of the successful cartel, the incentive to make undetectable cuts was strong. As a result, oligopoly pricing was hardly "inevitable," but depended on several factors at least some of which could be manipulated by individual firms.

The interesting thing about Stigler's famous paper on oligopoly is that oligopoly never really makes an appearance at all. It is in fact all about cartels, the difficulty of managing them, and the devices that cartel managers use to make them more stable. Tellingly, his paper never once mentioned equilibrium. A decisive contribution of Cournot's theory was its proof of an equilibrium among its participants. By contrast, in an explicit cartel a stable situation exists only to the extent that an agreement is made and enforced, and enforcement through the judicial system is usually not available.

To the extent Stigler's paper presented any theory of oligopoly at all, it was in the observation that certain market structures made collusion more plausible. Very largely the same structures, it turned out, also made Cournot oligopoly more plausible. Indeed, that is the way the subsequent literature read it. For example, phenomena such as secret price cuts or deviating collateral promises in exchange for patronage tended to undermine both express collusion and Cournot oligopoly. For both, however, the dangers increased as the number of firms in the market grew smaller.

Richard Posner, whose principal early contributions on oligopoly and collusion were explicitly indebted to Stigler,[117] adopted this model, proposing that Stigler's factors plus some additional ones be used as devices for detecting what he termed "tacit" collusion. This referred to cartel-like conduct for which the Sherman Act's statutory requirements of a "contract, combination, . . . or conspiracy" could not be met.[118] That is, Posner attempted to bring oligopoly theory within §1 of the Sherman Act by seeing it as simply a variation of collusion. Just as Stigler, he never cited Cournot. For antitrust purposes, he argued, oligopoly should be viewed as a real, cooperative solution that differed from the classic cartel in that it involved less explicit types of communication, as well as inferences that could be drawn from a firm's decisions about production. Forty years later, Posner conceded that this experiment had largely failed.[119]

The government's Merger Guidelines reflect Stigler's and Posner's strong initial influence that gradually weakened over successive editions. For example, the 1984 Guidelines, written during the high point of neoliberal anti-enforcement bias, spoke of firms that "either

---

[117] Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 STAN. L. REV. 1562, 1562 (1969).

[118] *Id.* at 1562; for development, see HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §4.4 (6th ed. 2020). *See* in particular §4.4a (discussing the debate between Richard Posner and Donald F. Turner on the subject). On the use of these factors as evidence of a §1 conspiracy, *see* 6 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶1428-36 (4th ed. 2016).

[119] *See* Richard A. Posner, *Review of Kaplow, Competition and Price Fixing*, 79 ANTITRUST L.J. 761 (2014) (reviewing LOUIS KAPLOW, COMPETITION POLICY AND PRICE FIXING (2013)).

explicitly or implicitly coordinate their actions," or "implicit coordination."[120] The 1992 and 2010 Merger Guidelines changed this to "coordinated interaction."[121]

Posner did deviate from Stigler in one important way. He did not deny that firms in a concentrated market could reach noncompetitive output reductions and higher prices. He wrote, "[o]ligopolistic interdependence, in short is inherent in the structure of certain markets. Only semantically can it be equated with collusive price-fixing, for it is unresponsive to the remedies appropriate in price-fixing cases. . . ."[122]

Posner's biggest issue was not that he denied the existence of oligopoly performance in concentrated industries. He did doubt, however, that there was much that antitrust could do about it in the absence of evidence of an agreement. The approach he suggested was to look for the practices that produced stability and adherence and enjoin these where possible. This was an alternative to the proposal offered by his foil Donald F. Turner, who had embraced the oligopoly problem in the early 1960s but suggested that there was no good solution within the contours of the existing Sherman Act.[123] Turner referred to his book with Carl Kaysen, which had proposed deconcentration legislation as a remedy.[124] The theory was that breaking up firms would lead to more players, thus making oligopoly or collusion more difficult to maintain.

Robert Bork's position was more extreme than either Posner's or Turner's, although it was stated as a naked conclusion rather than as the outcome of any serious analysis. He was simply not persuaded that what he termed "non-collusive oligopolistic behavior" occurred anywhere "outside of economics textbooks."[125] Already in the 1960s Bork agreed with the Stigler position that the two things that antitrust policy should be concerned about were monopoly and collusion, but not intermediate situations such as oligopoly.[126] Two decades later he was still opining that oligopoly was a "shaky" economic theory:

> The oligopoly theory that once was dominant in antitrust was shaky even then, and I would suggest that it never did describe conditions in the real world. It wasn't a change in conditions that undid the oligopoly model; it was the

---

[120] U.S. Dep't of Just., 1984 Merger Guidelines §§1.0, 3.11 (1984), https://www.justice.gov/archives/atr/1984-merger-guidelines [https://perma.cc/R3GL-E7VY].

[121] U.S. Dep't of Just. & Fed. Trade Comm'n, 1992 Merger Guidelines §2.1 (1992), https://www.justice.gov/archives/atr/1992-merger-guidelines [https://perma.cc/LVP9-X9EG].

[122] Posner, *supra* note 117, at 1565.

[123] Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 Harv. L. Rev. 655 (1962).

[124] *See id.* at 671 n. 21 (referring to Carl Kaysen & Donald F. Turner, Antitrust Policy: An Economic and Legal Analysis 266-72 (1959)).

[125] Robert H. Bork, The Antitrust Paradox: A Policy at War With Itself 221 (1978). *See also* Herbert Hovenkamp, *Whatever Did Happen to the Antitrust Movement*?, 94 Notre Dame L. Rev. 583, 612 (2018) (elaborating on Bork's position).

[126] *See* Robert H. Bork, *The Rule of Reason and the Per Se Concept: Price Fixing and Market Division II*, 75 Yale L.J. 272, 396 n.52 (1965) (arguing that oligopolists are "not nearly as likely to restrict output as are cartels or monopolies").

realization that it was theoretically incoherent and that there was no observable market in which its conclusions held good.[127]

The passage is insightful mainly because it reveals how little Bork knew about what was going on in economics. In his mind, theories of oligopoly were things that had preoccupied economics in the past, but no more. Even as he was writing, however, the economics of industrial organization were going through a theoretical and empirical revolution notable for the extent to which models of imperfect competition including oligopoly were displacing perfect competition as the governing framework.[128]

Today the rejection of Bork's view in antitrust is robust, but the process of rejection has taken a perverse turn to a position more like Turner's than that of either Stigler or Posner. Section One of the Sherman Act is not satisfied by noncooperative oligopoly or even by conscious parallelism or signaling content that falls short of agreement. As a result, the argument goes, while collusion-like outcomes or conscious parallelism in markets with many firms may be sufficiently suspicious to raise a fact issue of agreement, the same conduct in highly concentrated markets for fungible products does not serve to prove a Sherman Act agreement at all. Such outcomes are to be expected simply from the structure of the market. For example, consider this statement from a 2017 Third Circuit decision:

> In non-oligopolistic markets, "[p]arallel behavior among competitors is especially probative of price fixing because it is the sine qua non of a price fixing conspiracy." But in an oligopolistic market, parallel behavior "can be a necessary fact of life," and "[a]ccordingly, evidence of conscious parallelism cannot alone create a reasonable inference of a conspiracy." Therefore, to prove an oligopolistic conspiracy with proof of parallel behavior, that evidence "must go beyond mere interdependence" and "be so unusual that in the absence of an advance agreement, no reasonable firm would have engaged in it."[129]

Far from denying that oligopoly exists except in textbooks, the court is in fact acknowledging its existence and explaining why consciously parallel conduct does not prove an agreement. In a concentrated market firms *do not need an agreement* in order to achieve cartel-like results.

The unsettling result is that §1 of the Sherman Act works least well in the markets where it is most needed. This fact is one of the most long-lasting and pervasive false negatives in the history of antitrust enforcement. The tools that we have for dealing with consciously parallel behavior among independent actors are and have always been severely limited. The one place

---

[127] Robert H. Bork, *The Role of the Courts in Applying Economics*, 54 ANTITRUST L.J. 21, 25 (1985).

[128] *See* discussion *infra*, text at notes 223-251.

[129] Valspar Corp. v. E.I. Du Pont De Nemours & Co., 873 F.3d 185, 193 (3d Cir. 2017) (quoting, *inter alia*, *In re* Chocolate Confectionary Antitrust Litig., 801 F.3d 383 (3d Cir. 2015)).

we can do something, even if incomplete, is with a more aggressive merger policy that prohibits mergers that threaten to make coordinated interaction more likely.[130]

Monopolistic Competition: Stigler and Friedman

Stigler's negative reaction to monopolistic competition was as strong as his negative reaction to oligopoly. Historically, one of the most important differences between the theory of oligopoly and that of monopolistic competition is that oligopoly was from the onset a theory about how markets for identical products arrive at an equilibrium. That was one of Cournot's most important original contributions. By contrast, the firms in Chamberlin's model were always trying to differentiate their products from one another, leading to a "market" of people that were actually selling different things.[131] Further, in Chamberlin's own work there was no robust theory of *market* equilibrium, but only the equilibrium of a single firm. About the best Chamberlin could produce was a concept of a "group equilibrium" that was never very well explained.[132]

Stigler saw this but developed an exaggerated view of its implications for the concept of markets. It led him to doubt that Chamberlin was even talking about goods within a single market at all. As Stigler explained it, the Chamberlin market consisted of "fairly close

---

[130] Posner acknowledged this as a partial solution to the problem. *See* Posner, *supra* note 117, at 1566 noting why Donald Turner, the head of the Antitrust Division had supported a prophylactic approach toward mergers:

> Since mergers historically have been an important source of concentration, a strong antimerger policy should do much to prevent new oligopolies from emerging and loosely oligopolistic industries from becoming tightly oligopolistic. The extraordinary stringency of the Guidelines may reflect in part Turner's earlier expressed view that once a market has become highly concentrated there is little that can be done under existing law to prevent noncompetitive, interdependent pricing.

For a good economic explanation of why we need a more prophylactic policy against horizontal mergers to address oligopoly coordination, *see* Jonathan B. Baker & Joseph Farrell, *Oligopoly Coordination, Economic Analysis, and the Prophylactic Role of Horizontal Merger Enforcement*, 168 U. PA. L. REV. 1985 (2020). *See also* Herbert Hovenkamp, *Prophylactic Merger Policy*, 70 HASTINGS L.J. 45 (2018) (providing further explanation of the need for prophylactic policy).

[131] As a result, under simple assumptions a firm in monopolistic competition prices at the tangent of its demand curve and its long average cost curve and profits will be zero. *See* Steven C. Salop, *Monopolistic Competition with Outside Goods*, 10 BELL J. ECON. 141, 145 (1979) (explaining firm prices in monopolistic competition). At that point the firm also carries excess capacity. *See* Yoram Barzel, *Excess Capacity in Monopolistic Competition*, 78 J. POL. ECON. 1142, 1142 (1970) (discussing excess capacity).

[132] CHAMBERLIN, *supra* note **Error! Bookmark not defined.**, at 69:

> Monopolistic competition . . . concerns itself not only with the problem of an *individual* equilibrium (the ordinary theory of monopoly), but also with that of a *group* equilibrium (the adjustment of economic forces within a group of competing monopolists, ordinarily regarded merely as a group of competitors).

substitutes," but how close is "close"?[133] Where does one draw the line of "closeness" so as to distinguish two firms in the same market from the situation where one firm is just inside the market and one just outside?   As Stigler observed, "[i]t is perfectly possible, on Chamberlin's picture of economic life, that the group contain only one firm, or, on the contrary, that it includes all of the firms in the economy."[134] As a result, he concluded, it seemed unlikely that one could speak of an equilibrium in a Chamberlin model at all.[135] This objection was reflected in the work of later scholars who believed that Marshallian partial equilibrium analysis was not really possible under monopolistic competition.   Since there was no hard line defining market boundaries, economists should use general equilibrium analysis and think of the market as the entire economy.[136]

Picking up from Stigler, a decade later Milton Friedman continued along the same line, querying facetiously whether bulldozers and hairpins should be regarded as differentiated products within a single market. Once we consider product differences as central, the idea of markets becomes meaningless.   Just as it is meaningless to speak of a "market" for bulldozers and hairpins, so too would it be meaningless to place "two brands of toothpaste" into the same market.[137] As a result, he concluded, the Chamberlin model for markets offers . . . no stopping place between the firm at one extreme and general equilibrium at the other."[138]

What neither Stigler nor Friedman appreciated at the time is that the modeling and equilibrium problems could and would be solved.   Further, the precise location of market boundaries lost the importance it had had for Marshall and earlier economists.   Today, differentiated markets are modeled all the time and can have stable equilibria, as literature since the 1970s has developed.[139] Even under product differentiation and easy entry, new firms would come in until the expected profits from entry (margins multiplied by volume, less costs) were too low. As a result, one can model the size of the market, including the number of firms and even the range of diversity.[140] The same thing is true of oligopoly in differentiated markets.[141]

---

[133] George J. Stigler, *Monopolistic Competition in Retrospect*, *in* FIVE LECTURES ON ECONOMIC PRINCIPLES 15 (1949).

[134] *Id.* at 15.

[135] *Id.* at 18.

[136] *See, e.g.*, ROBERT TRIFFIN, MONOPOLISTIC COMPETITION AND GENERAL EQUILIBRIUM THEORY (1940). For an important critique, *see* RICHARD MARKOVITS, ECONOMICS AND THE INTERPRETATION AND APPLICATION OF U.S. AND E.U. ANTITRUST LAW (2014); *see also* Herbert Hovenkamp, *Reimagining Antitrust: The Revisionist Work of Richard S. Markovits*, 94 TEX. L. REV. 1221 (2016).

[137] Milton Friedman, *The Methodology of Positive Economics*, *in* MILTON FRIEDMAN, ESSAYS IN POSITIVE ECONOMICS 1, 39 (1953).

[138] *Id.* at 39:

> [A]lthough Professor Chamberlin does not state the possibility, it is not even clear that equilibrium is attainable: under these vague conditions price may continue to change, and new firms may continue to enter and old firms continue to leave the "group."

[139] *See* discussion *infra*, text at notes 236-242.

[140] *E.g.*, Avinash K. Dixit & Joseph E. Stiglitz, *Monopolistic Competition and Optimum Product Diversity*, 67 AM. ECON. REV. 297, 299 (1977) (examining a model reflecting the size of market).

[141] *See* Shapiro, *supra* note 76, at 334, 346.

Stigler's and Friedman's critique of monopolistic competition observed that the traditional idea of distinctive "markets" loses much of its significance when we have to consider that products are differentiated, and that some are more differentiated than others. At the risk of making their claims sound frivolous, they were obsessed with the question of how far is far, and apparently assumed that there was a natural answer that differentiated product models somehow ignored. When Friedman queried whether the monopolistic competition analysis would put bulldozers and hairpins into the same market, he believed he was making a serious critique.

Both Stigler and Freidman came out of an era when the delineation of distinctive "markets" was an essential ingredient of economic analysis. Under more empirical analysis of differentiated producers, however, the concept of the relevant market has become less important, and today economists routinely assess market power without knowing or even caring about market boundaries.

This empirical shift away from traditional market definition has sometimes escaped notice. For example, in *Ohio v. American Express* the Supreme Court held that market power could not be assessed directly in a case involving a vertical practice but required a market definition.[142] The Court's reasoning is not clear, but it concluded that vertical restraints "pose no risk to competition unless the entity imposing them has market power, which cannot be evaluated unless the Court first defines a relevant market."[143] For that conclusion it quoted a statement by Easterbrook that competitive harm can result from vertical arrangements "only if there is market power."[144] Notably, Judge Easterbrook did not say that this required a market definition. The Court was simply adopting as a matter of law a retrograde doctrine–in this case a false negative that threatens to undermine rational antitrust enforcement.[145]

Stigler had raised two additional objections to monopolistic competition. One was that depending on the degree of differentiation allowed, the system would tolerate the idea of several firms being in the same "market" even though they were "heterogeneous from the technological viewpoint."[146] That view migrated into antitrust law just a few years later when the Supreme Court, citing Chamberlin's theory, decided that products as heterogenous as cellophane and tin foil could be in the same relevant market simply because some buyers used them interchangeably as wrapping materials.[147] Both the District Court and the Supreme Court agreed that making one

---

[142] Ohio v. American Express Co., 138 S. Ct. 2274 (2018).

[143] *Id.* at 2285 n.7.

[144] Frank Easterbrook, *Vertical Arrangements and the Rule of Reason*, 53 ANTITRUST L. J. 135, 160 (1984).

[145]*See* discussion *infra*, text at notes 236-242.

[146] Stigler, *supra* note 134, at 15.

[147] United States v. E.I. Du Pont de Nemours & Co., 351 U.S. 377, 393 (1956) ("cellophane") ("[W]e have monopolistic competition in every nonstandardized commodity with each manufacturer having power over the price and production of his own product" (citing Chamberlin, *supra* note 63, Ch. 4)). For the district court's lengthy discussion, see 118 F. Supp. 41, 51-52 (D. Del. 1953). *See also* United States v. Continental Can Co., 378 U.S. 441,

product in a monopolistically competitive market did not make one a monopolist – "this power . . . is not the power that makes an illegal monopoly."[148] Today the question whether technically heterogenous products can be grouped into the same market is empirically addressable and has been the subject of significant antitrust literature and litigation.[149]

Stigler's other objection to monopolistic competition theory was that "often, and perhaps usually, a large or dominant role is played by firms outside the group in determining prices and profits within the group."[150] Two products identified as in the same market could be imperfect substitutes, but one product inside and one product just outside a market could be imperfect substitutes as well. What Stigler did not acknowledge is that the problem of porous boundaries arises no matter what the model of competition. To be sure, partial equilibrium analysis employs a working assumption that individual markets are insulated from activity that occurs outside the market, and vice-versa, but no one really believes that this is true as a matter of fact.[151]

The porosity of boundaries is testable, however, and the implications are relevant to policy making. All markets have porous boundaries, but porosity is a question of degree. For example, suppose that in response to an automobile price increase of 5%, one customer in 1000 substitutes to some other product such as bicycles, walking shoes, or subway tickets.   That market would undoubtedly be considered well defined, notwithstanding that 0.1% of customers cross the boundary line in response to a price increase.

In retrospect, Stigler's and Friedman's resistance to monopolistic competition derived from a notion of markets that depended on physical similarities among products. In order to deal with the problem of monopolistic competition economically, the inter-competitiveness of individual firms (cross-elasticity of substitution) had to be quantified. Physical similarity is one kind of evidence of that, but the ultimate test is the extent to which inter-product demand shifts in response to price change can hold a firm's output close to its cost. A pencil and a fountain pen are not in the same market because they look somewhat alike or perform overlapping functions, but rather because people will substitute from one to the other as their relative prices change.

A market's size is a function of how high above cost a price must be before excessive substitution will result. Since the 1970s antitrust policy makers have answered that question

---

453-55 (1964) (lumping metal cans and glass bottles into a single market for merger analysis; noting extent to which customers switched between them).

[148] *Du Pont*, 351 U.S. at 393 ("[O]ne can theorize that we have monopolistic competition in every nonstandardized commodity with each manufacturer having power over the price and production of his own product. However, this power . . . is not the power that makes an illegal monopoly.").

[149] 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶539 (5th ed. 2021). It has also raised the issue of whether market distinguishing intellectual property rights such as trademarks can form the basis of market definition. P. Sean Morris, *Trademarks as Sources of Market Power: Drugs, Beers and Product Differentiation*, 35 J. L. & COM. 163 (2017).

[150] Stigler, *supra* note 134, at 15.

[151] For example, see Oliver E. Williamson's concession in his well-known paper on antitrust economies that partial equilibrium analysis suffers from this "defect," and as a result "[c]ertain economic effects may . . . go undetected." Importantly, he was speaking of undifferentiated markets. Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18, 23 (1968).

with the "hypothetical monopolist" test.[152]   The test assumes measurable amounts of differentiation, which is the inverse of the cross-elasticity of substitution of supply or demand as between two products.[153]   For example, if the price of bulldozers increases by 5%, which is a common assumption for the size of the price increase, how many customers will switch to hairpins? And would that be enough to make the bulldozer increase unprofitable? We could perform the same test with two brands of toothpaste, although with a different result, and we would have provided answers for both of Friedman's examples.[154] With good data and a fixed assumption about how much of a price increase we want to tolerate, a differentiated market can have identifiable boundaries.[155] So the questions Friedman was asking in the 1950s are readily answerable today, analytically and also empirically, if the relevant information is available. Monopolistic competition has migrated from a phenomenon thought to be untestable to one that is routinely and robustly tested.

To illustrate, if the market power of a bicycle manufacturer such as Schwinn were being investigated, we might hypothesize a price increase of a given magnitude, say 10% above cost, and query how many sales Schwinn would lose. Suppose it lost 100,000 sales but that 60,000 of these went to bicycle seller Giant, while Trek and Fuji received 15,000 each and the remaining sales went elsewhere. If we were evaluating a merger, we might conclude that a merger between Schwinn and Giant should be challenged, but not necessarily one between Schwinn and Trek. After a Schwinn/Giant merger, many of the sales that Schwinn lost from a price increase would be recaptured, making a formerly unprofitable price increase profitable.

In any event, Stigler was putting the cart in front of the horse. Already in 1890 Alfred Marshall had developed partial equilibrium analysis as a tool for carving out groups of similar goods for analysis into a single "market." The idea that the goods inside the grouping were perfect competitors and that they were completely insulated from goods outside the grouping was an important working assumption, but it was no more than that. Marshall himself realized that this was a construct for the purpose of modeling. As he acknowledged, the forces of competition across the entire economy are incomprehensibly broad. As a result,

> it is best to take a few at a time; and to work out a number of partial solutions as
> auxiliaries to our main study. Thus we begin by isolating the primary relations of
> supply, demand and price in regard to a particular commodity. We reduce to

---

[152] *See* Gregory J. Werden, *The History of Antitrust Market Delineation*, 76 MARQ. L. REV. 123, 187 (1992), who traces the origin of the test to PHILLIP E. AREEDA & DONALD F. TURNER, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION 347 (1978). *See also* Kenneth D. Boyer, *Is There a Principle for Defining Industries?*, 50 S. ECON. J. 761 (1984) (defining market as "ideal collusive group").

[153] Michael Spence, *Product Selection, Fixed Costs, and Monopolistic Competition*, 43 REV. ECON. STUD. 217 (1976).

[154] *See* discussion *supra*, text at notes 137-138.

[155] On use of the hypothetical monopolist (or cartel) test to delineate a market's boundaries, see 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶530 (5th ed. 2021). *See also* Malcolm B. Coate & Jeffrey H. Fischer, *A Practical Guide to the Hypothetical Monopolist Test for Market Definition*, 4 J. COMP. L. & ECON. 1031 (2008).

inaction all other forces by the phrase "other things being equal": *we do not suppose that they are inert, but for the time we ignore their activity*. This scientific device is a great deal older than science: it is the method by which, consciously or unconsciously, sensible men have dealt from time immemorial with every difficult problem of ordinary life.[156]

Stigler was attempting to turn an important Chamberlin insight about the micro-economy into a weakness. Indeed, today the theoretical and empirical ability to quantify the degree to which close substitutes compete with each other has become an important tool of antitrust analysis.[157] Further, the question of where the boundary of a "market" is does more harm than good.   For this reason, "direct" measures of market power from residual demand elasticities do not require a market definition.[158]

For Stigler, the theory of monopolistic competition did not permit a conception of a market with a multifirm equilibrium.   As a result, it was no more than a special case of monopoly:

> The general contribution of the theory of monopolistic competition . . . has led to reorientation and refinement of our thinking on monopoly. We are now more careful to pay attention to the logical niceties of definitions of industries and commodities. We are now more careful to apply monopoly theory where it is appropriate. The importance of the trademark and of advertising, and the need for study of product structure and evolution, have become more generally recognized.[159]

Stigler did not appreciate the very real problems about the modern economy that the model of monopolistic competition was much better at addressing. For example, under the theory of perfect competition that Stigler favored, the cross-elasticity of substitution (whether of demand or supply) between two goods in the same market is infinitely high, while that of a good inside the market and another good outside the market is zero.   Historically, Cournot theory made the same assumption; a firm considered the output of firms making the "same" product in estimating its own residual demand, but not the output of firms that made something different.

The theory of monopolistic competition challenged this view by positing an economy in which the cross elasticity of substitution between two goods falls between these extremes and varies from one pairing to another. In the process it modelled an economy much more like the one we actually live in. Goods have closer and more remote substitutes. For example, a Toyota Corolla may be an imperfect substitute for both a Chevrolet Malibu and a Jaguar XE, but the elasticity of substitution is very likely much different.   The obvious questions about such observations are whether 1) they are provably true; and 2) whether there are any testable policy implications. On the second point, we might define a "market" that includes all three vehicles

---

[156] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS, xiv (8th ed. 1920) (emphasis added).

[157] *See* discussion *infra*, text at notes 233-238.

[158] *See* 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶521 (5th ed. 2021).

[159] George J. Stigler, *Monopolistic Competition in Retrospect*, *in* FIVE LECTURES ON ECONOMIC PRINCIPLES 144 (1949).

because all compete to some degree. Or we might define an alternative market for, say, "standard" (as opposed to luxury) automobiles, that excludes the Jaguar. Today we have tools for doing that, but using them still requires a decision about just how much substitution must occur before two goods will be placed into the same market.

When products are differentiated any antitrust market definition is always strictly wrong. To the extent it groups differentiated goods into the same market it tends to understate power by treating as perfectly competitive things that are not so. To the extent it excludes imperfect substitutes it tends to exaggerate power because it treats such goods as if they do not compete at all.

Stigler conceded the descriptive fact of differentiation, using the New York housing market as an example.[160]` The available offerings ranged from "incredible estates to unbelievable slums," randomly distributed. "Every unit is unique in a rigorous technological sense. . . ."[161] He observed that using such observations made it difficult to identify "markets" at all. This indeterminate concept of the market meant for Stigler that monopolistic competition allowed no conception of an equilibrium.

That observation was crucial for Stigler's critique because he believed that the theory of monopolistic competition made it impossible to speak sensibly about "markets" at all.[162] Stigler did not pursue this observation into antitrust, where it might have permitted a finding of "monopoly" on much narrower markets, even single brand markets in some cases.[163]

Stigler then offered an evaluation of monopolistic competition's contribution to economic science, similar to Friedman's positivistic approach to economics a decade later:

> The purpose of the study of economics is to permit us to make predictions about the behavior of economic phenomena under specified conditions. The sole test of the usefulness of an economic theory is the concordance between its predictions and the observable course of events. Often a theory is criticized or rejected

---

[160] George J. Stigler, *Monopolistic Competition in Retrospect*, *in* GEORGE J. STIGLER, FIVE LECTURES ON ECONOMIC PRINCIPLES 131 (1949).

[161] *Id*. at 132.

[162] *Id*. at 144. He added:

> We are now more careful to pay attention to the logical niceties of definitions of industries and commodities. We are now more careful to apply monopoly theory where it is appropriate. The importance of the trademark and of advertising, and the need for study of product structure and evolution, have become more generally recognized. These and other improvements may seem disappointing to the hopeful proposers of a proud new theory, but they should not be. This is the way sciences grow. One of the prominent lessons of the history of human thought is that new ideas do not lead to the abandonment of the previous heritage; the new ideas are swallowed up by the existing corpus, which is thereafter a little different. And sometimes a little better.

[163] *E.g*., Eastman Kodak Co. v. Image Tech. Serv., Inc., 504 U.S. 451, 476, n.22 (1992) (permitting single brand market, noting relevance of monopolistic competition); Epic Games, Inc. v. Apple, Inc., 493 F. Supp. 3d 817, 837 (N.D. Cal. 2020) (speaking of monopolistic competition in addressing claims of a single-brand market). Chamberlin anticipated some of this. *See* Edward H. Chamberlin, *Product Heterogeneity and Public Policy*, 40 AM. ECON. REV. (PAPERS & PROC.) 85 (1950) (anticipating existence of monopolies in single brand markets).

because its assumptions are 'unrealistic'. Granting for a moment that this charge has meaning, it burdens theory with an additional function, that of description. This is a most unreasonable burden to place upon a theory: the role of description is to particularize, while the role of theory is to generalize - to disregard an infinite number of differences and capture the important common element in different phenomena.[164]

This defense of testability as the key to science did not so much anticipate Friedman as reflect both Stigler's and Friedman's experiences in the Mont Pelerin society, where Friedman in particular was very taken with the scientific positivism of fellow Mont Pelerin member Karl Popper.[165]

To Stigler, the theory of monopolistic competition was largely useless to economic science. While it could tell descriptive stories about such phenomena as the diversified New York housing market, it could not offer useful predictions. He ignored monopolistic competition in his otherwise important book on price theory.[166]

Stigler failed to foresee that given adequate data even the highly differentiated New York City housing market could be subjected to empirical competitive analysis. It could predict, for example, that a merger of two similar and adjacent high rise apartment buildings in New York would have a more measurable impact on prices than a merger of one apartment building and one single family mansion a half mile away. In fact, today that kind of merger analysis is the rule rather than the exception.[167] It is based on the simple premise that the amount of product differentiation between two goods is testable and can yield useful predictions about the impact of such substitution on price.[168]

Friedman's well known essay on positive economics also argued that the value of an economic theory is its testability, not its descriptive verisimilitude.[169] Indeed, he is largely credited with importing positivistic scientific methodology into economics.[170] As with Stigler,

---

[164] STIGLER, *supra* note 160, at 23.

[165] *See* ANGUS BURGIN, THE GREAT PERSUASION: REINVENTING FREE MARKETS SINCE THE DEPRESSION 160 (2012) (describing relationship between Friedman and Popper).

[166] GEORGE J. STIGLER, THE THEORY OF PRICE (3d ed. 1966).

[167] *See* 4 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶914 (4th ed. 2018) (describing unilateral post-merger price increases in product differentiated markets).

[168] *E.g.*, Jonathan B. Baker & Timothy F. Bresnahan, *Estimating the Residual Demand Curve Facing a Single Firm*, 6 INT'L J. INDUS. ORG. 283 (1988) (quantifying product differentiation as the inverse of the cross elasticity of demand as between two brands; applying it to the differentiated beer industry).

[169] MILTON FRIEDMAN, *The Methodology of Positive Economics*, *in* MILTON FRIEDMAN, ESSAYS IN POSITIVE ECONOMICS 1, 1-47 (1953). [ed, this can be hard to find; I have a scanned .pdf if you want it.HH]

[170] *See* William J. Frazer, Jr. & Lawrence A. Boland, *An Essay on the Foundations of Friedman's Methodology*, 73 AM. ECON. REV. 129 (1983) (alluding in part to Friedman's use of positivistic scientific methodology into economics). *See also* Lawrence A. Boland, *Current View on Economic Positivism*, *in* COMPANION TO

he was particularly critical of monopolistic competition theory because he believed it provided no mechanism for assessing how far apart in product space two products must be before they should be placed in different markets.[171] He elaborated:

> The deficiencies of the theory are revealed most clearly in its treatment of, or inability to treat, problems involving groups of firms-Marshallian "industries." So long as it is insisted that, differentiation of product is essential - and it is the distinguishing feature of the theory that it does insist on this point - the definition of an industry in terms of firms producing an identical product cannot be used. By that definition each firm is a separate industry. Definition in terms of "close" substitutes or a "substantial" gap in cross-elasticities evades the issue, introduces fuzziness and undefinable terms into the abstract model where they have no place, and serves only to make the theory analytically meaningless….[172]

As a result, he concluded:

> It is therefore incompetent to contribute to the analysis of a host of important problems: the one extreme is too narrow to be of great interest; the other, too broad to permit meaningful generalizations.[173]

Given the empirical revolution that occurred in the 1970s and after, today Stigler's and Friedman's comments seem quaint, dated, and in all events wrong. Limited by the theory and econometric tools of their day, however, the theory of monopolistic competition offered little in the way of testable results. Paul Samuelson's observation in 1967 that monopolistic competition was not yet testable but probably could be was far more realistic as of that time.[174]   He anticipated the very significant developments in testability of monopolistic competition that subsequently occurred.[175]

CONTEMPORARY ECONOMIC THOUGHT 88, 88 (David Greenaway et al ed., 1991) (emphasizing the pervasiveness of economic positivism).

[171] *See*, *e.g,* FRIEDMAN, *supra* note 169, at 39 n.34 (rejecting attempts to classify elasticity pairs as "large" or "small" and define markets on that basis, referring to R. L. Bishop, *Elasticities, Cross-Elasticities, and Market Relationships*, 42 AM. ECON. REV. 779 (1952)).

[172] FRIEDMAN, *Methodology*, *supra* note 172 at 38.

[173] Id. at 39.

[174] Paul A. Samuelson, *The Monopolistic Competition Revolution*, *in* MONOPOLISTIC COMPETITION THEORY, 105, 108 n.5 (Robert E. Kuenne ed., 1967).

[175] *See* discussion *infra*, text at notes 234-238; *e.g,* Avinash K. Dixit & Joseph E. Stieglitz, *Monopolistic Competition and Optimum Product Diversity*, 67 AM. ECON. REV. 297 (1977); *see* Steven Brakman & Ben J. Heijdra, *Introductio*n to THE MONOPOLISTIC REVOLUTION IN RETROSPECT (Steven Brakman & Ben J. Heijdra eds., 2002) (discussing in part the monopolistic competition revolution started by Dixit and Stieglitz); John C. Panzar & James N. Rosse, *Testing for "Monopoly" Equilibrium*, 35 J. INDUS. ECON. 443 (1987) (developing testable models of monopolistic competition).

Markets and Equilibrium Under Imperfect Competition

Both Stigler and Friedman depicted equilibrium as easy and intuitive for perfectly competitive markets, but not for differentiated ones. In addition to being wrong about monopolistic competition, they also seriously understated the difficulties that economists including Marshall had encountered in developing a usable theory of equilibrium even for undifferentiated industries. For Marshall, the fly in the ointment was fixed costs. Under perfect competition, which Marshall assumed, prices will be driven to marginal costs, without enough remaining to cover fixed costs. Further, fixed costs entail that per unit costs that decline as output increases. So why does a single firm that becomes larger than the others not end up taking over the entire market, leading to permanent monopoly? This fixed-cost controversy haunted not only the economics literature but also antitrust policy in its early years, leading to such things as the "ruinous competition" defense to collusion in industries with high fixed costs. The argument was that in such industries as the railroads competition would drive prices below total costs and only collusion or merger would save them. Competition would not work in industries with high fixed costs. This battle raged in economics from the beginning of the twentieth century until the 1930s.[176]

Marshall himself had addressed the problem by developing the essentially biological idea of the "representative" firm, which was similar to but also distinctive from other firms in the market.[177] Marshall used the analogy of the representative tree in a forest. Some trees are younger and still growing. Others are mature and about to die. As a result, the identity of the representative tree changes over time while the forest as a whole always retains its general characteristics. Because of this natural life cycle, no one acquires a permanent monopoly. Individuals move gradually into their strongest positions and then gradually fade out until they die.

While the "representative" firm idea failed as a durable economic concept, Marshall did point the debate in one unalterable direction: the way to get a stable equilibrium at the market level is to uncover relevant differences among firms. Marshall's biological cycling story was

---

[176] The controversy is recounted in HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW, 1836-1937, at 308-22 (1991).

[177] The theory, as well as subsequent refinements by Arthur C. Pigou and Ronald Coase, is explored further in Herbert Hovenkamp, *Coase, Institutionalism, and the Origins of Law and Economics*, 86 IND. L.J. 499, 537-39 (2011).

one, but others resorted to other differentiating attributes, including spatial separation,[178] changing costs,[179] and price discrimination[180] as well as product differentiation.[181]

The theory of monopolistic competition provided a solution that largely ended the debate: equilibrium is possible because individual firms in fact face slightly different demand curves. They are able to survive even with fixed costs because their customer base is not quite the same as the customer base of their rivals. As a result, equilibrium is possible even in the presence of fixed costs and prices higher than marginal cost.[182]

The Meaning and Scope of Entry Barriers

The anti-enforcement version of the error-cost theory depended strongly on one very general assumption that had always guided classical economics: entry by new firms would discipline any existing firm's attempt to charge more than a competitive price. Judge Easterbrook expressed it in his opening declaration that "[m]onopoly is self-destructive. Monopoly prices eventually attract entry."[183] He acknowledged that in some situations entry might be a "long time coming," but that should not obscure the main point–markets discipline monopoly pricing by bringing in new sellers.[184] An important premise of the error cost jurisprudence is that entry barriers are generally low.[185]

Prior to the 1930s, economists did not think systematically about the conditions encouraging or discouraging market entry. Alfred Marshall never mentioned them in the nearly 1000 pages of his *Principles*.[186] He assumed that entry was easy and would occur as long as profits were anticipated. Entry would stop when there was no remaining margin between anticipated prices and anticipated costs, and only for that long. By contrast, monopoly was usually analyzed on the assumption that entry was impossible, or simply not in prospect. When the classical political economists became angry about entry barriers it was almost always about government-created restrictions such as patents or other exclusive rights, corporate charters, or

---

[178] *E.g.*, Harold Hotelling, *Stability in Competition*, 39 ECON. J. 41 (1929) (exploring differential consumer preferences under spatial dispersion); Abba P. Lerner & Hans W. Singer, *Some Notes on Duopoly and Spatial Competition*, 45 J. POL. ECON. 145 (1937) (exploring the effects of special dispersion on competition).

[179] Arthur C. Pigou, *An Analysis of Supply*, 38 ECON. J. 238 (1928) (explaining that firms whose marginal costs are higher than industry supply price will shrink while those whose marginal costs are lower will grow).

[180] JOHN M. CLARK, STUDIES IN THE ECONOMICS OF OVERHEAD COSTS (1923).

[181] CHAMBERLIN, *supra* note 63.

[182] For good discussion of the role of monopolistic competition in settling the fixed cost controversy, see MARK BLAUG, ECONOMIC THEORY IN RETROSPECT 375-79 (5th ed. 1996).

[183] Easterbrook, *supra* note **Error! Bookmark not defined.**, at 2.

[184] Easterbrook, *supra* note **Error! Bookmark not defined.**, at 2.

[185] *See* Bryan & Hovenkamp, *supra* note 52 (addressing concerns in competition and innovation as a result of startup acquisitions).

[186] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS (8th ed. 1920). The only reference to new entry was in his preface, and described industries that "offer[] an open field for new firms which rise to the first rank, and perhaps after a time decay. . . ." *Id*. at xiii.

occupational licensing restrictions.[187] In those cases they usually associated entry restraints with monopoly.[188]

These assumptions largely held true for Joan Robinson and Edward Chamberlin as well. The theory of monopolistic competition assumed easy entry. Joan Robinson's *Economics of Imperfect Competition* explicitly acknowledged that perfect competition required easy entry, but the only entry barriers she ever mentioned were government restrictions.[189] In one prescient footnote she acknowledged that the study of the "conditions influencing the entry of new firms" is "an interesting and largely unexplored field of inquiry."[190]

The idea of economic barriers to market entry other than explicit public or private restrictions appeared in the antitrust case law before it was systematized by economists. As early as its 1911 *American Tobacco* decision, the Supreme Court criticized aggregations of capital that served "as perpetual barriers to the entry of others into the tobacco trade."[191] In a pessimistic and often exaggerated book published in 1936, Columbia University economist Arthur R. Burns frequently lamented the fact that entry into some markets was difficult and costly, in part because prospective entrants had to consider the fact that in response to their own entry prices would fall even further. As a result, they were inclined to stay away.[192]

The more centrist Harvard School economist Joe S. Bain studied the issue systematically in the 1950s and 1960s and remains the most significant theoretician of the subject. He developed an influential and enforcement-neutral definition of entry barriers that is dominant to this day. An entry barrier is some factor that excludes new entrants from a market even as monopoly profits are being earned. More technically, entry barriers measure "the degree to which established firms can elevate their selling prices above minimal average costs while forestalling entry."[193] That definition is enforcement-neutral because it makes no a priori judgment about the quality or necessity of a barrier to entry in a particular case but is dedicated only to determining empirically whether a barrier exists. Bain found commonly given factors

---

[187] *See* Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial Organization*, 68 TEX. L. REV. 105, 149-50 (1989) (discussing frustration of classical economists with government-based market restrictions).

[188] *Id*; Lawrence M. Friedman, *Freedom of Contract and Occupational Licensing 1890-1910: A Legal and Social Study*, 53 CAL. L. REV. 487, 494-502 (1965).

[189] *See, e.g*., JOAN ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION 93, 250, 283-84 (2d ed. 1969).

[190] *Id*. at 92 n.1.

[191] United States v. American Tobacco Co., 221 U.S. 106, 183, 190 (1911). *See also* United States v. U.S. Steel Corp., 251 U.S. 417, 456-57 (1920) (describing how the tobacco trust excluded new entrants by buying firms up and shutting them down); United States v. Eastman Kodak Co., 226 F. 62, 75 (W.D.N.Y. 1915) (same; repeated acquisitions). Under state antitrust law, *see, e.g*., Needles v. Bishop & Babock Co., 14 Ohio Dec. 445, 1904 WL 1209 (Ohio C.P. 1904) (exclusionary agreement covering plumbing supplies).

[192] ARTHUR ROBERT BURNS, THE DECLINE OF COMPETITION: A STUDY OF THE EVOLUTION OF AMERICAN INDUSTRY 141, 409, 470 (1936).

[193] JOE S. BAIN, INDUSTRIAL ORGANIZATION 268 (1968). *See also* JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES (1956) (first introducing this definition of entry barriers).

such as economies of scale and fixed costs to be entry barriers,[194] but he also found barriers in product differentiation and vertical integration.[195] Further, these barriers excluded even equally efficient rivals. The first set of merger guidelines, issued by the Justice Department in 1968, emphasized the point about vertical integration. They concluded that large vertical mergers "will usually raise entry barriers or disadvantage competitors to an extent not accounted for by, and wholly disproportionate to, such economies as may result from the merger."[196]

In his quest to shore up perfect competition models, Stigler built an anti-enforcement bias into his alternative definition of an entry barrier: an entry barrier is "a cost of producing (at some or every rate of output) which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry."[197]

The Stigler definition's anti-enforcement bias is that it tends to reward incumbents if the entry risk attaches to novelty or small size. Because every firm was once new and small, these were costs that it also had to overcome. For example, a firm that already has a well-recognized brand name faces a lower cost of maintaining consumer awareness or growing new business than a new and unknown firm. As a result, the new firm will have to spend resources acquiring name recognition that the established firm does not. Economies of scale operate the same way. A firm that is entering a new market starts out at a low level of output, which will give it higher unit production costs until it gets its output up. During that early period it will operate at a cost disadvantage to an established larger firm. Because all firms had to encounter these costs when they entered, they did not count as entry barriers under Stigler's definition.

One defense offered for Stigler's position is that it attempts to distinguish between desirable and undesirable entry barriers. There is nothing inherently undesirable about name brand recognition or economies of scale. But this loses sight of an important point, which is that antitrust does not condemn entry barriers as such. Rather, they are simply a mechanism for considering whether the durable exercise of monopoly power is possible. The defendant must still have engaged in a collusive or exclusionary practice.[198]

---

[194] Bain's position was basically that economies of scale were an entry barrier, and that plant size in many industries was much greater than needed to attain all available economies. *See* JOE S. BAIN, PRICING, DISTRIBUTION AND EMPLOYMENT 178-79 (1948) (discussing factors that act as barriers to competitive markets).

[195] BAIN, BARRIERS TO NEW COMPETITION, *supra* note 193, at 142-43, 212. On Bain and vertical integration in particular, see Herbert Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880-1960*, 95 IOWA L. REV. 863 (2010). On the perceived relationship between vertical integration and monopolistic competition, see Morris A. Adelman, *Integration and Antitrust Policy*, 63 HARV. L. REV. 27 (1949).

[196] U.S. DEP'T OF JUST., 1968 MERGER GUIDELINES 9-10 (1968), available at http://www.usdoj.gov/atr/hmerger/11247.pdf. [https://perma.cc/CB57-N4JT].

[197] GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 67 (1968). On the relative merits of alternative definitions, see Dennis W. Carlton, *Barriers to Entry*, 1 ISSUES IN COMPETITION L. & POL. 601 (2008).

[198] For this reason, some prominent economists prefer the Bain definition. *See, e.g.*, Richard Schmalensee, *Sunk Costs and Antitrust Barriers to Entry*, 94 AM. ECON. REV., PAPER & PROC. 471, 474 (2004) (concluding that "[t]he Stigler definition has no useful role to play in analysis of the ability of entry to force post-merger price reductions. All this is broadly consistent with the Bain definition. . . .").

For example, suppose the fear in a market is oligopoly pricing among three large firms with significant fixed costs and scale economies. It is hardly useful to point out that economies of scale are not a qualifying barrier to entry, so no need to worry. To the contrary, in this case the economies of scale create the protected space in which the three large firms can coordinate their pricing without worrying about new entry. The price coordination, not the scale economies, is the appropriate enforcement target.

Bain and Stigler both wrote prior to the rise of a significant economic theory of networks and network externalities, but the same argument applies there. One of the most important entry barriers in digital network platforms is a large installed basis.[199] "Direct" network effects imply that the network is more valuable to users as their number increases. "Indirect" network effects imply that the network is more valuable on one side as the number of participants on the other side increases. The Uber ride hailing app is an example that involves both types of externalities. Uber becomes more valuable as the number of drivers increases, but the increase in drivers will also provoke an increase in riders. As a result, a large, well established ride hailing network will have a significant advantage over a new network trying to break into the market.[200]

Under the Bainian definition these network effects would be an entry barrier if the result was that a large well-established network could earn returns above the competitive level while yet deterring a new entrant. By contrast, under the Stigler definition we would have to conclude that entry barriers were lacking because the new network would have to incur the same costs that the incumbent had to incur when it first entered the market.

The early to mid-eighties, when "The Limits of Antitrust" was written, was the high point of entry barrier skepticism. Prominent economists at the time were arguing that entry possibilities could alleviate many of our concerns about monopoly, even in public utility and other natural monopoly markets that were thought to have room for only a single firm. Firms could still be made to compete to be that firm if the state simply set up suitable auctions. For example, if delivery of cable television is a natural monopoly, a bidding competition could be

---

[199] *See, e.g*, Steven C. Salop, *Dominant Digital Platforms: Is Antitrust Up to the Task?*, 130 YALE L.J. FORUM 563 (2021) (examining exclusionary tactics by the dominant platforms); Peter Lee, *Innovation Consolidation*, 54 U.C. DAVIS L. REV. 967 (2020) (arguing that commercializing patented technologies leads to consolidation). *See also* Gregory J. Werden, *Network Effects and Conditions of Entry: Lessons from the* Microsoft *Case*, 69 ANTITRUST L.J. 87 (2001) (assessing how network effects can present a barrier to entry).

[200] The phenomenon has been noted in the antitrust case law. *See* SC Innovations, Inc. v. Uber Tech., Inc., No. 18-cv-07440-JCS, 2020 WL 2097611 (N.D. Cal. May 1, 2020) (speaking of the "ride-hailing market's barriers to entry—in particular, network effects caused by passengers preferring a platform with a large supply of drivers and drivers preferring a platform with a large supply of passengers. . . ."). In general, network effects exclude entry to the extent that significant product differentiation is impossible, as it might well be for ride-hailing services. Where significant differentiation is possible–say, for Facebook or another social networking site– then new entry can occur. *See* Herbert Hovenkamp, *Antitrust and Platform Monopoly*, 130 YALE L.J. 1952, 1996-2000 (2021) (discussing market dynamics that lead to high user bases for tech platforms).

designed to select the carrier, and the winning bid would be a competitive price.[201] In their 1982 book on *Contestable Markets*[202] Baumol, Panzar, and Willig proclaimed contestable market theory to be an "uprising" in industrial organization economics.[203]

The theory of contestable markets made important contributions to our knowledge about industry structure in markets with very high and nonrecoverable fixed costs. However, it was never an uprising, and the economy has never yet experienced widespread abandonment of regulation of natural monopolies in favor of franchise bidding to be the monopolist.[204]

Easterbrook incorporated the Stigler definition of entry barriers into his error cost analysis, defining entry barriers as "costs borne by the new firms that were not borne by the existing ones. . . ."[205] By using this definition he was able to propose a "filter," which is that if a practice has persisted for a significant length of time–he suggested five years–and the firms have not "substantially lost market position," then the challenge should be dismissed.[206] Interestingly, more centrist Harvard School scholars Areeda and Turner suggested the virtually opposite presumption, which also never became law. As part of their limited proposal for "no fault" monopolization, they argued that monopoly that had persisted at least five years should be challenged, with breakup as a remedy, without proof of an exclusionary practice.[207]

In any event, neither presumption is a good idea. Economies of scale and network effects do not work that way. Under constant technology they can be very durable, lasting significantly longer than five years. A large firm, or a firm with a large installed base, could retain a significant advantage over new entrants into the indefinite future, but the Easterbrook rule would effectively insulate it from a rule of reason antitrust offense. Every monopolist or cartel would love to be able to take advantage of a rule that legalized it after five years of operation without

---

[201] *E.g.*, Harold Demsetz, *Why Regulate Utilities?*, 11 J.L. & ECON. 55 (1968) (arguing that traditional understandings of competition have led to incorrect analyses of the asserted relationship between market concentration and competition).

[202] WILLIAM J. BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE (1982). For pushback, see Oliver E. Williamson, *Franchise Bidding for Natural Monopolies – In General and With Respect to CATV*, 7 BELL J. ECON. 73 (1976) and Joseph E. Stiglitz, *Technological Change, Sunk Costs, and Competition* 3 BROOKINGS PAPERS ON ECON. ACTIVITY 883 (1987), https://www.brookings.edu/bpea-articles/technological-change-sunk-costs-and-competition/ [https://perma.cc/2VE2-FK4Z].

[203] *See* William J. Baumol, *Contestable Markets: An Uprising in the Theory of Industry Structure*, 72 AM. ECON. REV. 1 (1982) (asserting that a description such as "uprising" is more indicative of the dynamics of contestable markets).

[204] The theory exhibited some important conceptual flaws. For example, it required an assumption of constant returns to scale, which meant that there could not be monopoly in the first place. *See generally* Martin L. Weitzman, *Contestable Markets: An Uprising in the Theory of Industry Structure: Comment*, 73 AM. ECON. REV. 486 (1983) (discussing application of the concept of of contestability).

[205] Easterbrook, *supra* note **Error! Bookmark not defined.**, at 33.

[206] *Id*.

[207] 3 PHILLIP AREEDA & DONALD F. TURNER, ANTITRUST LAW ¶623c (1978). I have kept the original Areeda-Turner Proposal intact for purposes of reference, but with my own objections. 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶638d (5th ed. 2021).

new entry. By contrast, the Areeda-Turner proposal would presume that long resistance to entry signals competitive harm. But it could as easily show efficient firm behavior in a market with substantial entry impediments. The better rule for entry barriers is that they be enforcement neutral. That is, they make durable monopoly possible but exclusionary practices must still be proven.

Efficiencies and the Welfare-Tradeoff Model

The welfare-tradeoff model of antitrust analysis, championed by Oliver Williamson and later popularized by Robert Bork, purported to evaluate a merger or other antitrust practice by comparing its welfare losses against its efficiency benefits, or cost savings. This model dominated during the 1970s and early 1980s when the focus of antitrust policy was less on achieving high output and more on producing profits.

In a well-known paper on efficiency-creating mergers Williamson analyzed the problem using the figure below.[208] It illustrates a merger that produces a deadweight loss of A_1 and cost savings of A_2. That deadweight loss estimate, it should be noted, represents the minimum estimate that has been used to estimate the social cost of monopoly.[209] In Williamson's model, if the cost savings rectangle (reduced cost per unit times output) is larger than the deadweight loss triangle the merger is efficient. Williamson observed that this was a partial equilibrium model,[210] and he acknowledged that it was isolating one sector out of the economy.[211] However, the particular partial equilibrium model that he was illustrating was that of a monopoly–more precisely, of a merger that carried a market from competition to monopoly.

---

[208] Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968). *See* BORK, *supra* note 56, at 21, 107 (showing a figure resembling Williamson's).

[209] *See* discussion *supra*, text at notes 43-44.

[210] Williamson, *supra* note 206, at 21.

[211] Williamson, *supra* note 206, at 21.
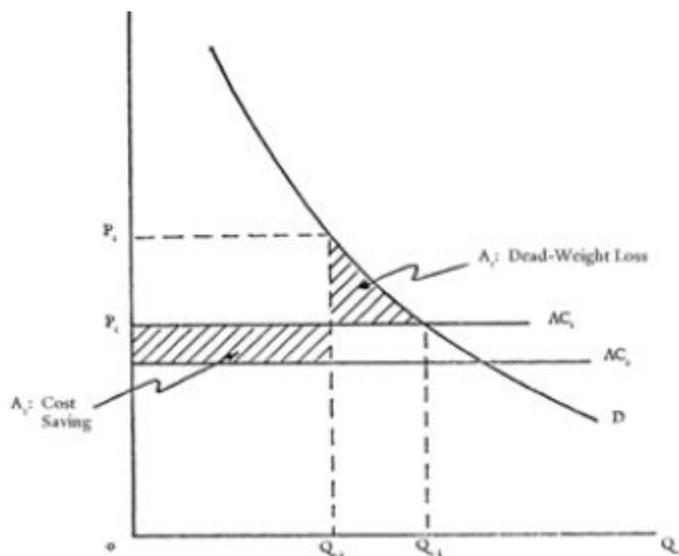
The distinctive feature of a monopoly is that both the cost savings and the welfare loss are spread across the same market. In the case of monopoly, that means they are also spread across a single firm. The same thing is true of unilateral effects mergers, where only the merging parties experience the price increase.[212] However, these merger effects were not yet known at the time Williamson was writing and he did not address them. The figure assumes that both the deadweight losses and the cost savings reflect the price effects and efficiency effects of a single firm.

While a merger to monopoly would be unlawful, the vast majority of mergers challenged on collusion-facilitating grounds fall far short of that. Further, when collusion or other coordinated behavior occurs, it typically permits all firms in the market to raise their price. That clearly applies to cartel members, but even nonmembers will be able to ride up on the cartel price.[213] In the orthodox example, a merger that reduces a market from, say, five to four firms, will enable all four to increase their prices. The efficiency gains from a merger, by contrast, are productive efficiency gains that typically accrue only to the post-merger firm itself.

---

[212] *See* DEP'T OF JUST., *supra* note 29, at § 6 (explaining that "[a] merger between firms selling differentiated products may diminish competition by enabling the merged firm to profit by unilaterally raising the price of one or both products above the pre-merger level").

[213] This gives rise to the theory of "umbrella" pricing, which considers whether firms who purchase from competitors of a cartel should have standing to sue the cartel when the competitors are able to ride their own prices up on the cartel price increase. *See* PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 347 (5th ed. 2021).

Consider what happens in the case of a merger that creates a post-merger firm with a market share in the range of 30%-40%. Under the current Merger Guidelines,[214] many collusion facilitating mergers in that range could be challenged. For example, suppose a pre-merger market has firms of A=40%, B=30%, C=15%, and D=15%. A merger of C and D would yield a market with a post-merger HHI of 3400,[215] and an HHI increase of 450, very far above the threshold for presumptive challenge.[216] The higher prices will occur in the entire market–that is, both the merging firm and its rivals will reduce output and increase their prices. However, the increased efficiencies would ordinarily be specific to the firm, whose output accounts for only 30% of the market. In this case, the welfare losses that result could be more than three times larger than Williamson's estimate. Coupled with the fact that the welfare-tradeoff model approves mergers even when output is lower (from Q_1 to Q_2 in the figure) and prices are higher as a result, the model injected a strong anti-enforcement bias into merger law that served to protect output reducing mergers. Further, neither Williamson nor Bork explained how practices that reduced output so significantly could yet be efficient.[217]

The government's 1984 Merger Guidelines contained a generous accommodation of efficiencies without limitation. They required in a brief statement only that efficiencies be established by clear and convincing evidence.[218] Subsequent editions of the Guidelines gradually moved back to a more demanding position. The 1992 Guidelines added to this that the government would not challenge a merger "reasonably necessary to achieve significant net efficiencies."[219] In 1997, however, the Agencies issued a significant revision of the 1992 Guidelines, largely limited to a discussion of efficiencies. By that time the tide had shifted. Without much fanfare the 1997 Revision rejected the welfare tradeoff model in favor of one that is more closely aligned with our conception of consumer welfare today. An efficiency would be recognized only if it was "sufficient to reverse the merger's potential to harm consumers in the relevant market, e.g., by preventing price increases in that market."[220] This formulation was restated in the 2010 Merger Guidelines.[221]

---

[214] *See* DEP'T OF JUST., *supra* note 29, at § 5.3 (discussing market concentration evaluation).

[215] The HHI, or Herfindahl-Hirschman Index, is the sum of the squares of the market shares of every firm in a market. For example, a market with four equal size firms would have an HHI of 25^2 X 4 (625 X 4) = 2500. On the HHI and its properties, see HOVENKAMP, *supra* note 33, at § 12.4a.

[216] *See* DEP'T OF JUST.*, supra* note 29, at § 5.3 (noting that this merger would fall within the range of highly concentrated markets, where an HHI increase in the range of 100 to 200 points would presumptively be challenged).

[217] *See* Herbert Hovenkamp, *Antitrust Harm and Causation*, __ WASH. U.L. REV. (forthcoming 2021), currently available at file:///C:/Users/herbe/Downloads/SSRN-id3771399%20(18).pdf.

[218] *See* DEP'T OF JUST., 1984 MERGER GUIDELINES § 3.5 (1984), https://www.justice.gov/archives/atr/1984-merger-guidelines [https://perma.cc/TXJ4-PWCF] (explaining how the Department of Justice examines efficiencies).

[219] DEP'T OF JUST., 1992 MERGER GUIDELINES § 4 (1992), https://www.justice.gov/archives/atr/1992-merger-guidelines [https://perma.cc/L24D-BG4S].

[220] DEP'T OF JUST., 1997 MERGER GUIDELINES § 4 (1997), https://www.justice.gov/archives/atr/1997-merger-guidelines [https://perma.cc/YAY3-QL6Y].

[221] DEP'T OF JUST., HORIZONTAL MERGER GUIDELINES (08/19/2010) § 10 (2010), https://www.justice.gov/atr/horizontal-merger-guidelines-08192010 [https://perma.cc/S8EA-QQJV].

That change rejected an anti-enforcement bias that permitted a merger (or other practice) to be approved as welfare positive even if it reduced output and raised prices.[222] Rejecting that principle was an important step in getting antitrust to adopt a true policy of favoring higher output and lower prices.

THE EMPIRICAL REVOLUTION IN ECONOMICS

Stigler's and Friedman's complaint that monopolistic competition is not a part of economic science because it does not produce testable predictions is outdated and seems quaint today. Given the lack of theory and significant shortcomings in empirical methodology, however, it was not so in the 1940s and 1950s. Thanks to Friedman's overpowering stature, economic historian Jan Keppler observes, monopolistic competition was simply not considered to be a very promising subject of research.[223] A particular deterrent was Friedman's conclusion that monopolistic theory provided no equilibrium beyond that of a single firm.[224]

A vast amount of subsequent work largely corrected these views, all the while revealing severe shortcomings in models of perfect competition. In 1987, a little after Easterbrook's error cost paper was published, Timothy Bresnahan and Richard Schmalensee hosted an important symposium on "The Empirical Renaissance in Industrial Economics."[225] They used the term "renaissance" to refer to important empirical work done mainly in the 1970s and 1980s, although some of it stretched earlier. They briefly examined older work defending Stigler's attempts to preserve the Marshall model, while noting that historically there was "little explicit modeling of imperfect competition."[226] They also noted that empirical studies of industries had begun with a "case study" approach that focused on specific industries of firms,[227] and then moved to "cross-section" econometric studies which compared different variables with each other and produced propositions that could be tested empirically, soon after through the use of regression analysis.[228]

---

[222] Hovenkamp, *supra* note 215.

[223] Jan Horst Keppler, *The Genesis of 'Positive Economics' and the Rejection of Monopolistic Competition Theory: A Methodological Debate*, 22 CAMBRIDGE J. ECON. 261, 264 (1998).

[224] This presumed failure, Keppler observes, made monopolistic competition theory particularly useless for macroeconomics, where the search for a general equilibrium theory was one of economics' most exciting fields. *Id.* at 273.

[225] Timothy F. Bresnahan & Richard Schmalensee, *The Empirical Renaissance in Industrial Economics: An Overview*, 35 J. INDUS. ECON. 371, 371 (1987).

[226] *Id.* at 372.

[227] *E.g.*, D.H. WALLACE, MARKET CONTROL IN THE ALUMINUM INDUSTRY (1937) (presenting a case study of the aluminum industry). The "case study" approach dominated industrial organization from the 1910s through the 1930s, particularly at Harvard, although it remains a staple of many business schools *today*. *See* Hovenkamp, *supra* note 185, at 110-14 (discussing the rising popularity of case studies).

[228] *E.g.,* Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, in HANDBOOK OF INDUSTRIAL ORGANIZATION (Richard Schmalensee & Robert D. Willig eds., 1988) (listing one such study); Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, in HANDBOOK OF INDUSTRIAL ORGANIZATION (Richard Schmalensee & Robert D. Willig eds., 1988) (same); Leonard Weiss, *Quantitative Studies of Industrial*

In the 1970s came much more formal technical analysis of imperfectly competitive markets.[229] As Bresnahan and Schmalensee noted, a characteristic of this work is that it stressed "systematic statistical analysis rather than anecdotes"[230]–i.e., it met the Stigler/Friedman requirements of testability. Part of this new movement was innovations in data set construction, facilitated by great improvements in computer technology and which enabled economists to break free from the use of census data that had never done a good job of dividing the territory in competitively meaningful ways.[231] "[I]n a departure from the earlier traditions," they observed, "the tools of imperfect competition theory are now routinely used" to create and test economic models.[232] As noted previously, the use of the phrase "imperfect competition" at this time was not a particular reference to Joan Robinson's book with that title. Rather, it referred to models that blended oligopoly theory, product differentiation, and concerns about entry barriers.

The various studies that Bresnahan and Schmalensee included[233] exhibited these developments, and empirical work in imperfectly competitive markets accelerated from that point. A broad range of studies began to pursue questions about the exercise of market power, whether unilateral or collaborative, in imperfectly competitive markets.[234] Many of these produced robust empirical results that were flatly inconsistent with Stiglerian models of perfect competition. In the process, they undermined the Marshall/Stigler idea of industrial structure that the landscape consisted of discrete product markets with hard lines between them.

Instead, the range of differential elasticities among competing firms that Stigler and Friedman had ridiculed became a subject of intense study. The new work rejected on empirical grounds the idea of a "market" as a grouping of products whose cross elasticity of demand or

---

Organization, *in* FRONTIERS OF QUANTITATIVE ECONOMICS (M.D. Intriligator ed., 1981) (same). For later work, see JEFFREY M. WOOLDRIDGE, ECONOMETRIC ANALYSIS OF CROSS SECTION AND PANEL DATA (2d ed. 2010).

[229] *E.g.,* Richard Schmalensee, *The New Industrial Organization and the Economic Analysis of Modern Markets*, *in* ADVANCES IN ECONOMIC THEORY (W. Hildenbrand ed., 1982) (citing an example of this technical analysis); Michael Spence, *Product Selection, Fixed Costs, and Monopolistic Competition*, 43 REV. ECON. STUD. 217 (1976) (same).

[230] Bresnahan & Schmalensee, *supra* note 223, at 373.

[231] Bresnahan & Schmalensee, *supra* note 223, at 373.

[232] Bresnahan & Schmalensee, *supra* note 223, at 374.

[233] Among the papers were Timothy F. Bresnahan, *Competition and Collusion in the American Automobile Industry: The 1955 Price War*, 35 J. INDUS. ECON. 457 (1987); Ian Domowitz, R. Glenn Hubbard & Bruce C. Petersen, *Oligopoly Supergames: Some Empirical Evidence on Prices and Margins*, 35 J. INDUS. ECON. 387 (1987); Margaret E. Elade, *Interfirm Rivalry in a Repeated Game: An Empirical Test of Tacit Collusion*, 35 J. INDUS. ECON. 499 (1987); John C. Panzar & James N. Rosse, *Testing for "Monopoly" Equilibrium*, 35 J. INDUS. ECON. 443 (1987); Richard Schmalensee, *Collusion Versus Differential Efficiency: Testing Alternative Hypotheses*, 35 J. INDUS. ECON. 399 (1987).

[234] *See also* John Sutton, *Is Imperfect Competition Empirically Empty*, *in* THE ECONOMICS OF IMPERFECT COMPETITION AND EMPLOYMENT: JOAN ROBINSON AND BEYOND 225 (George R. Fiewel ed., 1989) (noting the extent to which imperfect competition models produced testable results that were anomalous to perfect competition).

supply is infinitely high, and with a high wall between them and outside products. Rather, the empirical landscape resembled Chamberlin's idea more closely: different firms compete with other firms by varying but empirically measurable degrees. The boundary that determines a market became more arbitrary and was largely a matter of studying how individual firms and their customers respond to a price change of a given magnitude. The larger the hypothesized price change, the larger the market.

Importantly, these studies assumed relevance and importance for the price movements of *individual firms* rather than of their markets as a whole. In perfectly competitive markets, individual firms do not have distinctive price movements. In an important paper in 1988, Baker and Bresnahan produced a testable empirical methodology for estimating the market power of a single firm in a product differentiated market.[235] As they observed, measuring the cross-elasticity of demand between individual product pairs in differentiated product markets had proven very difficult, but it was possible to measure a firm's own price responses to changes in cost or demand. That premise was itself inconsistent with perfect competition models. They examined a three-firm market for domestic beers–Pabst, Coors, and Miller-and found that Coors possessed significantly more market power than Pabst, which behaved more like a perfectly competitive firm would behave.[236]

Methodologies for measuring the market power of firms in differentiated markets have become normalized and simplified, and they have become a staple of analysis in merger investigations. The theory of "unilateral effects" in merger assessment, which now accounts for at least half of the cases,[237] is empirically driven,[238] flatly inconsistent with perfect competition, and in some but not all ways is much more consistent with monopolistic competition.[239]

---

[235] Jonathan B. Baker & Timothy F. Bresnahan, *Estimating the Residual Demand Curve Facing a Single Firm*, 6 INT'L J. INDUS. ORG. 283 (1988).

[236] On the extent to which the 2010 Horizontal Merger Guidelines take these developments into account, see Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST L.J. 49 (2010).

[237] *See* Darren S. Tucker, *A Survey of Evidence Leading to Second Requests at the FTC*, 78 ANTITRUST L.J. 591, 598 (2013) (noting predominance of unilateral effects concerns in second requests).

[238] *See* Steven Barry & Ariel Pakes, *Some Applications and Limitations of Recent Advances in Empirical Industrial Organization: Merger Analysis*, 83 AM. ECON. REV. 247 (1993) (discussing use of empirical data). *See also* Nathan H. Miller et al., *Upward Pricing Pressure as a Predictor of Merger Price Effects*, 52 INT'L J. INDUS. ORG. 216 (2017) (finding these methodologies to be empirically robust); *accord* Sonia Jaffe & E. Glen Weyl, *The First Order Approach to Merger Analysis*, 5 AM. ECON. J.: MICROECONOMICS 188 (2013) (developing the methodology and citing earlier literature).

[239] Carl Shapiro, *Mergers with Differentiated Products*, 10 ANTITRUST 23 (1996). *See also* Gregory J. Werden & Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, *in* HANDBOOK OF ANTITRUST ECONOMICS 43 (Paolo Buccirossi ed., 2008) (identifying the competitive effects of mergers in different types of industries); Oliver Budzinski & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey,* 6 J. COMPETITION L. & ECON. 277 (2010) (explaining the use of merger simulation to determine the effects of a possible merger); Jonathan B. Baker & David Reitman, *Research Topics in Unilateral Effects Analysis, in* RESEARCH HANDBOOK ON THE ECONOMICS OF

One important difference is that Chamberlin's monopolistic competition model assumed free entry. By contrast, unilateral effects merger theory reaches situations where products are differentiated but entry barriers are high or there are barriers preventing firms from repositioning their products.[240] Under the theory, while many firms might compete with one another, different pairings of firms compete more closely than others.[241] Further, thanks in substantial part to widespread digitization of transactions, competitive responses have become far easier to measure.[242]

The new methods of assessing power and effects do not require a market definition in the traditional sense; they measure firms' price responses directly, not by an inference drawn from market share.[243] For example, the technical concept of "upward pricing pressure" (UPP) refers to an empirical device that estimates a firm's profit-maximizing price before and after a merger by balancing out reduced competition against any efficiencies that the merger might produce.[244] Here, the Supreme Court's position in the *American Express* case that market power for assessing vertical practices requires a market definition is an unsettling step backwards, particularly given the fact that the issue was never briefed and neither alternative methodologies nor results were explored.[245] What its effects will be remains to unclear at this writing.

Successive editions of the United States government's Horizontal Merger Guidelines have reflected these developments, although generally responding only after a new technique has become well established and normalized within the discipline. The earliest Guidelines, particularly those issued in 1968 and 1984, were dominated by concerns about market definition

---

ANTITRUST (Einer Elhauge ed., 2012)(discussing the different tools available to study merger effects); PETER DAVIS & ELIANA GARCES, QUANTITATIVE TECHNIQUES FOR COMPETITION AND ANTITRUST ANALYSIS (2010).

[240] Carl Shapiro, *Mergers with Differentiated Products*, 10 ANTITRUST 23, 23-24 (1996).

[241] *See* Tommaso M. Valletti & Hans Zenger, *Mergers with Differentiated Products: Where do We Stand?,* 58 REV. INDUS. ORG. 179, 180 (2021) (stating "it is well-known that market shares can be off the mark in trying to account for consumers' heterogeneous switching patterns between differentiated products. When robust data are available, it is therefore more sensible to assess competitive overlaps directly. . . .").

[242] *See* Jonathan B. Baker, *Why Did the Antitrust Agencies Embrace Unilateral Effects*, 12 GEO. MASON L. REV. 31 (2004) (discussing the rise of unilateral effects). *See also* Nathan H. Miller & Gloria Sheu, *Quantitative Methods for Evaluating the Unilateral Effects of Mergers*, 58 REV. INDUS. ORG. 143 (2021) (identifying the different formulas used to calculate unilateral effects); Gregory J. Werden, *Unilateral Competitive Effects of Horizontal Mergers I: Basic Concepts and Models*, *in* 2 ISSUES IN COMPETITION LAW AND POLICY 1319 (ABA Section of Antitrust Law 2008) (highlighting unilateral effects specific to horizontal mergers).

[243] *See, e.g*., Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. THEORETICAL ECON. 1 (2010), https://faculty.haas.berkeley.edu/shapiro/alternative.pdf [https://perma.cc/U84Y-KL8M] (showing an example of directly measuring a firm's price response).

[244] Developed in Carl Shapiro*, Mergers with Differentiated Products,* 10 ANTITRUST 23 (1996). *See also* Valletti, *supra* note 241; Farrell & Shapiro, *supra* note 246; Miller, et al., *supra* note 245.

[245] Ohio v. Am. Express Co., 138 S. Ct. 2274, 2285 & n.7 (2018). For a critique, see Herbert Hovenkamp, *The Looming Crisis in Antitrust Economics*, 101 BOSTON U. L. REV. 589, 528-31 (2021).

and market shares.[246]   The 1984 Guidelines acknowledged the relevance of product differentiation, but mainly to conclude that it tended to mitigate merger concerns because cartels were more difficult to manage in differentiated markets.[247] This reflected Stigler's position that the only real concern falling short of monopoly is collusion.[248] The 1992 Guidelines took a much different approach, seeing mergers among firms producing differentiated products as a distinctive subset that threatened "unilateral" price increases in some cases.[249] Finally, in the 2010 Horizontal Merger Guidelines, product differentiation and unilateral effects mergers emerged as a much more central feature of merger enforcement policy. Measurement requires the agencies to assess differential rates of substitution among product pairs–a concept that is meaningless in perfectly competitive markets.[250] At this writing the Biden administration has called for a new revision of the merger guidelines that will very likely result in increased enforcement.[251]

MARKET POWER IN THE ECONOMY

---

[246] Copies of all the Merger Guidelines back to 1968 can be found in a digital archive maintained by the Justice Department. *See Department of Justice Archive*, DEP'T OF JUST., https://www.justice.gov/archives/doj-archive [https://perma.cc/PL5B-CGBC] (last visited Nov. 19, 2021) (listing the archived topics).

[247] *See* DEP'T OF JUST., 1984 MERGER GUIDELINES § 3.41 (1984), https://www.justice.gov/archives/atr/1984-merger-guidelines [https://perma.cc/TXJ4-PWCF] (considering how the nature of the product and terms of sale can affect market power from a merger).

[248] *See* discussion *supra*, text at notes 115-118.

[249] DEP'T OF JUST., 1992 MERGER GUIDELINES § 2.21 (1992), https://www.justice.gov/archives/atr/1992-merger-guidelines [https://perma.cc/L24D-BG4S]:

> A merger between firms in a market for differentiated products may diminish competition by enabling the merged firm to profit by unilaterally raising the price of one or both products above the premerger level. Some of the sales loss due to the price rise merely will be diverted to the product of the merger partner and, depending on relative margins, capturing such sales loss through merger may make the price increase profitable even though it would not have been profitable premerger. Substantial unilateral price elevation in a market for differentiated products requires that there be a significant share of sales in the market accounted for by consumers who regard the products of the merging firms as their first and second choices, and that repositioning of the non-parties' product lines to replace the localized competition lost through the merger be unlikely. The price rise will be greater the closer substitutes are the products of the merging firms, i.e., the more the buyers of one product consider the other product to be their next choice.

[250] DEP'T OF JUST., HORIZONTAL MERGER GUIDELINES (08/19/2010) § 6 (2010), https://www.justice.gov/atr/horizontal-merger-guidelines-08192010 [https://perma.cc/S8EA-QQJV]. *See* Shapiro, *supra* note 234 (explaining how the 2010 Horizontal Merger Guidelines deals with this).

[251] Exec. Order No. 14,036, 86 Fed. Reg. 36,987 (July 9, 2021). *See* Herbert Hovenkamp, *President Biden's Executive Order on Promoting Competition: An Antitrust Analysis,* __ Ariz. L. Rev. (2022), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3887776 [https://perma.cc/2EVL-J9QC] (call for the Agencies to revise the Merger Guidelines).

Progress in empirical techniques similar to those used in microeconomics has also resulted in greatly increased ability to measure market power across the economy, as well as changes in market power over time. Those developments also speak to the invalidity of the anti-enforcement error cost model. They are inconsistent with the idea that markets move naturally to positions of greater competition.

Debates about the amount of monopoly in the economy and the extent to which individual firms have market power have been going on for decades. Methodologies for measurement that initially were crude and flawed have improved very considerably and will continue to do so. The important questions include: (1) Are industries generally becoming more concentrated–that is, do they have fewer firms per market? (2) If so, is there a positive link between market concentration and monopoly markups? (3) To what extent can monopoly markups be measured directly, without reference to market concentration or accordingly, market definition? And (4) to what extent are larger markups a sign of a noncompetitive economy, or do they have alternative explanations, such as higher rates of socially beneficial innovation?

Addressing these questions is less useful for deciding individual antitrust cases, but they do provide important information for evaluating the state and appropriate direction of competition policy generally. They also speak to such issues as formation of presumptions and burdens of proof. One thing the emergent answers do indicate is that any error cost bias against enforcement is unwarranted. Even if the evidence that the economy is becoming less competitive is inconclusive, there is certainly no evidence that markets tend to work themselves toward greater competition in any time frame that we have been able to measure. At most, therefore, there should be no anti-enforcement bias. Indeed, to the extent that the evidence does indicate that the economy is becoming less competitive over time, an error cost presumption that favors greater enforcement is called for.

Traditionally, most of these studies linked market power to concentration, or the number of firms in a market. Surveys dating back to the mid-twentieth century concluded that markets were in fact becoming more concentrated and that the result was less effective competition, higher markups, and general oligopoly stagnation.[252] As noted previously, the 1950 amendments to the merger statute was based on these views, which were already prevalent at that time.[253] They also drove important merger decisions such as *Philadelphia Bank*, which made increases in concentration a prime determinant of merger legality.[254] That presumption, although with some

---

[252] Summarized in Richard Schmalensee, *Inter-Industry Studies of Structure and Performance, in* 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 951 (Richard Schmalensee & Robert D. Willig eds., 1989); *see also* Leonard W. Weiss, *The Concentration-Profits Relationship and Antitrust, in* INDUSTRIAL CONCENTRATION: THE NEW LEARNING 184, 184-233 (Harvey J. Goldschmid et al. eds., 1974).

[253] *See* discussion *supra*, text at notes **Error! Bookmark not defined.**.

[254] United States v. Phila. Nat'l Bank, 374 U.S. 321 (1963). *See* J. Robert Robinson, *Philadelphia National Bank at 50*, 80 Antitrust L.J. 189 (2015) (noting the effects of the previously mentioned Supreme Court case). For a convincing argument that the increase in concentration, rather than the overall market concentration, is the better

modifications, continues to guide horizontal merger analysis today when the theory for challenging the merger is the likelihood of facilitating coordinated interaction among the firms in a market.[255]

One thing many of those studies shared was that they were based on industry classifications from what is now the North American Industry Classification System (NAICS), administered in the United States by the U.S. Census Bureau.[256] The classification systems, which provide various levels of detail, groups industries together by product similarity. Today, most but not all studies of market concentration based on these data conclude that American markets are becoming less competitive.[257] One good analysis of the studies over time finds small changes in concentration during the period from 1963 to 1982, but significant increases after 1982 when the Merger Guidelines were revised along more neoliberal lines.[258] Another study finds that increases in concentration have levelled off since 2002, but it does not examine the period prior to that, thus missing the period of greatest increase.[259]

These studies are not well designed for measuring the amount of monopoly in the economy. An important problem is the lack of correlation between relevant markets and the NAICS classifications, even at the most detailed (six-digit) level. Indeed, two authors with considerable experience in merger enforcement concluded in 2018 that the NAICS classifications could be as much as 100 times larger than the definition of a relevant market for antitrust purposes.[260] The NAICS data are national, while many of the markets in which concentration is to be measured are much smaller–regional or even urban.[261] Carl Shapiro concludes that the Census data do not permit measurement of concentration in antitrust markets and may not be informative at all for measuring changes in concentration over time.[262] In

---

measure, see Volker Nocke & Michael Whinston, *Concentration Screens for Horizontal Mergers* (Nat'l Bureau of Econ. Research, Working Paper No. 27,533, 2020), https://www.nber.org/papers/w27533 [https://perma.cc/SW37-DLJY].

[255] For a qualified defense of this presumption, see Herbert Hovenkamp & Carl Shapiro, *Horizontal Mergers, Market Structure, and Burdens of Proof*, 127 Yale L.J. 1996 (2018).

[256] *North American Industry Classification System*, U.S. Census Bureau, https://www.census.gov/naics/ [https://perma.cc/2HFK-EFPQ] (last visited Nov. 15, 2021). The system replaced the older Standard Industrial Classification (SIC) System. *See What Is the Difference Between NAICS Codes and SIC Codes?*, NAICS Ass'n (Mar. 20, 2017), https://www.naics.com/what-is-the-difference-between-naics-codes-and-sic-codes/ [https://perma.cc/22ET-NEBV] (explaining the differences between the new and old systems).

[257] For a balanced summary, see *Market Concentration – Note by the United States*, OECD (June 7, 2018), https://one.oecd.org/document/DAF/COMP/WD(2018)59/en/pdf [https://perma.cc/6B3D-BUEW].

[258] Sam Peltzman, *Industrial Concentration Under the Rule of Reason*, 57 J.L. & Econ. S3, S101 (2014).

[259] Robert D. Atkinson & Filipe Lage de Sousa, *No, Monopoly Has Not Grown,* Info. Tech. & Innovation Found. (June 7, 2021), https://itif.org/publications/2021/06/07/no-monopoly-has-not-grown [https://perma.cc/S5N7-C9YP].

[260] Gregory J. Werden & Luke M. Froeb, *Don't Panic: A Guide to Claims of Increasing Concentration*, 33 Antitrust 74 (2018).

[261] Carl Shapiro, *Antitrust in a Time of Populism,* 61 Int'l J. Indus. Org. 714, 726 (2018).

[262] *Id.* at 727-28.

addition, concentration measures provide particularly poor estimates of market power when products are differentiated.[263]

Much more promising are more recently developed approaches that measure market power more directly and at the individual firm level as a function of price/cost margins.[264] These do not depend on definition of a relevant market and thus do not reflect any measure of concentration. Direct measurement of monopoly power has produced evidence of disturbing macro- trends.[265] Some of the commentary on this issue is heavily ideological and superficial, but even if we confine ourselves to responsible, technical measurement of market power, the results are about the same. Scholars disagree about the amount[266] but not the direction. Overall, margins have risen,[267] corporate profits have risen as a share of GDP, and labor participation has declined.[268] While some of the increase in margins is a result of innovation, the overall effect

---

[263] *See* Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, *in* 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1011 (Richard Schmalensee & Robert Willig eds., 1989) (explaining effects of product differentiation).

[264] On the methodologies, see Jan De Loecker & Frederic Michel Patrick Warzynski, *Markups and Firm-Level Export Status*, 102 AM. ECON. REV. 2437 (2012).

[265] Documented in Shapiro, *supra* note 259. *See also* Kate Bahn et al., *Reviving Antitrust: Why Our Economy Needs a Progressive Competition Policy*, CTR. FOR AM. PROGRESS (June 29, 2016), https://www.americanprogress.org/issues/economy/reports/2016/06/29/140613/reviving-antitrust/ [https://perma.cc/HM24-NN8W] (highlighting trends); Jonathan Baker, *Market Power in the U.S. Economy Today,* WASH. CTR. FOR EQUITABLE GROWTH (Mar. 20, 2017), https://equitablegrowth.org/market-power-in-the-u-s-economy-today/ [https://perma.cc/Q2PH-L2QR] (same).

[266] For example, Robert E. Hall finds more modest increases in power. *See* Robert E. Hall, *Using Empirical Marginal Cost to Measure Market Power in the U.S. Economy* (Nat'l Bureau of Econ. Research, Working Paper No. 25,251, 2018), https://www.nber.org/papers/w25251 [https://perma.cc/AER3-L3XS] (discussing his findings). *See id.* at 18 (finding "substantial growth in market power" over the period from 1988 to 2015, although not as great as some other studies).

[267] Hall, *supra* note 264 finds a weighted average Lerner Index increase from .11 to .28 during that period, and his numbers are among the more conservative. *See also* Jan de Locker, Jan Eeckhout & Gabriel Unger, *The Rise of Market Power and the Macroeconomic Implications*, 135 Q.J. ECON. 561, 575 (2020) (finding significant markups since the early 1980s).

[268] Shapiro, *supra* note 259, at 737. *See also* Carl Shapiro, *Antitrust: What Went Wrong and How to Fix It*, 35 ANTITRUST 33 (2021) (finding that "the share of the economic pie going to labor has dropped while the share going to the owners of large businesses has grown, and price/cost margins have generally risen in the United States in recent decades"); Jan De Loecker, Jan Eeckhout & Simon Mongey, *Quantifying Market Power and Business Dynamism in the Macroeconomy* (Ctr. for Econ. Pol'y Research. Discussion Paper No. DP16097, 2021), https://repec.cepr.org/repec/cpr/ceprdp/DP16097.pdf [https://perma.cc/B76U-9BLZ] (similarly finding that "[b]oth product and labor market dynamism, as measured by net-entry rates and labor reallocation, has decreased, as has the labor share and labor force participation"); Simcha Barkai, *Declining Labor and Capital Shares*, 75 J. FIN. 2421 (2020) (finding a decrease in the labor share of gross value added accompanied by a large increase in the share of pure profits); David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms* (Nat'l Bureau of Econ. Research, Working Paper No. 23,396, 2017), https://www.nber.org/papers/w23396 [https://perma.cc/4RR6-VTPD] (citing to another work with the same finding).

appears to be strongly negative.[269] In any event, the idea that a significant portion of the increase in margins simply reflects increased innovation is not reflected in annual growth in adjusted GDP.[270] The same thing is true of monopsony power in the labor market, which has been increasing during the same period, resulting in lower wages and reduced labor output.[271]

One qualification on these studies is that large firms that invest heavily in research and development also tend to have higher fixed costs. These typically show up as higher margins. As a result, high margins in and of themselves do not necessarily indicate noncompetitive performance.[272] Offsetting this, however, is disturbing evidence that mergers are more likely to restrain innovation than to further it.[273] That is to say, most of the efficiencies that result from large firm R&D come about by internal growth, not by merger.[274] Indeed, leaving two innovative competitors to compete against each other rather than merging is much more likely to increase both output and innovation.[275]

CONCLUSION

For a quarter century the empirical industrial organization literature has been racing away from the perfect competition models of the 1950s and before. In the process it has produced solid, differentiated evidence of increasing market power in the economy on both the output and the input sides. At the same time, the "relevant market" of traditional antitrust analysis is becoming less important and its inaccuracies and other failures increasingly prominent. It is too early to jettison the concept of the relevant market from antitrust analysis, but roles have shifted.

---

[269] *See* De Loecker et al., *supra* note 266, at 1 (finding a significant growth in deadweight loss, leading to a 9 percent decline in welfare during the period 1980-2016).

[270] *See U.S. GDP Growth Rate 1961-2021,* MACROTRENDS, https://www.macrotrends.net/countries/USA/united-states/gdp-growth-rate [https://perma.cc/82QS-G6Y6] (last visited Nov. 19, 2021) (portraying GDP statistics via charts and graphs).

[271] *Id.*; Jose Azar, Steven Berry & Ioana Marinescu, *Estimating Labor Market Power*, SSRN (Sept. 18, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3456277 [https://perma.cc/M9LP-KNXJ].

[272] *See U.S. GDP Growth Rate 1961-2021, supra note 268 (noting data specifically from the 2005-2006 period).*

[273] *See* Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull's Eye?*, *in* NAT'L BUREAU OF ECON. RES., THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED, (Josh Lerner & Scott Sterns eds., 2012), https://www.nber.org/system/files/chapters/c12360/c12360.pdf [https://perma.cc/PG9R-GSC6] (explaining this phenomenon); Herbert Hovenkamp, *Antitrust Harm and Causation*, __ WASH. U. L. REV. (forthcoming 2021), currently available at file:///C:/Users/herbe/Downloads/SSRN-id3771399%20(18).pdf. *See also* Giulio Federico et al., *Horizontal Mergers and Product Innovation*, 59 INT'L J. INDUS. ORG. 1 (2018) (same).

[274] *See supra* note 27-28.

[275] For strong empirical confirmation, see John Kwoka, *The Structural Presumption and the Safe Harbor in Merger Review: False Positives or Unwarranted Concerns?*, 81 ANTITRUST L.J. 837, 837-72 (2017) (concentration over a certain threshold produces anticompetitive effects); *accord* JOHN KWOKA, MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY (2015).

Today it should be regarded as the "alternative" rather than the primary way of assessing power, to be used mainly when data are limited or the relevant antitrust query compels it.[276]

There is also considerable support for the conclusion that antitrust policy, but particularly merger policy, took a significant wrong turn in the mid-eighties. Causality is difficult to prove. Very likely the biggest culprit was the change in merger policy brought about by the 1982 Merger Guidelines,[277] but the Supreme Court's right turn on antitrust enforcement[278] is certainly a contributing factor as well.

The more concerning issue is why people continue to follow a position so long after it has lost its scientific support. Much of it, of course, is age and path dependence. People learn things when they are young, make successful careers, and are reluctant to change direction. Nearly every idea worth having has provoked resistance, including Darwin, the marginalist revolution in economics, and the Chicago School itself.[279]

In this case, however, something more disturbing is happening. The Chicago School has moved from being an exciting development in economics seventy years ago to a highly successful rationale for industry capture today. Simply put, competition is a public good. The interest groups that profit from a more competitive market tend to be individually powerless, diverse, and not particularly well organized. Indeed, that has always been the nature of competition. By contrast, those who stand to gain from the preservation of high profits are individually larger, less numerous, and have a common set of interests in the preservation of profit. This has turned the error cost anti-enforcement bias into an important vehicle for rent seeking at the expense of consumers, labor, and others who stand to profit from a more competitive economy.

---

[276] For example, the concept of a relevant market, or at least something similar, remains a useful tool to identify the range of viable competitors. *See* Herbert Hovenkamp, *Vertical Control*, N.Y.U. L. REV. ONLINE (forthcoming 2021), (U. Pa. Inst. for L. & Econ., Research Paper No. 21-13, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3793733 [https://perma.cc/T2RR-7R8J] (discussing the benefits of a relevant market).

[277] *See* discussion *supra*, text at notes 256.

[278] *See* discussion *supra*, text at notes 52.

[279] For some of the debates over marginalism and Darwin, see HOVENKAMP, *supra* note 72.