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Article

United States Competition Policy in Crisis: 1890–1955

Herbert Hovenkamp[†]

INTRODUCTION: HISTORICAL EXPLANATION AND THE MARGINALIST REVOLUTION

The history of legal policy toward the economy in the United States has emphasized interest group clashes that led to regulatory legislation.¹ This is also true of the history of competition policy.² Many historians see regulatory history as little more than a political process in which well-organized, dominant interest groups obtain political advantage and protect their particular industry from competition, typically at the expense of consumers.³

[†] Ben V. & Dorothy Willie Professor, University of Iowa College of Law. Thanks to Christina Bohannon for commenting on a draft. Copyright © 2009 by Herbert Hovenkamp.

1. See, e.g., WILLIAM J. NOVAK, *THE PEOPLE'S WELFARE: LAW AND REGULATION IN NINETEENTH-CENTURY AMERICA* 83–84 (1996); *THE REGULATED ECONOMY: A HISTORICAL APPROACH TO POLITICAL ECONOMY* 12–22 (Claudia Goldin & Gary D. Libecap eds., 1994); Herbert Hovenkamp, *Regulation History as Politics or Markets*, 12 *YALE J. ON REG.* 549, 549 (1995) (reviewing *THE REGULATED ECONOMY: A HISTORICAL APPROACH TO POLITICAL ECONOMY*, *supra*).

2. See, e.g., HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION*, 40–41 (2005); Thomas J. DiLorenzo, *The Origins of Antitrust: An Interest-Group Perspective*, 5 *INT'L REV. L. & ECON.* 73, 74 (1985); Thomas W. Hazlett, *The Legislative History of the Sherman Act Re-Examined*, 30 *ECON. INQUIRY* 263, 267 (1992); Fred S. McChesney, *Be True to Your School: Chicago's Contradictory Views of Antitrust and Regulation*, in *THE CAUSES AND CONSEQUENCES OF ANTITRUST: THE PUBLIC-CHOICE PERSPECTIVE* 323, 331 (Fred S. McChesney & William F. Shughart II eds., 1995) (noting that interest group pressures explain much of the Sherman Antitrust Act); George J. Stigler, *The Origin of the Sherman Act*, 14 *J. LEGAL STUD.* 1, 1 (1985).

3. See, e.g., GABRIEL KOLKO, *RAILROADS AND REGULATION: 1877–1916*, at 3 (1965); Sam Peltzman, *Toward a More General Theory of Regulation*, 19 *J.L. & ECON.* 211, 212 (1976) (developing a theoretical model to explain the “producer protection” view); Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 *J. POL. ECON.* 807, 809–21 (1975) (presenting a model of social costs of monopoly and monopoly-inducing regulation).

But clearly there must be more to this story. Interest group politics cannot explain all aspects of our regulatory past. For example, in almost every state, electricity and natural gas historically have been delivered to retail customers by monopoly franchises at regulated prices.⁴ By contrast, in every state, groceries, shoes, and lumber were sold in competitive markets with no regulation of price, output, or service territory, except for a few brief periods of extremist flirtation.⁵ It would be silly to conclude that these results were obtained uniformly in so many markets simply because the interest groups backing the electricity and natural gas industries were better organized than were the purveyors of groceries, shoes, or lumber. In fact, policymaking in these situations was heavily driven by theory.⁶ At the same time, interest group pressures in a complex democracy cannot be ignored, particularly in a political regime such as that of the late nineteenth and early twentieth centuries, when fundamental changes in technology and corporate structure were causing many displacements of older small businesses with newer, larger ones.⁷ During this period the large business firm that operates in many states came into existence. Productive efficiencies that resulted from industrialization led to rapid but volatile economic growth, extreme speculation, and then the Great Depression and the eventual rise of the regulatory state.⁸

This Article argues that government policy toward competition is not inevitably driven by special interests but rather is a complex product of theory and interest group pressure. When economic theory is robust and widely held, as was the competition model of the classical political economists, then the theory serves to centralize political power and to squelch special-interest dissenters. In these cases, theory and politics converge. However, if the theory is controversial, if it contains significant gaps, or if many features of it are poorly understood, then interest group pressures become more prominent and tend to determine government policy. This perspective on regulation appreciates the merits of economic ideas more than does much of the writing in both economic history and public choice theory.

4. Herbert Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880–1960*, at 4 (Univ. of Iowa Legal Studies, Research Paper No. 08-40, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1268328.

5. *Id.*

6. *Id.*

7. *Id.*

8. *Id.*

This model applies today as much as in our past. For example, in the law of intellectual property we lack a robust consensus on such fundamental questions as what the duration or scope of an intellectual property right should be, or what the relationship is between patent and copyright protection and incentives to innovate.⁹ The result is that the Patent and Copyright Acts are a *mélange* of special interest provisions that gives an observer little confidence that the incentive to innovate is what the Acts are all about.¹⁰ In contrast, by the 1970s the economic models for competition produced broad, although hardly unanimous, consensus among neoclassical economists.¹¹ This is reflected in a set of modern antitrust provisions that is relatively simple and interest-group neutral at its core.¹²

This thesis can help explain the unprecedented level of fumbling, experimentation, and interest group activity that characterized United States competition policy during the marginalist revolution in economics, which began in the late nineteenth century and lasted for decades. Part I of this Article provides an overview of the marginalist revolution that displaced the classical understanding of industrial economics in the late nineteenth and early twentieth centuries. Next, Part II explores Progressive Era social-control theories as they were applied in industrial economics, the vexing problem of fixed costs, which were seen as an increasingly common attribute of industry but which did not fit well into the prevailing models of competition, and the impact of these developments on competition policy. Part III examines the imperfect resolution of the fixed-costs problem provided by the

9. See Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900–2000*, 88 CAL. L. REV. 2189, 2189 (2000) (noting the common criticism that intellectual property law is “out-of-date, overwhelmed by the new technology of the day, and in need of a radical makeover”).

10. See *id.* at 2233 (arguing that a lack of legislative consistency leads to litigation over patent issues that slows innovation); see also Christina Bohannon, *Reclaiming Copyright*, 23 CARDOZO ARTS & ENT. L.J. 567, 568 (2006) (“As a result of special-interest capture, the Copyright Act confers overly broad rights to copyright owners at the expense of the public interest in having access to creative works.”); Christina Bohannon & Herbert Hovenkamp, *IP and Antitrust: Errands into the Wilderness*, 50 B.C. L. REV. (forthcoming 2010) (manuscript at 1), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1377382 (“[P]atent and copyright law have lost their focus on facilitating the type and amount of innovation needed to benefit consumers, and turned toward the protection of rights holders.”).

11. See 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶¶ 100–01 (3d ed. 2006) (noting that current antitrust laws support the general goal of competition of performance).

12. *Id.*

imperfect competition and monopolistic competition models in the 1930s. Part IV looks at how these models affected competition policy, and particularly, how they encouraged much greater anti-trust intervention. Part V then documents the rise of structuralism in postwar competition theory, particularly the structure-conduct-performance (S-C-P) paradigm, which was one of the most important competition models in the history of economic policy, but is today largely discredited. Part VI comments on the decline of the structural paradigm and the rise of the Chicago School, which deemphasized both the importance of structure and the opportunities for anticompetitive behavior.

I. THE MARGINALIST REVOLUTION

Marginalism substituted the forward-looking concepts of marginal utility, marginal revenue, and marginal cost in place of the historical averages used by classical political economists to explain economic behavior.¹³ This neoclassical revolution interrupted a period of relatively stable and largely benign thinking about competition and revolutionized industrial economics in the late nineteenth and early twentieth centuries.¹⁴ While the classicists were somewhat preoccupied with monopoly in land, in manufacturing they tended to see either competition or monopoly, and monopoly was regarded as exceptional.¹⁵ The marginalist model threatened that vision by developing mathematical models that divided markets into degrees of competitiveness.¹⁶ This further led to a search for the specifications of a perfectly competitive market and the developing intuition that such markets were in fact quite rare.

A. THE LEGACY OF CLASSICISM AND COURNOT

Classical political economy had the distinct advantage of not being technical. Expectations for mathematical precision were not particularly high. If they were writing today, the classical po-

13. HOVENKAMP, *supra* note 2, at 2.

14. See Herbert Hovenkamp, *Neoclassicism and the Separation of Ownership and Control*, 4 VA. L. & BUS. REV. (forthcoming 2009) (manuscript at 4), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1315003; Herbert Hovenkamp, *The Marginalist Revolution in Corporate Finance: 1880-1965*, at 1 (Univ. of Iowa Legal Studies, Research Paper No. 08-29, 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1141291.

15. See generally MARK BLAUG, *ECONOMIC THEORY IN RETROSPECT* chs. 8-11, 15 (4th ed. 1985) (chronicling the transition from neoclassicism to the marginal revolution).

16. See *id.*

litical economists would be regarded as public intellectuals writing about policy. "Competition" most typically referred to the rivalry that existed among two or more businesspersons.¹⁷ For example, Adam Smith distinguished between competition and collusion and realized that rivals must be sufficiently numerous so as to make collusion unlikely.¹⁸ He knew that competition required actors who were knowledgeable about market conditions and had the freedom to act upon this knowledge, and required that resources be mobile.¹⁹ But Smith and other classicists had at best a vaguely formulated concept of the relationship between competitive prices and cost. Further, the English classicists had very little conception of "degrees" of competition. Markets were either competitive or else they were monopolized.²⁰ Augustin Cournot, writing in France in the 1830s and largely ignored for a half century, attempted to quantify the relationship between marginal production and costs, and related the number of firms in a market to the market price.²¹ But only with the rise of marginalism did Cournot's work come into vogue in England and later in the United States.²²

With the exception of Cournot, the classicists rarely used mathematics. Both W. Stanley Jevons and Léon Walras began to use some math in the 1870s, and Jevons acknowledged Cournot's influence.²³ Alfred Marshall also acknowledged Cournot in his

17. See George J. Stigler, *Perfect Competition, Historically Contemplated*, 65 J. POL. ECON. 1, 1 (1957) (citing ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 56–57 (Edward Cannan ed., Modern Library 1937) (1776)).

18. See *id.* at 2 (noting Smith's observations on the influence of the number of economic rivals in competition).

19. See *id.* (listing Smith's five conditions of competition).

20. See *id.* at 5 ("[T]he most striking deficiency of the classical economists was their failure to work out the theory of the effects of competition on the distribution of income.").

21. See Irving Fisher, *Introduction to AUGUSTIN COURNOT, RECHERCHES SUR LES PRINCIPES MATHÉMATIQUES DE LA THÉORIE DES RICHESSES [RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH]* ix, ix–xii (Nathaniel T. Bacon trans., Augustus M. Kelley 1960) (1838) (discussing the life and work of Cournot).

22. See generally Martik Shubik, *Cournot, Antoine Augustin*, in 1 THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 708, 708–12 (John Eatwell et al. eds., 1987).

23. See, e.g., W. STANLEY JEVONS, THE THEORY OF POLITICAL ECONOMY 3, 85 n.1 (5th ed., Augustus M. Kelley 1965) (1871) (discussing the mathematical character of economics and reflecting on Cournot's work); LÉON WALRAS, ELEMENTS OF PURE ECONOMICS 83–91 (William Jaffé trans., George Allen & Unwin Ltd. 1954) (1874) (developing a mathematical theory for the market and competition).

1890 *Principles of Economics*.²⁴ While Cournot did not use the term “marginal cost,” his mathematical formulations for competition used a term defined as the rate of increase in per-unit costs, which is the same thing.²⁵ Cournot also showed that the intersection of a declining demand curve and an increasing marginal cost curve determined how much a competitive firm would produce and, indirectly, the price it would charge.²⁶ He then theorized that if each firm in a market with relatively few sellers computed this profit-maximizing rate of output on the assumption that rivals would hold their outputs constant, the market would reach an equilibrium in which output was lower than the competitive level, but not so low as the single firm monopoly level.²⁷ This highly elegant mathematical model—the first theory of oligopoly—was responsible for much of the marginalist theorizing about competition early in the twentieth century.

Cournot’s model was widely regarded as excessively simplistic, for a number of reasons. First, the theory that each firm would set its own output on the assumption that other firms would hold their output constant was counterintuitive.²⁸ In addition, Cournot assumed a perfectly fungible product—that is, that the output of different producers was so nearly identical that consumers were indifferent to everything except price.²⁹ He also assumed that firms were indifferent to the potential for market entry by other firms, and he paid almost no attention to the presence of fixed as opposed to variable costs.³⁰ In sum, while

24. See ALFRED MARSHALL, 2 PRINCIPLES OF ECONOMICS 35, 36 (8th ed. MacMillan & Co. 1925) (1890) (discussing how Cournot influenced his works).

25. Irving Fisher, *Cournot and Mathematical Economics*, 12 Q.J. ECON. 119, 127 (1898).

26. See *id.* (crediting Cournot for developing the supply and demand curves).

27. See, e.g., *id.* at 128 (reviewing Cournot’s analysis of the effect of copper and zinc monopolies on the price of brass).

28. The most influential, and very hostile, critique came from Joseph Bertrand, who illustrated that if one adopted price instead of output as the relative variable, the firms in Cournot’s model would set the competitive price for any number of firms greater than one. See Joseph Bertrand, *Théorie Mathématique de la Richesse Sociale*, 67 J. DES SAVANTS 499, 499–508 (1883). For a good historical discussion, see Jean Magnan de Bornier, *The “Cournot-Bertrand Debate”: A Historical Perspective*, 24 HIST. POL. ECON. 623, 623–55 (1992).

29. See Herbert Hovenkamp, *The Rationalization of Antitrust*, 116 HARV. L. REV. 917, 919–20 (2003) (reviewing RICHARD A. POSNER, ANTITRUST LAW (2001)) (examining the assumptions made in the Cournot model).

30. See *id.* at 920 (“Although factors like high fixed costs, scale economies, and product differentiation are certainly complications, these factors are all structural.”).

Cournot's theory supplied the core of marginalist competition analysis, many details had to be worked out.

Nevertheless, Cournot's overly simplistic assumptions actually account for his theory's durability, as well as the centrality of his model to the marginalists' debate over competition policy. Much of that debate concerned what occurs when you relax one or more of Cournot's simple assumptions, by considering such things as high fixed costs, product differentiation, or entry barriers.

B. NEOCLASSICISM AND THE INTRODUCTION OF MARGINALISM

Marginalism led to a number of puzzles that had to be worked out before the classical theory of competitive equilibrium could be reformulated to accommodate marginalist assumptions. An economic equilibrium is a steady state such that no market participant has an incentive to change unless some effect from outside the market occurs.³¹ Unless constrained, an economy that is not in equilibrium tends to move toward one, while an economy in equilibrium tends to stay there.³² The classical political economists generally gave little thought to the conditions necessary for equilibrium. The notable exception was David Ricardo, who believed that the economy always headed toward a steady state in which labor and marginal land earned minimum sustainable incomes, while superior land permanently captured higher profits, or rents.³³ Even the great Cambridge University economist Alfred Marshall, whose *Principles of Economics* was both marginalist and much more entrepreneurial than Ricardo's work, focused on the manufacturing economy's two simplest equilibria—perfect competition and monopoly—and gave very little thought to anything in between.³⁴

As Joseph Schumpeter observed in the 1930s, the purpose of equilibrium analysis in economics is to allow policymakers to

31. See, e.g., JOAN ROBINSON, *THE ECONOMICS OF IMPERFECT COMPETITION* 92–94 (1938) (discussing competitive equilibrium).

32. See, e.g., *id.*

33. See DAVID RICARDO, *AN ESSAY ON THE INFLUENCE OF A LOW PRICE OF CORN ON THE PROFITS OF STOCK* (1815), reprinted in 4 *THE WORKS AND CORRESPONDENCE OF DAVID RICARDO* 4–6 (Piero Sraffa ed., Cambridge Univ. Press 1962) (discussing the relationship between the value of land and its fertility). See generally MICHIO MORISHIMA, *RICARDO'S ECONOMICS: A GENERAL EQUILIBRIUM THEORY OF DISTRIBUTION AND GROWTH* 5–8 (1989); H. Barkai, *Ricardo's Static Equilibrium*, 32 *ECONOMICA* (n.s.) 15, 15–31 (1965) (analyzing the Ricardian theoretical framework).

34. See generally MARSHALL, *supra* note 24, at 36–38.

analyze the causes of “chronic disequilibria.”³⁵ But if this is so, Schumpeter concluded, the geometry of marginalism, with its curves that shift depending on one’s assumptions, cannot remain an academic curiosity.³⁶ Problematically, however, in the vast range between perfect competition and absolute monopoly lies much unknown territory.

[A]s 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.³⁷

The post-Marshall development of neoclassical economics, with its mathematics of incentives at the margin, permitted an infinite array of alternatives to competition and monopoly. In particular, the development of imperfect competition and oligopoly theory led to the realization that in many markets at least one equilibrium existed in which prices were significantly above the competitive level, plants had too much unused capacity, and product differentiation was significant. In her pathbreaking early 1930s neoclassical study of price theory, *The Economics of Imperfect Competition*, Marshall’s student Joan Robinson noted that while traditionally economists had treated competition as the norm and monopoly as a special case, marginalist analysis showed that “it is more proper to set out the analysis of monopoly, treating perfect competition as a special case.”³⁸ The developing concept of entry barriers, or prices that might not be disciplined by new competition, made the policy implications of these conclusions even more ominous. Further, in the earlier models, particularly those of Marshall and Robinson, profits tended to flow toward capital at the expense of labor—a point that is made repeatedly in Progressive Era policy literature.³⁹ In sum, for

35. Joseph A. Schumpeter, *Robinson’s Economics of Imperfect Competition*, 42 J. POL. ECON. 249, 256 (1934).

36. See *id.* (“Certain kinds of shifts are amenable to rule or law and can be handled with relative ease just as movements along a curve, and this means that we must build the economic cycle into our general theory.”).

37. *Id.* at 250–51.

38. ROBINSON, *supra* note 31, at 307.

39. See, e.g., J. H. Hollander, *Political Economy and the Labor Question*, 176 N. AM. REV. 563, 565–66 (1903) (noting that “[c]apital took on a new importance” for the English political economists developing the wage fund theory). But see Francis A. Walker, *The Doctrine of Rent, and the Residual Claimant Theory of Wages*, 5 Q.J. ECON. 417, 420–22 (1891) (refuting the ar-

quite some time, marginalism brought to an end the notion that pure competition or something close to it was the norm, with monopoly as an occasional exception. Market imperfections seemed to exist everywhere.

The new economics also began to focus on the structure of business organizations. Perhaps by coincidence, the rise of marginalist economic theory occurred simultaneously with the rise of the large business enterprise. When Adam Smith surveyed the economic landscape he saw a world of farmers, blacksmiths, cobblers, and bakers, mainly small enterprises with low initial investment, significant mobility, and little product differentiation other than a particular tradesman's reputation for quality.⁴⁰ But writing in the late 1920s and early 1930s, Joan Robinson and Edward Chamberlin saw an economic world dominated much more prominently by large firms with significant fixed-cost investments in specialized equipment, differentiated products, and excess capacity.⁴¹

The emergent theory of the firm contained two strands. First was a marginalist strand, which found numerous imperfections until the technical details of the neoclassical model of industrial organization were worked out.⁴² Second was a Darwinian "institutionalist" strand, which was much more empirical, but was equally prone to view the large business firm with suspicion. Although it was ignored for decades, Ronald Coase's famous article, *The Nature of the Firm*, was eventually interpreted as merging these two strands by combining empirical study with a theory of relative costs of intra-firm versus market procurement.⁴³

In the marginalist conception of a perfectly competitive economy, prices are driven to marginal cost and the industry as a whole produces at the most efficient rate possible. While these

gument of the inverse relationship between capital and labor with respect to the "residual" theory of wages).

40. See generally SMITH, *supra* note 17, at 1–10.

41. See *infra* note 206 and accompanying text. See generally EDWARD CHAMBERLIN, *THE THEORY OF MONOPOLISTIC COMPETITION* 1–16 (3d ed. 1939); ROBINSON, *supra* note 31, at 92–94.

42. See Hovenkamp, *supra* note 4, at 3 ("The marginalist crisis in competition policy did not find a satisfactory solution until the middle of the twentieth century. Because markets are populated by firms, the principal actors in this crisis were business corporations. Economists in the first half of the twentieth century probed the firm's nature, structure, motives and extent of operations at an unprecedented level.")

43. For more information on Coase's work, which developed an economic definition of a firm and a theory of moving equilibrium, see R. H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* (n.s.) 386, 404–05 (1937).

conclusions largely tracked the much less technical formulations of “pure” competition in classical political economy,⁴⁴ there was one important difference. The classicists generally believed that competition was the norm except when government intervened.⁴⁵ By contrast, the initial impact of marginalist analysis was the belief that competition was exceptional.⁴⁶ Fixed costs and scale economies dictated that firms could not price at the competitive level. Under the economic theories of the late nineteenth and early twentieth centuries, such firms would be driven to overproduction and “ruinous competition” as prices would be forced so low that they could not cover a firm’s fixed-cost investments.⁴⁷ In the 1930s, however, new models that incorporated product differentiation largely solved the ruinous competition problem.⁴⁸ Product differentiation served to limit firms’ competition with one another even when they were in the same general market. But competition in product-differentiated markets was hardly perfect either: instead of overproduction, firms in such markets tended to have excess capacity and to invest too much in product design and advertising.⁴⁹ Oligopoly theory exacerbated the problem by theorizing even poorer performance when the number of firms was small and entry barriers were high.⁵⁰

C. CONSEQUENCES OF MARGINALISM FOR ANTITRUST POLICY

The policy consequences of these developments in economic theory were significant. For many economists during the early part of the century, high fixed costs dictated that almost any

44. The conclusions mainly tracked the works of Adam Smith, Thomas Malthus, David Ricardo, Naussau Senior, and John Stuart Mill.

45. See, e.g., BLAUG, *supra* note 15, at 594 (examining Adam Smith’s theory on competition).

46. See, e.g., Hovenkamp, *supra* note 4, at 3 (“The rise of marginalist economics . . . led to . . . the developing intuition that [perfectly competitive] markets were quite rare.”).

47. See, e.g., HOVENKAMP, *supra* note 2, at 311 (discussing Arthur Twinning Hadley’s theory of ruinous competition).

48. Cf. Hovenkamp, *supra* note 4, at 48 (“The switch from industrial theories involving fixed costs and fungible products to those based on product differentiation very largely explains the abrupt switch in antitrust policy that occurred during the Roosevelt Administration.”).

49. Cf. HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW: 1836–1937, at 338 (1991) (discussing similar fears related to vertical integration in the 1930s).

50. See, e.g., Hovenkamp, *supra* note 4, at 49 (“[E]conomists feared the move from monopolistic competition, where new entry was generally presumed to be easy, to oligopoly, which had all the evils of excessive product differentiation but high entry barriers and higher prices as well.”).

amount of antitrust regulation was excessive.⁵¹ They believed that dominant firms and cooperation were inherent features of the industrial landscape.⁵² Any attempt by government to suppress them would result in higher costs at best, or complete loss of market stability at worst.⁵³ This economic model was coming into vogue in 1890, when the Sherman Act was passed, and helps explain why so many economists opposed antitrust legislation.⁵⁴ At the opposite extreme, the product differentiation models of the 1930s were seen as leading to underproduction, excess capacity, and too much investment in product differentiation and advertising.⁵⁵ High entry barriers and oligopoly concentration greatly exacerbated the problem.⁵⁶ In such a regime, antitrust readily found an important place.

In 1940, Columbia University economist John Maurice Clark, the most pragmatic theoretician of mid-century competition policy, thrust a consensus-forming paper into this mix—his essay on “workable competition.”⁵⁷ Clark’s paper, which was to have a powerful influence on antitrust policy, argued that although the observed imperfections were real, their impact had been exaggerated.⁵⁸ In reality, government policymakers could identify and enforce a degree of competition that was functionally adequate, particularly when compared with the available regulatory alternatives.⁵⁹

The “workable competition” model served to make the case for antitrust as the principal regulator of competition in the

51. See HOVENKAMP, *supra* note 49, at 309 (1991) (“If forced to compete, firms in these industries would naturally be driven to ruin. The principal cause of this ‘ruinous competition’ was the presence of high fixed costs.”).

52. See *id.* at 310 (“John Bates Clark argued in 1887 that certain industries were so prone to overproduction that the firms in them must either collude or face ‘widespread ruin.’”).

53. *Id.* at 309.

54. *Id.*

55. See *supra* note 49 and accompanying text.

56. See HOVENKAMP, *supra* note 49, at 338 (noting that firms in oligopoly markets engaged in “extreme product differentiation and carried abundant excess capacity”).

57. See J.M. Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241, 241–46 (1940). Clark was at the University of Chicago from 1915 to 1926, and at Columbia from 1926 until his retirement in 1957. For general information on Clark, see LAURENCE SHUTE, JOHN MAURICE CLARK: A SOCIAL ECONOMICS FOR THE TWENTY-FIRST CENTURY (1997).

58. Clark, *supra* note 57, at 243.

59. See *id.* at 256 (“[O]ne may hope that government need not assume the burden of doing something about every departure from the model of perfect competition.”).

United States, and to preserve a relatively small domain for government agency command-and-control regulation. Important details had to be resolved, however, and a significant debate ensued in the 1950s between Harvard “structuralism” and a more behaviorist alternative developed mainly at the University of Chicago.⁶⁰

II. PROGRESSIVE SOCIAL CONTROL AND THE PROBLEM OF FIXED COSTS

Emergent social science in the late nineteenth and early twentieth centuries was heavily concerned with “social control.” The idea was that society, acting through both public and private orderings, tended to normalize and limit the excesses of individual behavior.⁶¹ The fundamental idea of social control, sociologist Edward Alsworth Ross wrote in his pathbreaking 1901 book of that title, was that individual and social interests were fundamentally in conflict.⁶² This observation itself was a sharp break with a classical past that had tended to see individual desires, though hedonistic, as melding together to form the social interest. This accounted for the classical theory of markets, where the selfish desires of individuals united for the common good via voluntary exchange.⁶³

For marginalists such as Ross, social control was not limited to absolute coercion but rather took the form of any set of social or government incentives that influenced individuals to do something that they might not do if unconstrained.⁶⁴ Indeed, one of the most important policy contributions of marginalism outside of price theory was its notion that coercion is always a matter of degree, and that utility-maximizing actors equate alternative sources of pain or pleasure just as they equate the utilities of desirable goods. This theme came to dominate social science through the legal realists, including the writings of such early realists as Robert Hale, who studied the manifold ways that the

60. See generally HOVENKAMP, *supra* note 2, at 31–38 (comparing and contrasting the Harvard School with the Chicago School).

61. See generally EDWARD ALSWORTH ROSS, SOCIAL CONTROL 1–6 (MacMillan, 1926) (1901).

62. See *id.* at 441–42 (noting the clash between the “Strong Man” and society).

63. Cf. HOVENKAMP, *supra* note 2, at 273 (noting Francis Walker’s definition of competition as “the operation of individual self-interest” where “each man is acting for himself solely”).

64. See, e.g., *id.* at 429 (“The control of the person’s will by precept or example is, therefore, preferable to the control of it by the employment of sanctions.”).

legal system operated to coerce behavior and transfer wealth without the use of absolute force.⁶⁵ Further, Hale argued, this had always been the case, even under professed systems of *laissez faire* that regarded the state as uninvolved with economic life.⁶⁶

The ideological origins of the social control idea and the reasons for its great popularity are somewhat ambiguous. Clearly, its proponents doubted the long-held faith in American exceptionalism, with its belief that America was different and that God would always keep it and its citizens on the right course.⁶⁷ Social control was about the need for society and not merely religion to control deviant social behavior. “Deviance” was typically defined from the perspective of the middle and upper middle class academics who became America’s first social scientists. Control devices were seen as necessary to restrain the immorality and unproductive behavior of the poor, uneducated, and minority races. Importantly, however, they were also needed to contain the profligacy of the super-rich and rapacious.⁶⁸

In the mid-twenties John Maurice Clark wrote a lengthy book on social control of business behavior.⁶⁹ That book set the stage for Clark’s much more influential work on administratively workable competition.⁷⁰ For Clark, the problem of government restraints on business behavior was simply a variation on the general social problem of controlling deviancy by reference to some articulated norm. He adopted the Ricardian notion, popular with the Progressives, that the common law is biased because it tends to bleed resources in the direction of those who already have economic power.⁷¹ While he began with a wholesale indict-

65. See generally BARBARA H. FRIED, *THE PROGRESSIVE ASSAULT ON LAISSEZ FAIRE: ROBERT HALE AND THE FIRST LAW AND ECONOMICS MOVEMENT* 2–28 (1998) (detailing the life and legal theories of Robert Hale).

66. See Robert L. Hale, *Coercion and Distribution in a Supposedly Non-Coercive State*, 38 POL. SCI. Q. 470, 470 (1923) (“[T]he systems advocated by professed upholders of *laissez-faire* are in reality permeated with coercive restrictions of individual freedom . . .”).

67. Cf. Dorothy Ross, *The Origins of American Social Science* 253–56 (1991).

68. For an excellent discussion of control devices, see *id.* at 219–56 (1991).

69. JOHN MAURICE CLARK, *SOCIAL CONTROL OF BUSINESS* (1926).

70. Clark, *supra* note 57, at 241–46. See generally discussion *infra* Part IV.A (exploring Clark’s ideas put forth in the essay).

71. See CLARK, *supra* note 69, at 10 (describing the development of the English “law merchant,” which in Clark’s estimation was well-suited to construing contracts *between* traders fairly, but was strongly biased in favor of traders when they contracted with members of other classes). For the most forceful Progressive

ment of the traditional system of private property and contract rights, Clark also found significant that inefficiencies resulted from public ownership of the means of production.⁷² He concluded that the best way to guarantee the public interest in a healthy economy and low prices was private ownership with a mixture of regulatory and competition-enhancing legal rules.⁷³

The development of a theory of costs was one of marginalism's most significant contributions to industrial economics, but early on the theory also created its most imposing problems. The classical political economists had only the vaguest notion about the relation between costs and different levels of output. Marginalism changed that by developing mathematical concepts of fixed, variable, and marginal costs. In his *Principles of Economics*, Marshall had already noted that certain costs were highly responsive to demand in a short time period, while other costs such as those for land or durable plants or equipment were not. As a result, in the short run, price might be quite responsive to changes in demand because new capacity could not quickly be brought into an industry. However, in the long run, new plants would be built, and prices closer to the competitive level would prevail.⁷⁴ Whenever output responses lagged behind demand, in either direction, the market price had little to do with cost. As Marshall observed, "there is no connection between cost of reproduction and price in the case[] of food in a beleaguered city."⁷⁵

For the classicists and most early marginalists, a "cost" was something that was incurred and paid off in a single production cycle, such as the farmer's seed or the baker's flour.⁷⁶ Fixed costs were investments in land, plant, durable equipment, intellectual

exposition, see generally RICHARD T. ELY, PROPERTY AND CONTRACT IN THEIR RELATION TO THE DISTRIBUTION OF WEALTH (1914).

72. See CLARK, *supra* note 69, at 420–25 (debunking the notion that public ownership always offers significant savings to communities and noting that head-to-head comparisons of efficiency often favor the private operation of enterprises).

73. See *id.* at 459 (arguing that governments need not "wait passively for the mills of supply and demand" to "grind out" economic changes, but instead should "take the initiative" and "experiment to see how wide the range is within which the forces of supply and demand will not absolutely veto" price and wage levels).

74. See MARSHALL, *supra* note 24, at 349 ("If the demand happens to be great, the market price will rise for a time above the [normal] level; but as a result production will increase and the market price will fall . . ."); Ragnar Frisch, *Alfred Marshall's Theory of Value*, 64 Q.J. ECON. 495, 519–24 (1950) (analyzing and expanding Marshall's reasoning).

75. MARSHALL, *supra* note 24, at 402.

76. Marshall, like Adam Smith and John Stuart Mill, used the term "circulating capital" for these types of costs. See *id.* at 75 & n.2.

property, and other things whose life was either indefinite or else lasted much longer than a single season of production and sale.⁷⁷ An important attribute of fixed costs was that per-unit costs of production declined as output went up, for fixed costs could be allocated over a larger output.⁷⁸ For example, if the mortgage payments on a plant are \$1000 per month, per-unit costs for the plant are \$100 per unit if the plant produces ten units per month, but they are only \$1 per unit if the plant produces 1000 units per month. If variable costs are small by comparison—say, 50 cents per unit—then a firm could earn a profit at drastically lower prices if its output were sufficiently high.

In sum, fixed costs created production “economies of scale” whenever per-unit costs were lower in firms that operated at high rates of output. This fact in turn suggested that a market would have room for fewer firms, and perhaps fewer than needed for effective competition. Economists around the turn of the twentieth century were fairly obsessed with the problem of scale economies and the implications for competition. Indeed, a principal reason so many economists opposed the Sherman Act is that they believed that monopoly was more or less inevitable in many industries and that antitrust legislation would force firms to be inefficiently small.⁷⁹ For example, Yale economist and later university president Arthur Twining Hadley opposed the Sherman Act on economic grounds, arguing that either monopoly or collusion was necessary in industries with high fixed costs, lest they be driven into ruinous competition and bankruptcy.⁸⁰

Unlike the social control theorists in other social sciences, Clark was not a behaviorist.⁸¹ His principles of decision making were rooted in neoclassical price theory, which means that he assumed firms and their managers behaved so as to maximize prof-

77. Marshall, Smith, and Mill called these costs “fixed capital.” *See id.*

78. *See id.* at 75 (“[T]he return [on fixed capital of given durability] is spread over a period of corresponding duration.”) (internal quotation marks omitted).

79. *See* Henry R. Hatfield, *The Chicago Trust Conference*, 8 J. POL. ECON. 1, 6 (1899) (“The weight of evidence . . . supported the view that the modern system of large business establishments was the outgrowth of natural industrial evolution.”). *See generally* HOVENKAMP, *supra* note 49, at 308–22 (discussing in detail the fixed-cost controversy).

80. *See* ARTHUR TWINING HADLEY, *ECONOMICS* 294–95 (New York, G.P. Putnam’s Sons 1896) (discussing the crippling effect of “over-production” and “cut-throat competition” on industries in which business “owners have invested their capital in a form which they cannot readily change”).

81. ROSS, *supra* note 68, at 413 (quoting an unpublished letter from Clark to Wesley Clair Mitchell).

its. Working from that assumption the problems of high fixed costs were manifold.⁸² First, they made marginal cost pricing—and thus perfect competition—impossible because a marginal cost price would not give a firm enough return to cover its fixed-cost investment. Second, industries with high fixed costs would feel constrained to keep their output very high in order to keep per-unit costs low. Indeed, any price above the average variable cost was profitable in the sense that it made some contribution to fixed costs. The result was ruinous competition in which market-wide prices would be driven to marginal cost without enough left over to cover fixed costs.⁸³ This in turn led to a very high risk of collusion in such markets as firms tried to avoid ruinous competition. Third, high fixed costs explained and justified many instances of price discrimination. The firm continuously tried to sell all it could to any customer willing to pay enough to cover variable costs.⁸⁴ As a result, price discrimination was not a monopoly problem as such, but was ubiquitous in industries with high fixed costs and not necessarily evil.⁸⁵ Fourth, extreme cases of overhead costs can lead to natural monopoly. As Clark observed:

[W]here the economies of increased size remain decisive, up to the point of absorbing the entire market, the business becomes a “natural monopoly.” Competition is impossible or intolerably wasteful, and the public must secure to itself as much as it can of the advantages of large-scale efficiency (which should properly be no one’s permanent private property) by regulation of prices and service.⁸⁶

The fixed-cost controversy originated in disputes about railroad rates, where fixed costs were extremely high.⁸⁷ But it quickly expanded into ordinary manufacturing. Problematically, once a large fixed-cost asset such as a plant was built it had to be paid for whether or not it was used. In an industry with high fixed costs and multiple producers, fixed costs were thought to lead to ruinous competition, which occurred when each firm kept its own output as high as possible in order to keep costs down. The result

82. See JOHN MAURICE CLARK, *STUDIES IN THE ECONOMICS OF OVERHEAD COSTS* 46–69 (1923) (exploring in detail the effects of fixed costs upon businesses).

83. See John Maurice Clark, *Monopolistic Tendencies, Their Character and Consequences*, 18 *PROC. ACAD. POL. SCI.* 124, 130 (1939) (“[T]he natural tendency of [one form of competition Clark analyzed] was to drive prices to a level which, while above ‘marginal’ cost . . . would be quite far below average cost.”).

84. On this problem in the nineteenth-century railroad industry, see Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 *YALE L.J.* 1017, 1017–72 (1988).

85. CLARK, *supra* note 82, at 433.

86. CLARK, *supra* note 69, at 312.

87. See Hovenkamp, *supra* note 84, at 1035–44.

was prices that were high enough to cover operating costs but insufficient to pay off the fixed-cost investment.⁸⁸

The ruinous competition theory assumed that the goods being overproduced were fungible, or indistinguishable from one seller to another. For example, Alfred Marshall's conception of the "representative firm" in an industry entailed that every firm in a market had cost and production functions that were to be counted as identical, and prices were driven to marginal cost.⁸⁹ As a result, firms competed only on price and any sale above marginal cost was profitable in the short run.

The theory of fixed costs had an influence on Progressive Era social policy that is rarely obvious to political historians but is nevertheless difficult to exaggerate. The theory readily migrated from the economics of industrial organization to the welfare economics of social policy and wealth redistribution. Fixed costs explained why firms became large—because they could produce more cheaply. It also explained overproduction—once a plant was built, maximum output resulted in lower costs and enabled managers to bid lower prices. Importantly, however, fixed costs also appeared to explain why wealth tended to move toward capital rather than toward labor. First, large fixed-cost investments such as plants had to be carried in both times of high output and low. Labor, by contrast, was a variable cost to the capitalist and could be dropped on a moment's notice in times of low demand. The capitalist responding to recession could not avoid the mortgage payments on the plant but he could readily lay workers off. Second, while labor is a variable cost to the employer, it is in many senses a "fixed" cost to the laborer himself. He must eat, clothe, and shelter himself and his family whether or not he is working, just as the plant must be paid for when it lies idle.

One of Clark's most controversial proposals was that for social purposes the laborer be treated as a fixed rather than a vari-

88. See HADLEY, *supra* note 80, at 295.

89. See MARSHALL, *supra* note 74, at 317 (discussing the characteristics of a "representative producer"). The theory was vigorously attacked as creating an inconsistency between the assumption of fixed costs and scale economies on one hand, and perfect competition on the other. See, e.g., Lionel Robbins, *The Representative Firm*, 38 *ECON. J.* 387, 399 (1928) (describing the concept of the "representative firm" as "not only unnecessary, but misleading"); Piero Sraffa, *The Laws of Returns Under Competitive Conditions*, 36 *ECON. J.* 535, 540 (1926) (arguing that the concept "can prove a useful instrument only in regard to such exceptional industries as can reasonably satisfy its conditions"). On the birth and death of the concept, see generally James A. Maxwell, *Some Marshallian Concepts, Especially the Representative Firm*, 68 *ECON. J.* 691, 694–99 (1958); J.N. Wolfe, *The Representative Firm*, 64 *ECON. J.* 337, 337–38 (1954).

able cost—that is, as an investment whose support must be paid for whether or not the laborer is currently employed.⁹⁰ That proposal naturally had social consequences that went far beyond the economics of industrial organization, reaching to such things as guaranteed employment or unemployment compensation.⁹¹ Clark himself believed that the worst evil of economic depression was the fact that wages could instantly be withdrawn, leaving masses of unemployed, even as the mortgage payments on plants continued to be paid.⁹² An additional consequence of making labor costs variable is that it enabled the employer to avoid the full social cost of labor, which included the costs of fatigue, injuries, and health care.⁹³ Once again, the owner of a plant needed to keep it in repair in order to maintain productivity, but he could instantly drop a sick laborer and replace him with another at little or no cost to himself.⁹⁴

By the late nineteenth century the problem of fixed costs was already well-known in both the economics and legal literatures.⁹⁵ Indeed, the notion that competition between two transportation utilities could be ruinous was already known in the 1830s, when litigants before the Supreme Court cited Chancellor Kent for that

90. See CLARK, *supra* note 82, at 384 (insisting that labor must be treated as an overhead cost for “purposes concerned with unemployment” and that “[t]he only question is as to the best distribution of the burden”). Clark originally made the suggestion in a paper presented to the American Economic Association in 1920. See SHUTE, *supra* note 57, at 57.

91. See CLARK, *supra* note 82, at 411 (arguing that “more could be accomplished if the resources of private industry itself were enlisted” to ease the burden of unemployment, and predicting that “this will be done as fast as private industry comes to feel and to bear . . . responsibility commensurate with its powers and opportunities”).

92. See *id.* at 376 (attributing most of the cost of unemployment compensation to “seasonal and cyclical fluctuations in industry” and proposing “[r]emedies for this evil”).

93. See CLARK, *supra* note 69, at 178 (“Thus the worker may be paid for his actual labor, but the risks of injury, of occupational disease, or of unemployment, considered as separate costs, may not receive any compensation at all . . .”).

94. See *id.* at 157 (explaining that, because of the force of competition in labor, “[l]aborers in general are not in a position to bargain for extra pay for trade practices which make their labor conditions unduly burdensome, unhealthy, or dangerous”).

95. See, e.g., HADLEY, *supra* note 80, at 295; Henry C. Adams, *Relation of the State to Industrial Action*, 1 PUBLICATIONS AM. ECON. ASS'N 465, 523–28 (1887); F.W. Taussig, *A Contribution to the Theory of Railway Rates*, 5 Q.J. ECON. 438, 440–41 (1891). On the fixed-cost controversy in American competition policy, see HOVENKAMP, *supra* note 49, at 308–22.

proposition in the *Charles River Bridge* case.⁹⁶ Justice Story accepted it as a rationale for his dissent, which argued basically that competition was so destructive to the business of a toll bridge that no reasonable investor would have agreed to build without a monopoly guarantee.⁹⁷ The problem of high fixed costs was understood sufficiently well in the railroad industry that both railroad lawyers and the Interstate Commerce Commission used it to justify railroad “pools,” or cartels, designed in part to keep rates high enough to cover fixed costs.⁹⁸ The Supreme Court heard these arguments in two major antitrust cases in the late 1890s, but rejected them, holding that the Sherman Act made no exception for industries prone to ruinous competition.⁹⁹

By the turn of the century, many economists began to see the fixed-cost problem as much more general, affecting ordinary manufacturing as well as railroads and public utilities.¹⁰⁰ As a result, many came to believe that either monopoly or collusion was virtually inevitable in many manufacturing markets unless the state intervened. Further, *antitrust* intervention was not what they had in mind, for it did no more than condemn practices

96. *Proprietors of Charles River Bridge v. Proprietors of Warren Bridge*, 36 U.S. (11 Pet.) 420, 436 (1837).

97. *See id.* at 649–50 (Story, J., dissenting); *see also* *W. Union Tel. Co. v. Union Pac. Ry. Co.*, 3 F. 423, 425 (C.C.D. Kan. 1880) (noting the possibility of ruinous competition from the running of parallel telegraph lines by competing firms); *cf. Morgan v. New Orleans, M.&T.R.R. Co.*, 17 F. Cas. 754, 754, 758 (C.C.D. La. 1876) (No. 9804) (declining to rescind a contract dividing the market between its signatories, two companies operating railroads and steamships, in order to limit ruinous competition).

98. *E.g., Chicago, M. & St. P. Ry. Co. v. Wabash, St. L. & Pac. Ry. Co.*, 61 F. 993, 996–97 (8th Cir. 1894) (holding that pooling is permissible if it is designed to prevent ruinous competition, but not if its purpose is “to stifle all competition for the purpose of raising rates”); *Cent. Trust Co. v. Ohio Cent. Ry. Co.*, 23 F. 306, 309–10 (C.C.N.D. Ohio 1885) (upholding a pooling agreement), *rev’d on other grounds*, 133 U.S. 83 (1890); *Nashua & L.R.R. Corp. v. Boston & L.R.R. Corp.*, 19 F. 804, 805–06 (C.C.D. Mass. 1884) (same), *rev’d on other grounds*, 136 U.S. 356 (1890); *see also* Hovenkamp, *supra* note 84, at 1039–42 (discussing the rationale for and development of pooling).

99. *See United States v. Joint Traffic Ass’n*, 171 U.S. 505, 519–26, 527–33, 577 (1898) (summarizing the arguments of James Coolidge Carter for the Joint Traffic Association and E.J. Phelps for the New York Central Railroad Company and rejecting both); *United States v. Trans-Missouri Freight Ass’n*, 166 U.S. 290, 328–41 (1897) (considering in detail and ultimately rejecting the arguments of railroad companies that Congress must have intended to exempt them from the Sherman Act).

100. *See* HOVENKAMP, *supra* note 49, at 317 (explaining that although liberal economists continued to believe that ruinous competition would only affect industries that are natural monopolies, conservatives thought ruinous competition could become widespread in the long run).

that were thought to be unavoidable given the structure of American industry. During the first two decades of the twentieth century American economists debated widely whether high fixed costs would drive business either to ruinous competition or else to collusion.¹⁰¹

By the 1920s, however, a consensus began to emerge that very high-scale economies producing truly ruinous competition probably existed in only a few industries. The literature began to develop important distinctions between long-run and short-run decision making, largely in an effort to explain the great merger movement that occurred at the turn of the twentieth century.¹⁰² The problem with the existing models of competition, wrote Clark, was that they treated fixed costs as a given and saw competition as driving firms to ruin, earning enough to cover variable costs but not fixed costs. However, in the long run a firm is free to make the same choices about land, plant, and durable equipment that it makes about inventory. To be sure, pricing and output decisions in markets with high fixed costs are more complicated because the entrepreneur must live with investment decisions over a longer period of time. This explains such things as the great amount of price discrimination in such markets as firms struggle to keep their output up.¹⁰³ While the consolidations were intended to diminish ruinous competition, they also made clear that long-run pricing concerns would be a relatively permanent feature of American manufacturing across a wide variety of markets.¹⁰⁴ Most importantly, as developed below, the rise of compe-

101. For an overview of the debate, see *id.* at 302–22.

102. See, e.g., ELIOT JONES, THE TRUST PROBLEM IN THE UNITED STATES 197–200 (1921); MYRON W. WATKINS, INDUSTRIAL COMBINATIONS AND PUBLIC POLICY 28–44 (Allyn A. Young ed., 1927); Eliot Jones, *Is Competition in Industry Ruinous*, 34 Q.J. ECON. 473, 491–97 (1920); see also 2 F.W. TAUSSIG, PRINCIPLES OF ECONOMICS 53–54 (3d ed. 1921); Spurgeon Bell, *Fixed Costs and Market Price*, 32 Q.J. ECON. 507, 509–22 (1918); F.H. Knight, *Cost of Production and Price over Long and Short Periods*, 29 J. POL. ECON. 304, 306–10 (1921). On the merger movement, see generally NAOMI R. LAMOREAUX, THE GREAT MERGER MOVEMENT IN AMERICAN BUSINESS, 1895–1904, at 1–14 (1985); George Bittlingmayer, *Decreasing Average Cost and Competition: A New Look at the Addyston Pipe Case*, 25 J.L. & ECON. 201, 218–28 (1982); George Bittlingmayer, *Did Antitrust Policy Cause the Great Merger Wave?*, 28 J.L. & ECON. 77, 77–79 (1985).

103. See F.Y. Edgeworth, 35 ECON. J. 245, 246 (1925) (reviewing CLARK, *supra* note 82) (noting that the “designer of a new plant” is “free to make mistakes” like sinking too much money into it, which can greatly reduce the chances of making a profit, although price discrimination can “increase[] net earnings”).

104. See, e.g., Knight, *supra* note 102, at 317–18 (discussing the interplay between long-run prices and the tendency toward monopoly).

tition models incorporating differentiated products largely put the controversy to rest.¹⁰⁵

III. IMPERFECT RESOLUTION OF THE FIXED-COSTS CONTROVERSY IN THE 1930s: PRODUCT DIFFERENTIATION AND MONOPOLISTIC COMPETITION

Marginalism became the basis for a major onslaught against *laissez faire*, mainly for two reasons. The first was the early marginalists' theory about the effects of forced wealth redistribution, and the other was their theory of competition.

Although the second reason is most important to our present concerns, the first deserves brief mention. One immediate impact of the incorporation of marginal utility theory into economics was a heightened interest in involuntary redistributions of wealth. The marginalists following Jevons knew that utility maximization requires the individual actor to equate utilities at the margin, and they automatically assumed that this formulation held good for the distribution of wealth or other entitlements among different persons. The great Cambridge economists Alfred Marshall, Arthur Pigou, and Joan Robinson all believed that money transfers from wealthier to less wealthy individuals increased total welfare, for poorer individuals placed a higher value on a marginal dollar than did wealthier ones. They believed that the marginal utility of an additional dollar to someone who already had thousands must be much less than it would be to someone who had nothing.¹⁰⁶ As a result, Pigou¹⁰⁷ and Robinson¹⁰⁸ both toyed with socialism to one degree or another, although Marshall was more ambivalent.¹⁰⁹ For empirical verification, they observed

105. See *infra* Part III.

106. See, e.g., MARSHALL, *supra* note 74, at 2 ("It may make little difference to the fullness of life of a family whether its yearly income is £1000 or £5000; but it makes a very great difference whether the income is £30 or £150 . . .").

107. See Roger E. Backhouse & Steven G. Medema, Public Choice and the Cambridge School: A New View 21–26 (Nov. 30, 2006) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=949203 (laying out Pigou's belief that recent improvements in the structure of government were sufficient to overcome the problem of political self-interest that had doomed socialism in the past).

108. See Prue Kerr, *Joan Robinson and Socialist Planning in the Years of High Theory*, 31 CAMBRIDGE J. ECON. 489, 492 (2007) (explaining Robinson's "argument that *laissez-faire* capitalism had failed to provide full employment and a desirable allocation of labour and resources").

109. See Backhouse & Medema, *supra* note 107, at 8–21 (elucidating Marshall's thoughts on the role of the state in business, including his conclusion that

that the impoverished would be likely to spend that dollar on food, clothing, or shelter, which were high utility goods, while the wealthier will already have satisfied those needs.¹¹⁰

These views were subsequently criticized by John Hicks and Lionel Robbins, leading to a “Paretian” revolution in neoclassical welfare economics, after which the welfare consequences of pure wealth transfers no longer had unambiguous answers.¹¹¹ The basis of the revolution was the idea, now a matter of fundamental neoclassical doctrine, that although a single individual can rank his or her own preferences, the strength of preferences cannot be compared from one person to another.¹¹² Neoclassical economics once again became more-or-less agnostic on the question of the welfare effects of involuntary wealth redistributions.¹¹³

During the interval from roughly 1890 until roughly 1935, however, marginalist economists in England generally believed that the “social net product,” as Pigou called it, could be increased through forced wealth redistribution.¹¹⁴ This appeared to justify the state’s hand in the economy in a big way. The impetus to involve the state was increased by neoclassical studies such as John Maurice Clark’s *Economics of Overhead Costs*, which concluded that industrial production tends naturally to transfer

despite socialism’s theoretical appeal, it could not overcome the inherent corruption, inefficiency, and self-interest of government).

110. See Robert Cooter & Peter Rappoport, *Were Ordinalists Wrong About Welfare Economics?*, 22 J. ECON. LITERATURE 507, 517 (1984) (“Pigou and Marshall believed that the poor would tend to use additional money in the most useful ways.”).

111. See J.R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696, 711–12 (1939); Lionel Robbins, *Interpersonal Comparisons of Utility: A Comment*, 48 ECON. J. 635, 635–41 (1938).

112. See Hicks, *supra* note 111, at 699 (“[W]e have to face . . . the difficulty of inter-personal comparisons. . . . You cannot take a temperature when you have to use, not one thermometer, but an immense number of different thermometers, working on different principles, and with no necessary correlation between their registrations.”); Herbert Hovenkamp, *The Sherman Act and the Classical Theory of Competition*, 74 IOWA L. REV. 1019, 1022 (1989) (“[T]he role of economics in policymaking . . . was effectively torpedoed by the vehement, religious argument of the ordinalists that changes in marginal utility cannot be compared among different persons.”).

113. See, e.g., Herbert Hovenkamp, *The First Great Law & Economics Movement*, 42 STAN. L. REV. 993, 995 (1990). See generally Cooter & Rappoport, *supra* note 110, at 526–28 (discussing the “ordinance revolution” of the 1930s, which rejected cardinal notions of utility and generally accepted the view that utility was not comparable across individuals).

114. See Herbert Hovenkamp, *Knowledge About Welfare: Legal Realism and the Separation of Law and Economics*, 84 MINN. L. REV. 805, 810 (2000) (“[M]arginalist economic theory . . . justifi[ed] widespread, state-enforced wealth distribution.”).

wealth away from labor and toward capitalists.¹¹⁵ That is, the natural consequences of the redistributions brought about by capitalism were regressive.

The second reason for marginalism's doubt about laissez faire lay more centrally in price theory and industrial economics. The mathematics of marginalism enabled the neoclassicists to make distinctions that the classicists could not even comprehend.¹¹⁶ Problems that the classicists simply did not recognize or else acknowledged only in a much less technical fashion included the realizations that: economic actors equate their utilities at the margin and that firms maximize profits; when a firm is maximizing profits, marginal cost equals marginal revenue; both product differentiation and declining costs are ubiquitous and inconsistent with perfect competition; and economic equilibria can be defined for markets that are neither monopolized nor perfectly competitive.¹¹⁷

One of the unforeseen consequences of marginalism is that the stubbornness of these problems often led to policy conclusions that seemed overly broad and somewhat hastily developed when considered in retrospect.¹¹⁸ Both cost theory and, subsequently, monopolistic competition theory, are good examples. Their impact served to undermine confidence in competition in a great many markets, not merely structural monopolies.¹¹⁹ They were to have severe implications for both antitrust policy and regulatory policy through the first half of the twentieth century.

A. IMPERFECT COMPETITION

In 1933, Cambridge University's Joan Robinson published her *Economics of Imperfect Competition*, the first systematic application of marginalist analysis to product-differentiated mar-

115. See CLARK, *supra* note 82, at 7–9; *supra* notes 90–94 and accompanying text.

116. See Hovenkamp, *supra* note 112, at 1021–23 (arguing that, with the advent of marginalist mathematics, the neoclassicists were able to further their knowledge of “competition” beyond the classicists).

117. *Cf. id.* at 1025–29 (outlining the classical and neoclassical conceptions of competition).

118. *Cf. id.* at 1024 (citing Justice Burrough's statement that public policy “is a very unruly horse, and once you get astride it you can never know where it will carry you” to highlight the pitfalls of economic policymaking).

119. See Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 257 (1985) (arguing that real world markets result in skewed application of economic theories by courts, which resulted in less confidence in before-and-after comparisons of empirical information).

kets.¹²⁰ In such markets, firms have somewhat downward-sloping demand curves, which mean that they have a certain amount of discretion over price.¹²¹ Robinson developed the concept of a continuous “marginal revenue” curve and showed how product differentiation affected the choice of output and price by firms that have some discretion over what output to produce and what price to charge.¹²² For such a firm, charging a slightly higher price does not entail losing all of its sales, as it does for the perfect competitor.¹²³ Rather, the firm in imperfect competition typically sells slightly less as it charges a slightly higher price, or slightly more as it cuts price.¹²⁴

Robinson’s work analyzed why product-differentiated markets tended to work more poorly than markets for fungible products. Mainly, in differentiated markets prices tended to be above marginal cost, price discrimination was relatively common, and firms had incentive to differentiate their products further in order to avoid the consequences of head-to-head competition.¹²⁵ Robinson generally assumed that there were no barriers to entry by new firms.¹²⁶ As a result, firms continuously differentiated their products in order to escape from close rivals.¹²⁷

The principal distinction between Marshall’s *Principles of Economics* and Robinson’s *Imperfect Competition* is in the nature of the paradigm “firm” that the two authors imagined. While Marshall took on some of the mathematics of marginalism, the firm for him remained the classical enterprise producing a fungible good in intense competition with other firms, or else a monopolist not facing any competitors.¹²⁸ In sharp contrast, Robinson’s

120. ROBINSON, *supra* note 31, at 92–94.

121. See, e.g., Alan Devlin, *Analyzing Monopoly Power Ex Ante*, 5 N.Y.U. J. L. & BUS. 153, 197 n.189 (2009) (“[T]he seller of virtually any good in the most competitive markets has some ability to choose price (that is, faces a downward-sloping demand curve) . . .”).

122. See ROBINSON, *supra* note 31, at 51–55 (discussing marginal revenue).

123. See *id.* at 316–17 (arguing that monopolists do harm when costs are rising as there are no alternatives for consumers).

124. See *id.* at 51.

125. See *id.* at 179–80.

126. See *id.* at 92–93 (“The abnormal profits are a symptom rather than a cause of the situation in which new firms will find it profitable to enter the trade. But the artificial device regarding the abnormal profits as a causal factor is of great assistance in simplifying the formal argument . . .”).

127. See CHAMBERLIN, *supra* note 41, at 72 (“Where the possibility of differentiation exists . . . sales depend upon the skill with which the good is distinguished from others and made to appeal to a particular group of buyers.”).

128. See generally MARSHALL, *supra* note 74.

Imperfect Competition imagined a manufacturing world much more like the one we actually have, in which products are somewhat differentiated from one another yet compete.¹²⁹ Thus the real jolt of *Imperfect Competition* lay in its theorizing that real-world markets in fact perform much less robustly than economists had imagined. While the classicists were correct that true monopoly was the exception rather than the rule, they were far too sanguine about everything else. Robinson observed that “economists, misled by the logical priority of perfect competition in their scheme, were somehow trapped into thinking that it must be of equal importance in the real world.”¹³⁰ But in fact “the real world did not fulfill the assumptions of perfect competition.”¹³¹ Or as Joseph Schumpeter observed in a review of Robinson’s book, the “common practice” of political economy through Marshall had been to look “at the whole stretch of ground between the two limiting cases [monopoly and perfect competition] as rather unsafe and incapable of yielding determinate results.”¹³² However, “[a]s the majority of practical cases lie on that stretch,” the result was “highly unsatisfactory.”

Things look still worse as soon as we realize that the case of free competition cannot be looked upon as an approximation, and that it becomes a distortion of what it is meant to describe if its assumptions are not fulfilled exactly. To complete our discomfiture, analysis of these assumptions and the resulting correct formulation of them reveal the fact that they are much farther removed from reality and much less likely to be fulfilled than even Marshall probably thought.¹³³

Notwithstanding all of this talk about the “real world,” the *lack* of empirical information in Robinson’s book is stunning. Fundamentally, *Imperfect Competition* is a geometry text that draws certain curves and lines based on assumptions about how rational actors, including business firms, behave. In Robinson’s case, the assumptions were utility maximization for biological persons¹³⁴ or profit maximization for business firms.¹³⁵ She

129. See ROBINSON, *supra* note 31, at 4–5 (emphasizing the difficulty in defining the world in either a perfectly monopolistic or competitive sense).

130. *Id.* at 3–4.

131. *Id.* at 4.

132. Schumpeter, *supra* note 35, at 249.

133. *Id.* at 249–50.

134. See ROBINSON, *supra* note 31, at 218 (“The principle underlying the analysis of the decisions of a buyer as to how much of a commodity to buy is that he will equate marginal utility to marginal cost.”).

135. See *id.* at 16–17 (arguing that the entrepreneur, the controlling interest of a firm, is assumed to maximize profits).

stated as her most fundamental assumption that “each individual acts in a sensible manner in the circumstances in which he finds himself from the point of view of his own economic interests.”¹³⁶ “Sensible” meant profit maximization.¹³⁷

Robinson’s ideological subtext was relatively clear, however. “We see on every side a drift towards monopolisation”¹³⁸ Further, Robinson believed that capitalist entrepreneurs were systematically transferring wealth toward themselves and away from the one set of participants in the economy who were unable to differentiate their output effectively—namely, labor.¹³⁹ Soon after *Imperfect Competition* was published, Robinson became a Keynesian and an active socialist in the British Labour Party.¹⁴⁰

B. PRODUCT DIFFERENTIATION AND THE MONOPOLISTIC COMPETITION REVOLUTION

In a market of fungible products, consumers are indifferent to everything but price.¹⁴¹ However, if products are differentiated the calculus of choice becomes much more complex. Some customers may still buy strictly on price, but others will be drawn to features present in one version of the product but not others. The greater the “space” between a product and its most adjacent competitor, the larger these preference differences are likely to be. Further, they are exacerbated by market factors that limit product mobility. The more difficult it is to redesign a product to look like a successful rival’s, the more robust that rival’s success will be. This accounts for the very large power of intellectual property rights in product-differentiated markets. Such rights only rarely create “monopolies” in the economic sense, but they do tend to

136. *Id.* at 15.

137. *See id.* at 16 (“[An individual] is assumed always to choose the output which will maximise his net receipts.”).

138. *Id.* at 307.

139. *See id.* at 281–304 (discussing monopolistic and monopsonistic exploitation of labor).

140. *See generally* SOCIALISM AND MARGINALISM IN ECONOMICS: 1870–1930, at 10–20 (Ian Steedman ed., 1995) (focusing mainly on Continental Europe and other non-English speaking countries); Bertram Schefold, *Are Economic Theories Historically Specific?*, in THE ECONOMICS OF JOAN ROBINSON 312 (Maria Cristina Marcuzzo et al. eds., 1996) (noting Robinson’s position with respect to socialism and Anglo-Italian economic theory); Kerr, *supra* note 108, at 491–503 (discussing Robinson’s later career and her flirtation with socialism).

141. *See* COURNOT, *supra* note 21, at 46 (“The cheaper an article is, the greater ordinarily is the demand for it. . . . [T]he sales or the demand generally . . . increases when the price decreases.”).

create or preserve product differentiation by making it more difficult for one firm to copy another firm's product precisely.¹⁴²

Product differentiation undermined most of the arguments from prior to the 1930s that high fixed costs led to ruinous competition, largely ending the fixed-cost controversy.¹⁴³ Under the prevailing Marshallian model in vogue in the late nineteenth and early twentieth centuries, competitive equilibrium was seen as inconsistent with fixed costs, and the attempts to solve this puzzle within an industry producing an identical product were all technical failures.¹⁴⁴ However, firms making differentiated products did not simply manufacture more and more as long as price was above marginal cost; rather they invested in distinguishing their products in order to avoid head-to-head competition.¹⁴⁵ As University of Texas economist Spurgeon Bell had observed already in 1918:

If fixed costs are large there must be a style or brand competition on the one hand or, on the other hand, consolidation of producers similar to that which took place in the steel industry, in the railroads, and in various large-plant industries producing goods of a comparatively staple character.¹⁴⁶

While the product differentiation models of the early 1930s largely solved the ruinous competition problem, they substituted another set of unsettling market imperfections—most significantly, equilibria in which prices were significantly above marginal cost and firms carried excess capacity.¹⁴⁷ The result was a signifi-

142. See WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 372–402 (2003) (examining the complex relationship between intellectual property rights and monopoly under antitrust law).

143. See discussion *supra* Part II.

144. See JAN KEPPLER, *MONOPOLISTIC COMPETITION THEORY: ORIGINS, RESULTS, AND IMPLICATIONS* 46–121 (1994) (discussing at length the attempts and failures of a number of economists seeking to solve this problem); Steven Brakman & Ben J. Heijdra, *Introduction to THE MONOPOLISTIC COMPETITION REVOLUTION IN RETROSPECT* 1, 4–7 (Steven Brakman & Ben J. Heijdra eds., 2004) (discussing Marshall's own struggles with the problem).

145. See Bell, *supra* note 102, at 520 (“Where the staple character of the commodity can be modified by the production of different brands, the cooperative relation is much more secure. It is very difficult to prevent cutthroat competition among the producers of ordinary salt because it is not possible . . . to use a variety of brands to good effect.”).

146. *Id.* at 523; see also Jones, *supra* note 102, at 491–97 (discussing the effect of competition on the railroad industry).

147. See William F. Baxter, *Legal Restrictions on Exploitation of the Patent Monopoly: An Economic Analysis*, 76 *YALE L.J.* 267, 368 (1966) (arguing that excess capacity can be avoided when prices are above marginal cost so long as the monopolist's competitors do not enter the market).

cant change in the focus of competition policy. With the exception of price fixing, which is quite common in markets for fungible products, antitrust policy since the 1940s has been preoccupied mainly with anticompetitive practices in product-differentiated markets.¹⁴⁸ This was particularly true of the law of vertical restraints.

During the middle part of the twentieth century, Chamberlin's monopolistic competition model became the ruling model of competition theory.¹⁴⁹ Incorporating product differentiation into competitive economic models produced important conclusions that most of the economists involved in the fixed-cost controversy had not anticipated. The general problem of ruinous competition was much less imposing because firms in a differentiated market could obtain higher prices by keeping their own output in check. Increasingly, ruinous competition came to be seen as unique to markets such as those for commodities, where goods or services could not readily be differentiated, and thus firms were required to compete on price alone.¹⁵⁰ At the same time, perfect competition was not in the cards either because prices were always above marginal cost—indeed, it was the drive toward marginal cost pricing in industries with high fixed cost that led competitors to ruin.

Chamberlin's model generally assumed a sufficiently large number of firms in a market that Cournot-style coordination of output was not significant.¹⁵¹ Further, entry was easy. However, each firm also produced a variation of the product that was distinguishable in the eyes of buyers.¹⁵² As a result buyers preferred one firm's offering over others, but buyers' individual preferences

148. See Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 257 (2001) (discussing the push in the 1980s to develop an economic system more sensitive to anticompetitive behavior).

149. See JOSEPH A. SCHUMPETER, *HISTORY OF ECONOMIC ANALYSIS* 1150–51 (Elizabeth Boody Schumpeter ed., 1954) (“*The Theory of Monopolistic Competition* [that] sprang . . . from Professor E.H. Chamberlin’s head . . . met with a corresponding success . . .”). See generally CHAMBERLIN, *supra* note 41, at 1–16 (outlining his monopolistic competition model).

150. See Jones, *supra* note 102, at 495 (“If a reduction in prices under these circumstances has any effect . . . it must be either to attract away business of a competitor (to his detriment), or to induce dealers to lay in supplies for the future, which spoils the market. In either event the outcome is injurious to the [commodities] trade.”).

151. See generally CHAMBERLIN, *supra* note 41.

152. See *id.* at 71–72 (outlining firms’ efforts to distinguish their products).

varied from one firm to the next.¹⁵³ As a result, each firm faced a demand curve that sloped downward, allowing the firm to sell more by cutting its price. Firms continuously repositioned themselves in such a market by seeking to differentiate their own offerings from those of rivals, but also by copying the offerings of rivals who appeared to be earning higher returns.¹⁵⁴ The mathematics of monopolistic competition are complex; however, Chamberlin concluded that while in the short run firms would earn some profits in the form of prices higher than marginal cost, in the long run these profits would be frittered away as other firms duplicate that firm's successes or the firm invests in further differentiation in order to protect its profits.¹⁵⁵ Long-run profits are zero, or just enough to pay off fixed-cost investments at the competitive rate. Further, in equilibrium, monopolistically competitive firms are always carrying excess capacity; that is, they could be producing more product, but would be forced by decreasing demand to cut the price toward marginal cost.

IV. CONSENSUS AND WORKABILITY IN COMPETITION POLICY

Robinson and Chamberlin's works were widely viewed as placing a severe limitation on the classical idea that competition is robust and that markets tend toward it.¹⁵⁶ This in turn was thought to explain at least part of the subsequent antitrust hostility toward such things as advertising and "excessive" product differentiation, which reached its high point in the 1970s.¹⁵⁷

153. See *id.* at 69 ("[W]hen products are differentiated, buyers are given a basis for preference, and will therefore be paired with sellers, not in random fashion . . . but according to these preferences.").

154. Cf. *id.* at 83–84 (arguing that an increase in profit attracts competitors into the field).

155. See *id.* at 72 ("Where the possibility of differentiation exists . . . sales depend upon the skill with which the good is distinguished from others and made to appeal to a particular group of buyers.").

156. See, e.g., Herbert Hovenkamp, *The Classical Corporation in American Legal Thought*, 76 GEO. L.J. 1593, 1672 (1988) ("The great events signalling [sic] the fall of neoclassical political economy were the publication of Joan Robinson's *Economics of Imperfect Competition* and Edward Chamberlin's *Theory of Monopolistic Competition* in 1933.").

157. See, e.g., WILLIAM S. COMANOR & THOMAS A. WILSON, ADVERTISING AND MARKET POWER 245 (1974) ("[A]dvertising creates a significant barrier to new competition in a number of important industries."); B. Curtis Eaton & Richard G. Lipsey, *Product Differentiation*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 723, 726 (Richard Schmalensee & Robert Willig eds., 1989) (citing Chamberlin's study to show that product differentiation can result in firms' equilibrium being "less than minimum efficient scale"); Richard A. Posner, *The*

Many members of the Chicago School rejected the theory of monopolistic competition for being too complex and excessively structuralist, in the sense that it elevated structure and minimized the importance of behavior as the principal determinant of industry performance.¹⁵⁸ It is no wonder that in our post-structuralist age monopolistic competition is regarded as a kind of throwback to New Deal interventionism.¹⁵⁹

In a critically important sense, however, the new theories of product differentiation did quite the opposite. They served to restore the notion of a competitive equilibrium in an era plagued by theory indicating that high fixed costs would lead to ruinous competition and either monopoly, collusion, or regulation in any industry with significant fixed costs. In this regard, the corrective force of Chamberlin's work in particular is difficult to exaggerate. To be sure, monopolistic competition is not a perfectly competitive equilibrium, but it *is* a competitive equilibrium that admits of large numbers of firms, is consistent with easy entry, and produces a large variety of products at costs that may be only a little higher than minimum efficient cost.¹⁶⁰

Chicago School of Antitrust Analysis, 127 U. PA. L. REV. 925, 930 n.12 (1979) (noting the continued academic support for antitrust law's hostility towards advertising); Note, *Annual Style Change in the Automobile Industry as an Unfair Method of Competition*, 80 YALE L.J. 567, 586-92 (1971) (describing production differentiation as a barrier to entry by new firms); H. Paul Root, *Should Product Differentiation Be Restricted?*, J. MKTG., July 1972, at 3, 3 (charging that product differentiation "created and maintained industry structures that are not competitive"). Of course, whether product differentiation is "excessive" depends on its degree. See *Product Differentiation*, *supra*, at 763 ("[I]n a society that values diversity, there is a trade-off between economizing on resources, by reducing the costs of producing existing products, and satisfying the desire for diversity, by increasing the number of products.").

158. See George J. Stigler, *Monopolistic Competition in Retrospect*, in FIVE LECTURES ON ECONOMIC PROBLEMS 22-24 (1949) (discussing the inadequacies of the theory of monopolistic competition); Louis A. Dow & Lewis M. Abernathy, *The Chicago School on Economic Methodology and Monopolistic Competition*, 22 AM. J. ECON. & SOC. 235, 238 (1963) ("The Chicago School . . . is quite explicit in its rejection of the model of monopolistic competition as a useful portion of economic analysis.").

159. See Hovenkamp, *supra* note 114, at 819 ("[T]he new neoclassicism incorporated New Deal anomalies such as . . . monopolistic competition."). But see Avinash K. Dixit & Joseph E. Stiglitz, *Monopolistic Competition and Optimum Product Diversity*, 67 AM. ECON. REV. 297, 297-308 (1977) (reviving the monopolistic competition model as way of assessing social cost and value of product differentiation).

160. See BLAUG, *supra* note 15, at 391-93.

A. RUINOUS COMPETITION VERSUS MONOPOLISTIC COMPETITION

Chamberlin's model of monopolistic competition solved the ruinous competition puzzle by illustrating how firms in product-differentiated markets would shift their efforts into repositioning their products rather than producing more.¹⁶¹ Stability in multi-firm markets with economies of scale became possible. So how one looks at Chamberlin's solution depends on the starting point. If one begins with perfect competition as the norm, then monopolistic competition creates the impression of a sick industry, producing less than it could be producing consistent with minimum costs, paying for chronic excess capacity, and consuming too many resources on excessive product differentiation and advertising. On the other hand, if one begins with a situation in which competition is thought to be inherently ruinous because it denies firms the ability to recover fixed-cost investments, then monopolistic competition is actually a fairly happy alternative to the monopoly, price fixing, or regulation that ruinous competition imagined.

The all-important adjustments that competition policy had to make were: first, learning to live with a certain amount of imperfection; and second, distinguishing those markets in which socially acceptable amounts of competition could be sustained through relatively passive state policymaking, such as antitrust, from those that would require more active intervention. The very statement of these adjustments indicates that controversy was hardly at an end. Nevertheless, in a very important way these adjustments defined the terms of future debate.

The ruinous competition debate gradually died away as economists developed theories of short-run and long-run costs, which seemed to solve most of the problems, at least in product-differentiated markets.¹⁶² In the short run, firms might be driven to ruinous competition because their fixed costs are so high. However, in the long run excess plants will wear out and not be replaced and market equilibrium will be restored. John Maurice Clark's path-breaking book on fixed costs set the stage for theory that permitted equilibria to emerge even in industries subject to

161. See CHAMBERLIN, *supra* note 41, at 81–100 (discussing firms' behavior in product-differentiated markets to establish group equilibrium).

162. See, e.g., Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial Organization*, 68 TEX. L. REV. 105, 140 (1989) ("John Maurice Clark's influential consensus book on overhead costs generally ended the [ruinous competition] debate . . .").

high fixed costs.¹⁶³ As Morris Copeland observed, “[e]conomic theory has from the start proceeded as if all the costs incurred in any given period of time were directly traceable to the business transacted during that period.”¹⁶⁴ Or as Schumpeter said in his critique of Joan Robinson, “the element of time must be got hold of in a much more efficient manner, if for no other reason because what people try to maximize is certainly gain *over time*.”¹⁶⁵

Clark’s 1940 essay on *Workable Competition* offered a way of merging multiple market imperfections, namely those caused by fixed costs and product differentiation, into a single model for competition policy.¹⁶⁶ He observed that market imperfections have a way of canceling each other out: “If there are, for example, five conditions, all of which are essential to perfect competition, and the first is lacking in a given case, then it no longer follows that we are necessarily better off for the presence of any one of the other four.”¹⁶⁷ In the case of a purely fungible product, prices would necessarily be driven to short-run cost.¹⁶⁸ At the other extreme—wide differentiations in the product—one ends up with virtual monopoly.¹⁶⁹ But in the middle one sees an area where competitive stability can be achieved, even though it is not quite perfect.¹⁷⁰ Further, while perfect competition demands conti-

163. See CLARK, *supra* note 82, at 432–35.

164. Morris A. Copeland, Book Review, 40 POL. SCI. Q. 296, 296 (1925).

165. Schumpeter, *supra* note 35, at 256.

166. See Clark, *supra* note 57, at 246–56.

167. *Id.* at 242.

168. See NAT’L ASS’N OF ATTORNEYS GEN., VERTICAL RESTRAINTS GUIDELINES (1985), reprinted in 2 PRACTISING LAW INST., 35TH ANNUAL ANTITRUST LAW INSTITUTE: CORPORATE LAW AND PRACTICE COURSE HANDBOOK SERIES 837, 847 (1994) (“[A] fungible product . . . will produce a market with highly elastic demand and vigorous interbrand price competition. . . . [F]ungible products are subject to less product enhancement by dealers.”).

169. See Peter F. Coogan, *The Effect of the Federal Tax Lien Act of 1966 Upon Security Interests Created Under the Uniform Commercial Code*, 81 HARV. L. REV. 1369, 1424 (1968) (“[P]roduct differentiation generally leads to higher prices and monopoly returns . . .”).

170. See *id.* at 241–43, 245 (“[The] [i]mportance of [the] competitive element hinges largely on [the] extent to which quality differences are open to free imitation.”). John Maurice Clark made a similar point a year earlier:

For example, it appears that the results of an open-price system may be to raise prices or to lower them, depending on the industry to which it is applied. Brands and differences of quality between competing producers are spoken of as elements of “partial monopoly”, yet if producers are few and large, the quality product may show on the whole healthier competitive conditions than the standardized product, since in the latter case a reduction of price by one producer is sure to be promptly met by his rivals.

Clark, *supra* note 83, at 130.

nuous production at capacity, in the real world plants are built for the long run, while market demand fluctuates over the short run.¹⁷¹ Necessarily, a plant designed for peak demand will be operating at partial capacity at least some of the time.¹⁷²

Clark gave manufacturing of both automobiles and automobile tires as examples of markets that were workably competitive notwithstanding moderate product differentiation and a relatively large investment in durable plants and equipment.¹⁷³ Speaking of such markets he concluded that “[i]n such cases, one may hope that government need not assume the burden of doing something about every departure from the model of perfect competition.”¹⁷⁴ Speaking of the relative value of competition policy against its alternatives, Clark wrote:

It will mean something if we can find, after due examination, that some of these forms [of imperfect or monopolistic competition] do their jobs well enough to be an adequate working reliance—more serviceable, on the whole, than those substitutes which involve abandoning reliance on competition. And it will be useful if we can learn something about the kinds and degrees of “imperfection” which are positively serviceable under particular conditions.¹⁷⁵

B. IMPLICATIONS FOR ANTITRUST POLICY

In the late 1930s the Roosevelt Administration undertook an abrupt and radical change in antitrust policy.¹⁷⁶ The twenty-year

171. See Clark, *supra* note 57, at 250 (discussing at length the long-term and short-term ramifications of market behavior).

172. See *id.*

173. See *id.* at 256.

174. *Id.*; see also Clark, *supra* note 83, at 130–31:

The kind of policy which is indicated seems to be, not a laissez-faire acquiescence in any and all forms of trade practices which industry may evolve, and not an indiscriminate condemnation of all forms of canalized or restricted or “imperfect” competition, regardless of whether the competition that is restricted is of the cutthroat variety or not. What seems to be called for is a realistic control of trade practices which should not simply prohibit unduly restrictive forms, but should assume constructive responsibility for working out for each industry, where unduly restrictive forms are found, the form which, in that industry, bids fair to give the nearest practicable approach to the results of “normal” competition It cannot be done by merely bombing at existing trade practices with negative “cease and desist” orders and letting the fragments fall where they may.

175. See Clark, *supra* note 57, at 242.

176. See ELLIS W. HAWLEY, *THE NEW DEAL AND THE PROBLEM OF MONOPOLY* 374 (1966) (noting that in 1937 the Department of Justice began to prosecute major antitrust cases); WILLIAM E. LEUCHTENBURG, *FRANKLIN D. ROOSEVELT AND THE NEW DEAL* 163 (Henry Steele Commager & Richard B. Morris eds., 1963) (discussing that the First New Deal “told business what it must do”

period leading up to the New Deal has been described as an era of government-authorized cartels, or “cooperative competition.”¹⁷⁷ The early New Deal carried this thinking to the extreme, substituting state planning and organized private ordering for competition.¹⁷⁸ The Antitrust Division of the U.S. Department of Justice was relegated to bringing a few minor cases and staying out of the way of the cooperative planning that other federal agencies were promoting.¹⁷⁹

In sharp contrast, the antitrust policies ushered in as part of the Second New Deal were highly suspicious of any form of agreement among rivals and increasingly hostile toward both dominant firms and vertical integration. The *Madison Oil* case (*Socony-Vacuum*) is the best known exemplar of firms caught between the conflicting demands of two different government policies.¹⁸⁰ With at least the tacit encouragement of the National Recovery Administration, the petroleum industry had undertaken a cartel-like self-regulatory program to control excessive output and ruinous competition in the petroleum industry through competitor coordination.¹⁸¹ Then, in an abrupt switch, the govern-

and the Second New Deal “told business what it must not do”); MICHAEL E. PARRISH, *ANXIOUS DECADES: AMERICA IN PROSPERITY AND DEPRESSION* 296–99 (1992) (discussing the passage of the National Industrial Recovery Act which suspended antitrust laws); William E. Kovacic, *Failed Expectations: The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 IOWA L. REV. 1105, 1132 (1989) (discussing the antitrust revival in Roosevelt’s second term). See generally HENRY C. SIMONS, *ECONOMIC POLICY FOR A FREE SOCIETY* 75 (1948) (discussing a contemporary’s view of the changes).

177. See RUDOLPH J.R. PERITZ, *COMPETITION POLICY IN AMERICA, 1888–1992: HISTORY, RHETORIC, LAW* 76–89 (1996) (discussing cooperative competition in the context of trade associations); Jason E. Taylor & Peter G. Klein, *An Anatomy of a Cartel: The National Industrial Recovery Act of 1933 and the Compliance Crisis of 1934*, 26 RES. ECON. HIST. 235, 242–48 (2008) (discussing how the government facilitated cartels through the NIRA).

178. See PARRISH, *supra* note 176, at 297 (“[N]ever had the government of the United States become so deeply involved in the day-to-day economic and social arrangements of the American people.”).

179. See HAWLEY, *supra* note 176, at 373 (noting that prior to 1937, the Antitrust Division of the U.S. Department of Justice confined itself to mostly “peanut” cases).

180. See *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 201–10 (1940) (noting the alleged federal government acquiescence to the defendants’ actions). Another result was expansiveness in collusion cases involving product-differentiated markets. See, e.g., *Interstate Circuit, Inc. v. United States*, 306 U.S. 208, 232 (1939) (finding collusion between movie theaters and movie distributors).

181. See HAWLEY, *supra* note 176, at 374 (discussing the *Madison Oil* cases). See generally Daniel A. Crane, *The Story of United States v. Socony-*

ment issued a criminal indictment against the companies.¹⁸² Explanation for the switch is generally laid to the FDR Administration's non-ideological bent, its penchant for experimentation, and the loss of enthusiasm for social planning that followed Supreme Court decisions striking down significant portions of the first New Deal's recovery agenda.¹⁸³

One hesitates to ascribe too many policy implications to a highly academic set of ideas about industrial organization expressed mainly as geometric figures. But the facts are powerful. Both the ruinous competition theories of the early century through the 1920s, and the monopolistic competition theories of the mid-1930s and after, saw severe problems in the traditional competitive model.¹⁸⁴ But the implications for antitrust policy could not have been more different. The fixed-cost controversy led naturally to the view that less antitrust is better—that mergers should be tolerated even to the point of monopoly and that price fixing was otherwise inevitable. The message this sent to policy-makers was that antitrust is a bad thing. Its main impact would be to prevent efficient mergers or limit socially beneficial coordination of price or output.

By contrast, monopolistic competition theory saw a world in which manufacturers competed mainly by differentiating their products.¹⁸⁵ Rather than overproducing, they tended to operate with excess capacity.¹⁸⁶ In cases of concentrated markets and

Vacuum: *Hot Oil and Antitrust in the Two New Deals*, in ANTITRUST STORIES 91–119 (Eleanor M. Fox & Daniel A. Crane eds., 2007) (discussing in detail the events leading up to the *Madison Oil* cases, the trial, and the aftermath).

182. See HAWLEY, *supra* note 176, at 374 (discussing the government's prosecution of the petroleum industry). Daniel Crane notes that the *Madison Oil* indictment stretched back to cover a time period when the defendants were acting under the orders of Harold Ickes, FDR's Secretary of the Interior, under the authority of section 3 of the National Industrial Recovery Act (NIRA), which had not yet been declared unconstitutional. See Crane, *supra* note 181, at 102–03.

183. See, e.g., *Panama Refining Co. v. Amazon Petroleum Corp.*, 293 U.S. 388, 432–33 (1935) (invalidating section 9 of NIRA); *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. 495, 595 (1935) (invalidating section 3 of NIRA); see also HAWLEY, *supra* note 176, at 127–30 (discussing *Schechter Poultry* and the end of NIRA).

184. See generally CHAMBERLIN, *supra* note 41, at 71 (discussing monopolistic competition); Jones, *supra* note 102 (discussing ruinous competition in the context of railroads).

185. See CHAMBERLIN, *supra* note 41, at 71 (“The volume of [a monopolistic competitor's] sales depends in part upon the manner in which his product differs from that of his competitors.”).

186. See *id.* at 104–09 (noting that monopolistic competition has an equilibrium at an excess capacity).

high entry barriers, monopolistic competition turned into oligopoly, with its attendant low output and high prices. Product differentiation seemed “excessive,” particularly since it was accompanied by heavy expenses for advertising and other forms of promotion.¹⁸⁷ Further, these were all problems that appeared to beg for aggressive antitrust solutions.

V. STRUCTURALISM IN POST-WAR COMPETITION THEORY

Clark’s *Workable Competition* essay provided an important platform for working out a competition policy that took the many imperfections exposed by marginalist analysis into account. Several economists offered critiques and suggested improvements.¹⁸⁸ Clark salvaged the policy idea that markets were sufficiently robust such that only occasional government intervention via the antitrust laws was justified, rather than more aggressive forms of regulation or simple acquiescence in monopoly.

But this was hardly the end of the story. Classicists had generally assumed that competitive markets were more or less the same, with monopoly as the outstanding and relatively rare exception. But the fixed-cost controversy, the theories of imperfect and monopolistic competition, and Cournot oligopoly theory all suggested that markets in fact differ from one another, perhaps a great deal. This suggested in turn that a thoroughly articulated antitrust policy would call for different rules for markets with different structural characteristics, something that had previously attracted institutionalists such as the legal realist Walton Hamilton.¹⁸⁹ After Chamberlin, it was picked up by more mainstream

187. See *id.* at 171–72 (discussing selling costs in relation to excess capacity).

188. See, e.g., TEMP. NAT’L ECONOMIC COMM., 76TH CONG., INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER: COMPETITION AND MONOPOLY IN AMERICAN INDUSTRY, Monograph No. 21, at 8–9 (Comm. Print 1940) (written by Clair Wilcox) (“[C]ompetition may be said to be . . . workable whenever it operates over time to afford buyers substantial protection against exploitation at the hands of sellers and affords sellers similar protection . . .”); CORWIN D. EDWARDS, MAINTAINING COMPETITION 9–10 (1949) (discussing seven characteristics an economic policy should aim to achieve); George J. Stigler, *The Extent and Bases of Monopoly*, 32 AM. ECON. REV. (SUPP.) 1, 2–3 (1942) (“It is necessary . . . to replace the standard of competitive enterprise economy by a more specific comparative system . . . [such as] workable competition.”).

189. Walton H. Hamilton, *The Problem of Anti-Trust Reform*, 32 COLUM. L. REV. 173, 176–77 (1932) (“The simple uniformity of the older acts may have to give way to an accommodation of public oversight to the varying necessities of different trades.”).

competition economists, particularly at Harvard.¹⁹⁰ One byproduct was many single-industry studies illustrating the competitive conditions in particular markets.¹⁹¹

More ominously, product differentiation and fixed costs implied that firms had discretion over price and product configuration as well as output. As a result, marginalist economic models had to accommodate the possibility of strategic behavior in ways that classicism could not even fathom. The principal variables that accounted for the differences among markets were: (1) the number of firms and their size differences; (2) the extent of fixed costs, or economies of scale; (3) the degree of product differentiation and the amount of mobility among differentiations; and (4) ease of entry. The two extreme cases provoked the least controversy. In highly competitive markets with modest scale economies, easy entry, a fairly homogenous product, and typically numerous firms, competition could be trusted to discipline even modest deviations from competitive behavior.¹⁹² The only alternatives open to firms were to produce all they could at the market price or to collude. At the other extreme, if scale economies were so significant that they dictated a single firm for a market, then monopoly plus price regulation might be in order.

The two intermediate classes, monopolistic competition and structural oligopoly, were much more troublesome. The less problematic of the two was monopolistic competition, characterized by product differentiation and easy entry, where prices would be above marginal cost but workable competition could be attained.¹⁹³ More problematic was oligopoly, characterized by a small number of firms, high entry barriers, and varying degrees of product differentiation.¹⁹⁴

In the late 1930s and 1940s, Chamberlin's monopolistic competition theory swept the field of competition economics.¹⁹⁵ How-

190. See, e.g., CARL KAYSEN, *UNITED STATES V. UNITED SHOE MACHINERY CORPORATION: AN ECONOMIC ANALYSIS OF AN ANTI-TRUST CASE 1-24* (1956) (discussing a Harvard professor's analysis of the shoe industry).

191. See, e.g., SAMUEL M. LOESCHER, *IMPERFECT COLLUSION IN THE CEMENT INDUSTRY 1-8* (1959); JESSE W. MARKHAM, *COMPETITION IN THE RAYON INDUSTRY 1-5* (1952); JAMES M. MCKIE, *TIN CANS AND TIN PLATE: A STUDY IN TWO RELATED MARKETS 1-9* (1959); MERTON J. PECK, *COMPETITION IN THE ALUMINUM INDUSTRY, 1945-1958*, at 1-4 (1961).

192. See generally CHAMBERLIN, *supra* note 41, at 11-22.

193. See generally *id.* at 56-70.

194. See *id.* at 30-31 (describing the basic problems facing oligopolies).

195. See GEORGE W. STOCKING & MYRON W. WATKINS, *MONOPOLY AND FREE ENTERPRISE 87-89* (1951) (discussing how textbook writers quickly incorporated Chamberlin's principles).

ever, the policy emphasis switched away from Chamberlin's particular model, characterized by easy entry and a fairly large number of firms, to oligopoly.¹⁹⁶ The troublesome cases were not restaurants, where product differentiation was abundant but entry was easy. Rather, they were manufacturing, which was often characterized by differentiated products, high entry barriers, and sufficient scale economies to dictate a small number of firms.

The economics of the day perceived one very important difference between monopolistic competition generally and monopolistic competition in oligopoly industries. In the former, ease of entry plus a large number of firms drove firms to innovate continuously in order to reposition their products. One might conclude that there was too much product differentiation and too much of collateral outputs such as advertising. But in the long run prices were driven to cost. None of this was likely in a market with a small number of firms and high entry barriers. Joe Bain, who became the most prominent spokesperson for Harvard School structuralism, complained in 1950 that workable competition in oligopoly industries would be much more difficult to achieve than Clark had anticipated.¹⁹⁷

Harvard dominated economic thinking about competition policy from the 1940s through the 1970s and had a very considerable influence on antitrust policy.¹⁹⁸ Its principals were Chamberlin, Edward S. Mason on the Harvard economics faculty, and Joe S. Bain, who received his Ph.D. under Mason but who spent most of his career in the economics department of the University of California at Berkeley.¹⁹⁹

Already in 1937 Mason had observed that lawyers and economists used the term "monopoly" differently. For lawyers monopoly was identified by "restrictive or abusive practices" while

196. See *id.* at 92–93 (discussing the shift away from the Chamberlin model in the realm of public policy).

197. See Joe S. Bain, *Workable Competition in Oligopoly: Theoretical Considerations and Some Empirical Evidence*, 40 AM. ECON. REV. 35, 37–38 (1950) (“[A]ny economist’s assessment of the workability of competition is likely to have a highly provisional and even personal character and is likely to rest heavily on the *ad hoc* assessment of obvious alternatives in given situations.”).

198. See generally HOVENKAMP, *supra* note 2, at 35–38 (discussing the influence of the Harvard school on public policy).

199. See generally Herbert Hovenkamp, *Introduction to the Neal Report and the Crisis in Antitrust*, 5 COMPETITION POL’Y INT’L 219, 219–22 (2009) (discussing Chamberlin, Mason, and Bain).

economists identified monopoly as market control.²⁰⁰ Writing a dozen years later and responding to John Maurice Clark's call for a workable competition policy, Mason concluded that lawyers had largely come around to the economists' view and increasingly were identifying monopoly as a structural rather than behavioral problem.²⁰¹

In extending Mason's work, Bain found plenty of structural signs indicating that competition was not workable in concentrated industries: profit rates that were above benchmark normal returns on investment; plants that were larger than justified by scale economies; chronic excess capacity; and lags in adoption of cost-reducing technology. Bain stated, "A market could be considered a case of unworkable competition if it had an extremely bad rating in any direction or moderately bad or suspicious ratings in several."²⁰² Further:

[W]hatever the degree of association within oligopolies between competitive behavior and results, it seems quite likely that such behavior may be in turn either influenced or determined by certain characteristics of the underlying market structure. If so, a demonstrated association between market structure and results would establish the more fundamental determinants of workability of competition (and, also, determinants more easily influenced by conventional public policy measures).²⁰³

Bain was very critical of those who believed that the relationship between structure and performance was "indeterminate."²⁰⁴ He thought it possible to "arrive at hypotheses concerning the systematic association of oligopolistic market structure and results."²⁰⁵ Bain then proposed a research agenda that would relate market structure to such things as the likelihood and success of collusion, price-cost margins, and innovation rates. Most importantly, he believed, the height of entry barriers into concentrated markets determined performance. In Bain's later work entry barriers emerged as the single most decisive determinant of price and output in concentrated industries. His own popular text

200. See Edward S. Mason, *Monopoly in Law and Economics*, 47 YALE L.J. 34, 43 (1937) ("By monopoly . . . the courts did not mean control of the market but restriction of competition.").

201. See Edward S. Mason, *The Current Status of the Monopoly Problem in the United States*, 62 HARV. L. REV. 1265, 1271-76 (1949) (discussing how monopoly in the legal sense has moved towards a workable competition model).

202. Bain, *supra* note 197, at 37-38.

203. *Id.* at 38.

204. See *id.* at 39.

205. *Id.*

on industrial organization economics furnished the theoretical basis for that research agenda.²⁰⁶

A. THE STRUCTURE-CONDUCT-PERFORMANCE (S-C-P) PARADIGM

The Mason/Bain paradigm for industrial competition constituted a formal attempt to relate an industry's structure to its performance, with performance referring to degree of competitiveness. The powerful evaluation tool that resulted, is known today as the structure-conduct-performance, or S-C-P, paradigm. During its heyday, the S-C-P paradigm was subjected to more empirical testing than any economic model in history.²⁰⁷

The theory behind the S-C-P paradigm was simple enough. Using Cournot-style analysis of profit-maximizing behavior in concentrated markets, one could relate industry performance to structure, in particular the number of firms and the height of entry barriers.²⁰⁸ More generally, under the paradigm, industry structure was thought to determine conduct.²⁰⁹ For example, firms in concentrated industries with high fixed costs could not avoid comparing their prices and determining whether to match or undercut their rivals, nor could they avoid deciding whether a new product configuration in a market was necessary to their own success or how others might respond. This conduct was in turn thought to dictate performance.²¹⁰ Given an expression in which structure entails conduct and conduct entails performance, conduct itself dropped out as a variable of interest. One could predict performance simply by knowing something about structure.

206. See JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES 21-24 (1956) (discussing the value of a condition of entry to a firm); JOE S. BAIN, INDUSTRIAL ORGANIZATION 174 (1959) [hereinafter BAIN, INDUSTRIAL ORGANIZATION] (discussing how the ability of a few firms to charge higher prices was the "essence of any barrier to entry"). See generally Joe S. Bain, *Conditions of Entry and the Emergence of Monopoly*, in MONOPOLY AND COMPETITION AND THEIR REGULATION 215, 219-26 (Edward H. Chamberlin ed., 1954) [hereinafter Bain, *Conditions of Entry*] (discussing condition of entry and its effect on the tendencies of monopoly).

207. See generally Hovenkamp, *supra* note 199, at 219-22 (discussing the S-C-P paradigm, its history, and its demise in the wake of the publication of the Neal and Stigler Reports).

208. See HOVENKAMP, *supra* note 2, at 36 (discussing the S-C-P paradigm).

209. See *id.* ("[T]he [S-C-P] paradigm held that a given market structure dictated certain types of conduct . . .").

210. See *id.*

In the 1950s the S-C-P paradigm emerged as the most elegant and comprehensive model of industry competition in the marginalist era.²¹¹ Its reductionism contributed to its explanatory power. Conduct was thought to be difficult to assess, largely because for most conduct numerous alternative explanations, both anticompetitive and pro-competitive, were possible. A large firm's actions intended to increase its own sales were presumptively competitive, while actions intended to deny sales to rivals might be thought presumptively anticompetitive. But how does one tell the difference in a concentrated market where most of a firm's output increases come at the expense of a rival? The S-C-P paradigm promised economists, and thus antitrust policymakers, a way of addressing these problems without troubling themselves about the manifold ambiguities inherent in analyzing conduct.

Bolstering Bain's commitment to using the S-C-P paradigm as a policy tool, was his belief that industrial concentration in America was excessive. He concluded that firms were larger than necessary to attain available efficiencies.²¹² Bain argued that the long-run average cost curve of most firms had a very large flat bottom. In order to be profitable a firm must recover its long-run costs, and the bottom of the curve represents the place where unit costs were lowest—that is, where the firm was producing most efficiently. A flat bottom entailed that once a firm had attained minimum efficient scale it could continue to grow larger without acquiring any inefficiencies from larger size. As a result, while a market in which minimum efficient scale was, say, a ten percent market share could accommodate ten efficient firms, such a market might in fact have only three or four firms.²¹³ In the presence of high entry barriers, which Bain tended to find readily, this theory had strong implications for antitrust policy. It suggested that there was a concentration “ratchet” in the sense that even after a firm attained all scale economies, nothing kept it from growing larger still, but there was no reason to expect it to become smaller. As a result, industrial concentration would tend to increase.²¹⁴ This would of course be exacerbated by a lax merger

211. See Hovenkamp, *supra* note 199, at 219.

212. See BAIN, INDUSTRIAL ORGANIZATION, *supra* note 206, at 358 (noting that there is “significant incidence” in the manufacturing industries where firms are “unnecessarily large”).

213. See *id.* at 152–55 (noting that firms in diseconomies of scale often have ranges above the minimum optimal scale).

214. Bain stated:

If . . . diseconomies of large scale are not important over a wide range, so that any firm can attain optimal efficiency either at a very small

policy that permitted firms to grow by acquisition as well as internal expansion.

Significantly, as concentration increased and the number of firms in an industry declined, productive efficiency would not diminish. Anticompetitive behavior would increase, however, as the firms acquired greater incentives to behave oligopolistically or collude. Or to say it differently, once a firm grew large enough to attain all production economies it could not make further profits by reducing its costs. However, it could profit by increasing prices, which would occur as the market became more oligopolistic.²¹⁵ The idea that firms were much larger than they needed to be to attain all available scale economies played an important role in the congressional hearings that led to the 1950 Celler-Kefauver amendments to the anti-merger provision, section 7 of the Clayton Act.²¹⁶ Bain believed that overall, American industry exhibited a trend toward growing concentration²¹⁷—a theme that was reflected in subsequent merger decisions in the Supreme Court, such as *Brown Shoe*.²¹⁸ Indeed, in 1960s-era merger policy a “trend toward concentration” became a shortcut that the Supreme Court used to condemn mergers without detailed inquiry into market structure or anticompetitive effects.²¹⁹

scale or up to a much larger scale, the number of firms is no longer forced to remain large, since firms may grow or combine without loss of efficiency until their sizes are large and their number few. Thereupon, the force of inter-firm competition may be restricted to permit periodic elevation of price above minimal average cost, and existing firms may be permitted or induced to attain inefficiently large scales

Id. at 160.

215. *See id.* at 170 (noting how a price “substantially in excess of cost” is much easier to attain in oligopolistic industries).

216. *See* S. REP. No. 81-1775, at 3 (2d Sess. 1950).

217. *See* BAIN, INDUSTRIAL ORGANIZATION, *supra* note 206, at 189 (providing an overview of business concentration rates from the time of the Civil War forward).

218. *See* *Brown Shoe Co. v. United States*, 370 U.S. 294, 346 (1962) (holding that the merger of a shoe manufacturer and retailer would substantially lessen competition in the retail shoe sales sector).

219. *See, e.g.,* *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 363 (1963).

[I]ntense congressional concern with the trend toward concentration warrants dispensing, in certain cases, with elaborate proof of market structure, market behavior, or probable anticompetitive effects. Specifically, we think that a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.

Further, Bain argued, vertical integration could exacerbate the tendency toward concentration by linking vertically related firms with differential scales.²²⁰ Bain gave the example of vertical integration of automobile production and automobile assembly.²²¹ Suppose that production was subject to significant scale economies and required a sixteen percent market share for maximum efficiency.²²² Assembly of manufactured parts, however, took place at a much smaller scale and required a market share of only two percent. But by integrating manufacturing and assembly, particularly by making the parts specific to the design, the vertically integrated automobile manufacturer effectively gave assembly a minimum efficient scale of sixteen percent as well.²²³ In Bain's terminology the "critical" minimum scale for a vertically integrated firm was always the stage with the largest minimum efficient market share.²²⁴

Bain also believed that product differentiation was a much less benign phenomenon in oligopoly than in Chamberlin's model of monopolistic competition. The model of monopolistic competition assumed easy entry. As a result, while prices were above marginal cost, they were always driven to total cost over the long run. Bain regarded product differentiation as an affirmative barrier to entry in concentrated markets. Product differentiation inherently favored established firms because it induced consumer brand preferences, thus giving incumbent firms an advantage over new entrants.²²⁵ In addition, product-differentiated markets also tended to have more patent protection for existing designs and tended to have more regimented distribution systems.²²⁶ Bain concluded that high product differentiation was one of the factors predisposing an industry towards higher seller concentra-

Id. at 363. See also *United States v. Von's Grocery Co.*, 384 U.S. 270, 277 (1966) ("The facts of this case present exactly the threatening trend toward concentration which Congress wanted to halt."); *Brown Shoe*, 370 U.S. at 316, 322-23 (relying on a trend toward concentration to justify condemning horizontal aspects of the merger); *id.* at 332 (relying on a trend toward vertical integration as a rationale for condemning vertical aspects).

220. See BAIN, *INDUSTRIAL ORGANIZATION*, *supra* note 206, at 358 (discussing vertical integration in relation to firms which are "unnecessarily large").

221. See *id.*

222. See *id.* at 158.

223. See *id.*

224. See *id.* at 159 ("The critical optimal scale is the largest . . .").

225. See *id.* at 239 ("[E]stablished firms may enjoy a product-differentiation advantage over potential entrants, because of the preference of buyers for established firms and products when compared with new ones.").

226. See *id.* at 240 (discussing patent protection as a source of product-differentiation barrier).

tion and higher accounting profits.²²⁷ This group of observations led Bain to conclude that prices tended to be higher in markets as the degree of product differentiation was greater.

In contrast to these structural manifestations of inadequate competition, Bain found conduct to be extraordinarily difficult to assess. He concluded that “[w]e eschew, therefore, any general attempt to state an operational criterion of the conduct conditions of workable competition, and adhere in the main to a suggestion only of structural conditions.”²²⁸ Beginning with this premise, Bain attacked the conduct orientation of section 2 of the Sherman Act. Under the statute, monopoly could be “attacked in the main only indirectly through assault on the predatory or exclusionary actions of firms, and not directly as a structural phenomenon with certain undesirable consequences for market performance.”²²⁹ The result was “lengthy and expensive” and largely indeterminate litigation, whose poor results were exacerbated by the fact that the courts were usually “unwilling to remedy illegal monopolization by requiring structural changes through such devices as dissolution or dismemberment of offending firms. Thus, those revisions of market structure which might most strongly assure a more competitive performance typically are not imposed”²³⁰

B. THE S-C-P PARADIGM AND THE COURTS

Under the influence of the S-C-P paradigm, the emergent view came to be that antitrust policy prior to World War II had been much too tolerant of anticompetitive industrial structures. For example, Vanderbilt economist George W. Stocking faulted the Supreme Court for an excessive emphasis on “intent and conduct,” which he believed had served to undermine several government cases against dominant firms.²³¹ He was particularly

227. See *id.* at 236 (“[G]reat product differentiation is evidently one of several forces predisposing toward high seller concentration.”); see also *id.* at 416 (finding that high profit rates are correlated with high product differentiation, tending “to cast a shadow of doubt on frequently repeated assertions that strong product differentiation is conducive to a more workable competition”).

228. *Id.* at 427.

229. *Id.* at 607.

230. *Id.* at 608.

231. George W. Stocking, *The Rule of Reason, Workable Competition, and Monopoly*, 64 YALE L.J. 1107, 1124 (1955) (citing *United States v. Winslow*, 195 F. 578 (D. Mass. 1912), *aff'd*, 227 U.S. 202 (1913); *United States v. Am. Can Co.*, 230 F. 859 (D. Md. 1916), *appeal dismissed*, 256 U.S. 706 (1921); *United States v. U.S. Steel Corp.*, 251 U.S. 417 (1920); *United States v. Int'l Harvester Co.*, 274 U.S. 693 (1927)). Stocking was best known for his coau-

harsh in his treatment of the 1920 *United States Steel* decision, which he believed “emasculated” the Sherman Act by refusing to condemn an industrial combination unless it resulted in “complete” monopoly.²³²

The implications of the S-C-P paradigm on postwar antitrust policy were far-reaching. In merger law, the paradigm entailed that mergers could be analyzed simply by determining the market shares of the firms involved. This view came to be accepted by the Supreme Court²³³ and was expressly incorporated into guidelines for assessing the legality of mergers that the Antitrust Division of the Justice Department issued in 1968, when Harvard-trained economist Donald F. Turner was its head.²³⁴ Mainly, these guidelines created a sliding scale of enforcement policy depending on the market shares of the firms and the number of firms in the market. The Supreme Court’s *Philadelphia Bank* decision created a virtual per se rule that linked merger legality to the market shares of the merging firms.²³⁵

In monopolization law, the S-C-P paradigm shifted the focus of analysis away from conduct, which had dominated the law in the first half of the century,²³⁶ and toward structure. In the im-

thored book GEORGE W. STOCKING & MYRON W. WATKINS, *MONOPOLY AND FREE ENTERPRISE* (1951).

232. Stocking, *supra* note 231, at 1125.

233. See, e.g., *United States v. Von’s Grocery Co.*, 384 U.S. 270, 277–78 (1966); *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 364 (1963); *Brown Shoe Co. v. United States*, 370 U.S. 294, 343 (1962). See also Stocking, *supra* note 231, at 1110–13 (advocating the S-C-P paradigm and discussing it as a standard applied in several major Supreme Court antitrust decisions).

234. The guidelines are still available on the Department of Justice’s Antitrust Division website. See *Merger Guidelines—1968*, 4 TRADE REG. REP. (CCH) ¶ 13,101, at 20,521 (1988), available at <http://www.justice.gov/atr/hmerger/11247.pdf>. Turner received his Ph.D. from Harvard under Mason in 1947, and then graduated from Yale Law School in 1950. He became head of the Antitrust Division in 1965, during the Johnson administration. The 1968 Guidelines were issued on his last day in office as Assistant Attorney General for Antitrust. See Oliver E. Williamson, *The Merger Guidelines of the U.S. Department of Justice—In Perspective*, <http://www.usdoj.gov/atr/hmerger/11257.pdf> (last visited Nov. 9, 2009).

235. *Phila. Nat’l Bank*, 374 U.S. at 364.

236. See, e.g., *Standard Oil Co. v. United States*, 221 U.S. 1, 86 (1911) (holding that the Anti-Trust Act of July 2, 1890 prohibits all contracts and combinations which amount to an unreasonable or undue restraint of trade in interstate commerce); *United States v. Am. Tobacco Co.*, 221 U.S. 106, 181–83 (1911) (holding that the defendant’s “acts, contracts, agreements, [and] combinations” were of “such an unusual and wrongful character as to bring them within the prohibitions of the law”); *Am. Can Co.*, 230 F., at 902 (D. Md. 1916) (arguing that the defendant, in its conduct, had for some time used its potentially harmful power for “weal rather than woe”).

portant *Alcoa*²³⁷ and *United Shoe Machinery*²³⁸ decisions, the courts condemned monopolists on the basis of minimal conduct requirements when significant market power was clear.²³⁹ Indeed, the prominent judges in both decisions flirted briefly with the idea that the mere existence of monopoly was sufficient to warrant enforced dissolution.²⁴⁰ Writing in 1956, Turner concluded that “[s]uch postwar decisions as *Alcoa* perceptibly decreased the law’s requirement of bad conduct, perceptibly increased its attention to power, and substantially increased the volume of discussion as to which course the law had best pursue.”²⁴¹ In any event, he concluded, “*Alcoa* clearly consigned the abuse theory of monopolization to limbo.”²⁴²

In 1959, while still a law professor, Turner and his coauthor Carl Kaysen proposed that the government be permitted to break up monopolies without any proof of anticompetitive conduct, but based on structural criteria alone.²⁴³ That proposal was even extended to durable oligopolies.²⁴⁴ Twenty years later, in 1978, Turner and his new coauthor and former student Phillip E. Areeda renewed the proposal that the government (but not private plaintiffs) be permitted to bring dissolution decrees against durable monopolists.²⁴⁵ While the courts never adopted that position, both the government and the courts accepted definitions of the monopolization offense that required much less in the way of

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

238. *United States v. United Shoe Machinery Corp.*, 110 F. Supp. 295 (D. Mass. 1953).

239. *Id.* at 297–98; *Alcoa*, 148 F.2d at 428; *see also* *United States v. Grinnell Corp.*, 384 U.S. 563, 576 (1966) (condemning a series of acquisitions as unlawful monopolization).

240. *United Shoe*, 110 F. Supp. at 348 (discussing but ultimately rejecting the possibility of dissolution as a remedy); *Alcoa*, 148 F.2d at 428.

241. Donald F. Turner, *Antitrust Policy and the Cellophane Case*, 70 HARV. L. REV. 281, 281–82 (1956).

242. *Id.* at 292.

243. CARL KAYSEN & DONALD F. TURNER, *ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS* 46, 111–19 (1959).

244. *See id.* at 111; Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655, 656 (1962).

245. 3 PHILLIP E. AREEDA & DONALD F. TURNER, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶¶ 614–23 (1978). The present author has preserved the proposal, largely for its historical value, in 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶¶ 630–38 (3d ed. 2008).

harmful conduct than earlier cases had found, provided that the firm was properly found to be a structural monopolist. In sum, the focus of monopolization law moved greatly from monopoly conduct to monopoly market structure. In true Harvard School fashion, evidence of subjective intent became formally irrelevant.²⁴⁶

The economists advocating the S-C-P paradigm and the courts worked in tandem. Which one most influenced the other is difficult to say. For example, the S-C-P paradigm matured in the economics literature in the 1950s. However, the *Alcoa* decision condemning the aluminum monopoly is almost pure structuralism, but was written nearly a decade earlier.²⁴⁷ Industrial structure was first and foremost on the minds of Congress when it enacted the Cellar-Kefauver amendments to the merger law in 1950.²⁴⁸ The concerns that Bain expressed about a trend toward increased industrial concentration showed up clearly in that statute's legislative history.²⁴⁹ Indeed, they were a principal subject of a Federal Trade Commission (FTC) study in 1948 that expressed alarm at the trend toward concentration:

No great stretch of the imagination is required to foresee that if nothing is done to check the growth in concentration, either the giant corporations will ultimately take over the country, or the Government will be impelled to step in and impose some form of direct regulation in the public interest.²⁵⁰

The FTC's conclusions in part reflected views that stretched back to at least 1932, when Adolf A. Berle and Gardiner C. Means criticized what they saw as rising concentration in their

246. See, e.g., *Alcoa*, 148 F.2d 416, 431 (2d Cir. 1945) ("We disregard any question of 'intent.'"). On the other side, in the *du Pont (Cellophane)* decision the Supreme Court found substitutes for the defendant's product and concluded that sufficient power was lacking. See *United States v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377, 394 (1956); see also Turner, *supra* note 244, at 281–82 (critiquing the "purpose and intent" approach).

247. *Alcoa*, 148 F.2d at 431.

248. See EDWARD S. MASON, ECONOMIC CONCENTRATION AND THE MONOPOLY PROBLEM 371–81 (1957); Derek C. Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74 HARV. L. REV. 226, 234–36 (1960).

249. See *Amending Sections 7 and 11 of the Clayton Act: Hearings on H.R. 515 Before Subcomm. No. 2 of the H. Comm. on the Judiciary*, 80th Cong. 7 (1947) (statement of Kefauver that "[the] increased concentration of economic power is dooming free enterprise"); see also *Brown Shoe Co. v. United States*, 370 U.S. 294, 320 (1962) (describing Congress's concern with "the protection of competition, not competitors, and its desire to restrain mergers only to the extent that such combinations may tend to lessen competition").

250. FED. TRADE COMM'N, THE MERGER MOVEMENT: A SUMMARY REPORT 68 (1948). The FTC's conclusions were in fact strongly contested by economists. On this debate, see Bok, *supra* note 248, at 234–35.

famous book *The Modern Corporation and Private Property*.²⁵¹ They spoke of the “centripetal attraction which draws wealth together into aggregations of constantly increasing size,” and warned that “the trend is apparent” and “no limit is as yet in sight.”²⁵² The 1950 legislation followed a string of proposals in Congress to stop further concentration.²⁵³ To be sure, these earlier proposals were not based on the full-blown S-C-P paradigm. For the most part, they did not even share the basic concerns of the structuralist economists about reduced output and higher prices in concentrated industries. The earlier concerns were addressed mainly to aggregations of wealth or power as such, and the economics that drove them was as much institutionalism as neoclassicism.²⁵⁴ But whatever the source, the impetus for an antitrust policy concerned with industrial concentration was clear.

The S-C-P views on vertical integration were also reflected in numerous antitrust decisions in the 1950s and 1960s that were very harsh toward vertical expansion by virtually any means, including long-term contractual arrangements.²⁵⁵ This suspicion of

251. ADOLF A. BERLE, JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (1932).

252. *Id.* at 18.

253. See Note, *Corporate Consolidation and the Concentration of Economic Power: Proposals for Revitalization of Section 7 of the Clayton Act*, 57 *YALE L.J.* 613, 620–26 (1948) (summarizing these proposals).

254. Derek Bok’s concluded:

To anyone used to the preoccupation of professors and administrators with the economic consequences of monopoly power, the curious aspect of the debates is the paucity of remarks having to do with the effects of concentration on prices, innovation, distribution, and efficiency. To be sure, there were allusions to the need for preserving competition. But competition appeared to possess a strong sociopolitical connotation which centered on the virtues of the small entrepreneur to an extent seldom duplicated in economic literature.

Bok, *supra* note 248, at 236–37; see also Herbert Hovenkamp, *Derek Bok and the Merger of Law and Economics*, 21 *U. MICH. J.L. REFORM* 515, 516 (1988).

255. *E.g.*, *Brown Shoe Co. v. United States*, 370 U.S. 294, 324 (1962) (noting that not all vertical mergers are forbidden, only those whose effect is to “substantially . . . lessen competition, or . . . tend to create a monopoly”); *United States v. Paramount Pictures*, 334 U.S. 131, 174 (1948) (finding that vertical merger “runs afoul of the Sherman Act if it was a calculated scheme to gain control over an appreciable segment of the market and to restrain or suppress competition, rather than an expansion to meet legitimate business needs”); *United States v. Yellow Cab Co.*, 332 U.S. 218, 227 (1947) (finding that illegal restraint of trade “may result as readily from a conspiracy among those who are affiliated or integrated under common ownership as from a conspiracy among those who are otherwise independent”). *But see United States v. Columbia Steel Co.*, 334 U.S. 495, 507–10 (1948) (refusing to condemn vertical integration that left sufficient nonintegrated parties in the market). This case was part of the motivation for Congress to pass the 1950 amendments.

vertical integration was also reflected in congressional amendments to the merger law in 1950 that extended its coverage to vertical mergers—that is, mergers between a customer and a supplier. It also showed up in increasingly hostile attitudes toward long-term vertical contracts that were thought either to limit dealer freedom or to exclude rivals.²⁵⁶

VI. THE S-C-P PARADIGM IN DECLINE

The dominant theme guiding antitrust policy under the S-C-P paradigm was that competition policy should eliminate or at least reduce the amount of market power in the economy. Further, outside of monopolized industries the principal source of market power was thought to be oligopoly, where the threats were either Cournot-style behavior or express collusion.²⁵⁷

By contrast, the guiding principle of the Chicago School critique of the S-C-P paradigm was that market power is not inherently a bad thing. Indeed, often market power as well as high concentration result from efficiency. To illustrate, suppose that widgets are made in a moderately competitive market at a cost of three dollars. If I develop a cost-reducing technology or process that reduces my costs to two dollars but continue to sell my widgets at the market price, I will have high margins between my prices and costs—something that the prevailing measures would have identified as market power, as would accounting measures of profits.²⁵⁸ Problematically, however, if I take advantage of my cost-reducing technology to cut the widget price below three dollars, then I will be excluding my rivals. So, the critique ran, many of the phenomena that the S-C-P paradigm had identified as anticompetitive market “foreclosure,” or the creation of barriers to entry, were nothing more than economic efficiency.

256. *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365, 379 (1967) (finding vertical territorial restraints to be per se unlawful); *Simpson v. Union Oil Co.*, 377 U.S. 13, 20–21 (1964) (holding that resale price maintenance enforced through consignment contracts imposed on dealers to be per se unlawful); *Standard Oil Co. v. United States*, 337 U.S. 293, 314 (1949) (condemning exclusive dealing on relatively low market shares where other oil refineries were doing the same thing); *Int'l Salt Co. v. United States*, 332 U.S. 392, 396 (1947) (tying of a staple commodity is unlawful even in the absence of proof of serious market power).

257. See, e.g., *KAYSEN & TURNER*, *supra* note 243, at 82.

258. For example, the Lerner Index, developed in the 1930s, expressed market power as a relationship between price and marginal cost. See HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* § 3.1 (3d ed. 2005); Abba Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 *REV. ECON. STUD.* 157, 169 (1934).

A. THE CHICAGO SCHOOL REJECTION OF THE S-C-P PARADIGM

The Chicago School launched a frontal attack on the S-C-P paradigm's identification of industrial concentration as an inherent evil.²⁵⁹ The most likely cause of industrial concentration, Chicago economists argued, was economies of scale.²⁶⁰ Further, the engineering studies of production that S-C-P economists had used to measure economies of scale vastly understated them.²⁶¹ The fairly rigid Cournot-based and monopolistic theories that the S-C-P paradigm adopted to account for behavior in concentrated markets considerably *understated* the ingenuity of firms in finding ways to compete.²⁶² Or to state it more technically, the S-C-P paradigm tended to view oligopoly as a structural problem in the Cournot sense, which rather strictly related performance to the number of firms in a market and their size distribution.²⁶³ In contrast, the Chicago School tended to look at concentrated industries as presenting a problem in price theory,²⁶⁴ in which each market participant weighed the net effects of various actions and anticipated responses.²⁶⁵ To be sure, the number of firms was not unimportant—at least at very low levels—but it was hardly deci-

259. See HOVENKAMP, *supra* note 2, at 31–42 (discussing the initial differences and subsequent coalescence of the two schools). See generally NEIL DUXBURY, PATTERNS OF AMERICAN JURISPRUDENCE 330–48 (1995) (recounting the Chicago School's development). Many members of the Chicago School began in the Harvard camp and migrated toward the Chicago position. See HOVENKAMP, *supra* note 2, at 319 n.14; GEORGE J. STIGLER, MEMOIRS OF AN UNREGULATED ECONOMIST 97–100 (1988); Posner, *supra* note 157, at 933–35. See generally William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1 (discussing the intermingling of economic theories between the two schools). At the same time, however, the Harvard School largely abandoned the S-C-P paradigm. See HOVENKAMP, *supra* note 2, at 35–38. Government officials eventually solicited these academic theories to help develop antitrust policy. See Hovenkamp, *supra* note 199, at 217–18.

260. See Sam Peltzman, *The Gains and Losses from Industrial Concentration*, 20 J.L. & ECON. 229, 229 (1977) (“[M]arket concentration and industry profitability are positively correlated.”).

261. See generally *id.* at 229–30 (examining market structure and pricing); Harold Demsetz, *Two Systems of Belief About Monopoly*, in INDUSTRIAL CONCENTRATION: THE NEW LEARNING 164 (Harvey J. Goldschmid et al. eds., 1974) (comparing different methods of analyzing industrial concentration).

262. Cf. HOVENKAMP, *supra* note 2, at 35–37 (explaining Cournot's theory and the S-C-P paradigm).

263. See *id.*

264. See Posner, *supra* note 157, at 931–32.

265. See, e.g., George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964), reprinted in GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 39–63 (1968) (discussing the effects of collusion and price-cutting); Posner, *supra* note 157, at 931–32.

sive.²⁶⁶ Collusion was often a possibility. The price theory perspective revealed the extent to which a firm's strategies depended not only on the number of firms, but also on such things as product differentiation and the amount of price information available in the market. The Chicago theory also rejected the purely structuralist notion that the oligopoly demand curve contained a "kink" that inclined fellow oligopolists to follow a price increase but not a price cut.²⁶⁷ Indeed, in orthodox Chicago folklore the "kinky demand curve" became something of a joke about structuralism run amuck.²⁶⁸

The Chicago School also rejected the Bainian theory of entry barriers,²⁶⁹ which defined them as any market factor that excluded entry while the firms already in the market were earning returns above the competitive level.²⁷⁰ Under this definition both scale economies and product differentiation were entry barriers, because each gave incumbent firms advantages over new entrants.²⁷¹ The Chicago view was that this definition penalized firms for being innovative and efficient, particularly if high entry barriers were used as a justification for government intervention.²⁷² Rather, George J. Stigler argued, an entry barrier must be some factor that new rivals must overcome and that established firms did not need to overcome when they entered the market.²⁷³

266. See HOVENKAMP, *supra* note 2, at 32 (discussing the Chicago viewpoint on the relationship between effective competition and the number of firms involved).

267. Cf. George J. Stigler, *The Kinky Oligopoly Demand and Rigid Prices*, 55 J. POL. ECON. 432, 434–48 (1947) (examining the concept of the kinky demand curve). The notion of the kinky demand curve was formulated by Harvard professor Paul Sweezy and Oxford economists Robert L. Hall and Charles J. Hitch. *Id.* at 432; see R.L. Hall & C.J. Hitch, *Price Theory and Business Behaviour*, 2 OXFORD ECON. PAPERS 12, 12–20 (1939); Paul M. Sweezy, *Demand Under Conditions of Oligopoly*, 47 J. POL. ECON. 568, 570–75 (1939).

268. See generally George J. Stigler, *The Literature of Economics: The Case of the Kinked Oligopoly Demand Curve*, 16 ECON. INQUIRY 185, 188–94 (1978) (discussing the history of the kinky demand curve from the perspective of a biased participant).

269. See HOVENKAMP, *supra* note 2, at 102–03 (explaining Stigler's alternative definition of barriers to entry).

270. See Bain, *Conditions of Entry*, *supra* note 206, at 4–5 (defining conditions of entry).

271. See *id.* at 14 (discussing the attributes of heightened conditions of entry).

272. See HOVENKAMP, *supra* note 2, at 33 (noting the Chicago School's disapproval of government intervention in markets).

273. See Stigler, *supra* note 265, at 67. Antitrust policy today continues to use mainly the Bainian definition of barriers to entry. See 2B PHILLIP E.

The twin pillars of Chicago School revisionism were first, that attainment of economies of scale required firms much larger than Bain had supposed; and second, that firms in concentrated markets behave much more competitively than Chamberlin, Mason, Bain, Kaysen, or Turner had supposed—at least down to the point at which the market contains only three or four firms.²⁷⁴

B. REJECTION OF THE LEVERAGING THEORY OF MONOPOLY POWER

There were other important critiques as well. One of the most important was the 1950s critique of the “migration” or “domino” theory of monopoly, which was that a monopolist could use monopoly power in one market to leverage a second monopoly somewhere else.²⁷⁵ The theory was thoroughly embraced by the Supreme Court.²⁷⁶ Some Chicago School critics ascribed the theory to the Harvard School and the S-C-P paradigm, although without good foundation.²⁷⁷

The leveraging theory of monopoly had many manifestations, but they all involved the dominant firm’s related operations in two different markets.²⁷⁸ If the markets were vertically related, then vertical integration became the problem;²⁷⁹ however, leveraging applied in other pairings of markets as well. The thinking was that a firm that operated in two or more markets—and had market power in one of them—might use that power to create a second monopoly or reap an unfair competitive advantage in the second market.²⁸⁰ The theory showed up in antitrust law in the

AREEDA ET AL., ANTITRUST LAW ¶ 420(a) (3d ed. 2007).

274. See, e.g., Harold Demsetz, *Industry Structure, Market Rivalry, and Public Policy*, 16 J.L. & ECON. 1, 1 (1973) (concluding that industrial concentration largely results from changing cost conditions, rather than heightened entry barriers); Wesley J. Liebeler, *Market Power and Competitive Superiority in Concentrated Industries*, 25 UCLA L. REV. 1231, 1232–34 (1978) (arguing against restrictions on competitive superiority).

275. See, e.g., HOVENKAMP, *supra* note 2, at 297 (applying the leverage theory to the computer industry).

276. See *id.* at 201 (noting the Court’s articulation of the leverage theory).

277. See, e.g., Posner, *supra* note 157, at 929 (characterizing various members of the Harvard School, including Donald Turner, as embracing the leverage theory). In fact, Turner’s concern is focused on rivals in the tied product markets, rather than theories of multiple monopoly profits. See Donald F. Turner, *The Validity of Tying Arrangements Under the Antitrust Laws*, 72 HARV. L. REV. 50, 60–62, 63 n.42 (1958).

278. See HOVENKAMP, *supra* note 2, at 201 (discussing the orthodox leverage theory).

279. See *id.* at 33 (discussing leverage theory and vertical integration).

280. See *id.* at 201.

1911 *Standard Oil* case, in the claim that Rockefeller's Standard Oil Company continuously enlarged its monopoly by using monopoly profits in towns where it was already dominant in order to finance predatory pricing in towns where it had not yet attained such power.²⁸¹ That theory was embraced by Congress in 1914, when the original section 2 of the Clayton Act made it unlawful for a firm to charge a low price in a targeted community while selling similar goods at a higher price elsewhere.²⁸² Another manifestation of monopoly leveraging was the notion that a firm that operated in many markets but had a monopoly in only a few might use multimarket contracting to leverage additional advantage in its non-monopoly markets.²⁸³ This view was advocated by the Antitrust Division²⁸⁴ and embraced by the Supreme Court in its 1948 *Griffith* decision, which condemned a large motion picture exhibitor's practice of negotiating film contracts for all of its theaters together, thus obtaining "unfair" advantages in towns where it lacked power.²⁸⁵

Undoubtedly the most important debate over leveraging occurred in the law of tying arrangements,²⁸⁶ although the origins

281. See *Standard Oil Co. v. United States*, 221 U.S. 1, 31–44 (1911) (analyzing allegations against Standard Oil). For the Chicago School critique, see John S. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J.L. & ECON. 137, 137–43 (1958), which disputes the theory that Standard Oil even engaged in predatory pricing. See generally James May, *The Story of Standard Oil Co. v. United States*, in ANTITRUST STORIES, *supra* note 181, at 7 (detailing the *Standard Oil* litigation). McGee's theory itself is subject to some criticism. See James A. Dalton & Louis Esposito, *Predatory Price Cutting and Standard Oil: A Re-examination of the Trial Record*, 22 RES. L. & ECON. 155, 156–58 (2007) (reexamining the trial record and finding numerous instances of predation, in conflict with McGee's conclusions); Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J.L. & ECON. 1, 3–6 (1996) (using exclusionary contracts to impose higher costs); cf. RON CHERNOW, *TITAN: THE LIFE OF JOHN D. ROCKEFELLER, SR.* 113–17, 144–47, 202–25, 251–58 (1998) (finding anticompetitive agreements with railroads). The leverage theory of predatory pricing antedates the passage of the Sherman Act. See F.J. Stimson, "Trusts," 1 HARV. L. REV. 132, 134 (1887) (arguing that monopoly prices in monopoly towns could subsidize predatory pricing in competitive towns, creating a monopoly in them as well).

282. See Clayton Act, ch. 323, § 2, 38 Stat. 730, 730–31 (1914) (current version at 15 U.S.C. § 13 (2006)); cf. 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 745 (3d ed. 2008) (discussing price predation and the Robinson-Patman Act).

283. See 3 AREEDA & HOVENKAMP, *supra* note 245, ¶ 652(a).

284. See *United States v. Griffith*, 334 U.S. 100, 102–04 (1948).

285. See *id.* at 109.

286. Cf. Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Monopoly Profit Theory*, 123 HARV. L. REV. (forthcoming Dec. 2009) (manuscript at 1–3), available at <http://ssrn.com/abstract=1345239> (arguing against

long antedate the antitrust laws.²⁸⁷ The idea was that by tying separate goods or transactions together the owner of a monopoly could obtain multiple sets of monopoly markups.²⁸⁸ The idea originated in patent law in response to attempts by patentees to impose post-sale restraints on patented articles.²⁸⁹ The Supreme Court responded with the “first sale” doctrine, which holds that once a patented article is sold, the patentee loses all control over it and cannot impose further restrictions or collect additional royalties on downstream sales.²⁹⁰ Speaking through Chief Justice Taney, the Supreme Court embraced the doctrine in its first *Bloomer* decision in 1852.²⁹¹ In litigation involving the same patent a decade later, the Court elaborated, stating that patentees “are entitled to but one royalty for a patented machine.”²⁹² As a result, when the patentee has sold the patented article he has “parted with his monopoly, and ceased to have any interest whatever in the machine.”²⁹³ Justice Brandeis picked this idea up eighty years later in the *Carbice* decision, which found unlawful patent “misuse” in a patentee’s contractual requirement that purchasers of its patented ice box purchase only its own dry ice, which was the refrigerant.²⁹⁴ This arrangement, Brandeis opined,

the leverage critique and concluding that many ties are anticompetitive); Herbert Hovenkamp, *The Obama Administration and § 2 of the Sherman Act*, 90 B.U. L. REV. (forthcoming 2010) (manuscript at 10), available at <http://www.bu.edu/law/communications/documents/BrodleySympHovenkamp.pdf> (showing that most price discrimination ties benefit consumers).

287. See Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 30 (1957) (“The relationship of tying to creation of monopoly—the leverage problem—had been faced by courts . . . before the passage of the Clayton Act.”).

288. See HOVENKAMP, *supra* note 2, at 201.

289. See, e.g., Bowman, *supra* note 287, at 30 (citing several pertinent cases).

290. See, e.g., *Bloomer v. McQuewan*, 55 U.S. (14 How.) 539, 549 (1852) (“And when the machine passes to the hands of the purchaser, it is no longer within the limits of the monopoly.”).

291. See *id.* The Supreme Court reaffirmed the doctrine in *Quanta Computer, Inc. v. LG Electronics, Inc.*, 128 S. Ct. 2109 (2008). See generally Christina Bohannon & Herbert Hovenkamp, *The Evolution of IP/Competition Policy: The First Sale Rule and Vertical Restraints*, in CREATION WITHOUT RESTRAINT: COMPETITION POLICY IN INNOVATION INTENSIVE MARKETS (forthcoming 2010, on file with author) (examining the historical development of the first sale doctrine and its relationship with competition policy).

292. See *Bloomer v. Millinger*, 68 U.S. (1 Wall.) 340, 350 (1863).

293. *Id.*

294. See *Carbice Corp. v. Am. Patents Dev. Corp.*, 283 U.S. 27, 29–32 (1931).

enabled the patent owner to “derive its profit, not from the invention on which the law gives it a monopoly, but from the unpatented supplies with which it is used.”²⁹⁵ If a monopoly could be contractually expanded in this way a patentee “might conceivably monopolize the commerce in a large part of unpatented materials used in its manufacture. The owner of a patent for a machine might thereby secure a partial monopoly on the unpatented supplies consumed in its operation.”²⁹⁶

The first critique of this theory did not come from the Chicago School at all, but rather from Myron W. Watkins, a professor at New York University, who observed that a monopolist could charge a high price for the second product only by offering a compensating price reduction in the first product.²⁹⁷ That is, a monopoly creates the opportunity for a single monopoly markup, and a buyer will simply attribute a price increase in a tied product to the monopoly product itself.²⁹⁸ The critique was famously elaborated upon by Ward Bowman in 1957,²⁹⁹ and since that time has been considered a core principle of the Chicago School critique of the Harvard School.³⁰⁰

The leverage theory was clearly part of the economic folklore of the Supreme Court, and it accounts for a good deal of the Court’s hostility toward a variety of practices.³⁰¹ Among these were the per se antitrust rule against tying arrangements, developed in the 1940s and 1950s.³⁰² The leverage theory also accounts for much of the Supreme Court’s hostility toward vertical integra-

295. *Id.* at 31–32 (quoting *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 517 (1917)).

296. *Id.* at 32.

297. *Cf.* MYRON W. WATKINS, PUBLIC REGULATION OF COMPETITIVE PRACTICES IN BUSINESS ENTERPRISE 221 (3d ed. 1940) (noting that tied products subject to free competition “would not normally be profitable”).

298. *See id.* at 220 (arguing that price increases may be justified by the “close technical interrelationship between the two articles or machines”).

299. *See generally* Bowman, *supra* note 287, at 19–36 (analyzing the rationales for tying).

300. *See, e.g.*, Posner, *supra* note 157, at 925–26 (listing explosion of the leverage theory for tying as the first hallmark of the Chicago approach to antitrust theory).

301. *Cf.* 9 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 1700–01 (2d ed. 2004) (noting the presence of leveraging arguments in the case law condemning ties).

302. *See* *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 5–7 (1958); *Times-Picayune Publ’g Co. v. United States*, 345 U.S. 594, 609 (1953); *Int’l Salt Co. v. United States*, 332 U.S. 392, 396 (1947) (holding that a monopoly’s foreclosure of competition through tying arrangements may be per se unreasonable).

tion, which it viewed as a way of spreading monopoly vertically.³⁰³

In fact, the leveraging theory never held a secure place in either the writings of Harvard School economists and lawyers or in the S-C-P paradigm generally. When the writers representing the S-C-P paradigm spoke of tying, vertical integration, or other monopoly extensions, the stated concern was not the leveraging of additional profits but rather “foreclosure,”³⁰⁴ another concept that produced considerable controversy with the Chicago School but which nevertheless remains a much more viable topic of debate. For Bain, Kaysen, and Turner in the 1950s, and Areeda and Turner in the 1970s, the real concern that arose from the monopolist’s operations in a second market was that the firm would be able to deny market access to rivals.³⁰⁵ This view remains viable as a matter of legal policy to this day—for example, in the condemnation of Microsoft for tying Internet Explorer to its Windows operating system in order to deny market access to rival internet browser Netscape.³⁰⁶

CONCLUSION

The Harvard School abandoned most parts of the S-C-P paradigm in the 1970s, and since then Chicago and Harvard positions on competition policy have converged on most, but not all, issues. For example, Areeda and Turner completely accepted the Chicago School critique of the leverage theory in the first edition of their treatise on antitrust law.³⁰⁷ A further post-Chicago critique has also emerged. Sometimes known as the new industrial economics,³⁰⁸ it uses the mathematics of marginalism and game theory in a highly technical fashion, in many cases far beyond the ability of any court to administer in the context of legal regula-

303. See Robert Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157, 157–58 (1954) (“[T]he recent attacks upon vertical integration are not something new in the law.”); Hovenkamp, *supra* note 4, at 7–9 (explaining the development of legal policies aimed at vertical integration).

304. Cf. KAYSSEN & TURNER, *supra* note 243, at 157 (discussing tying and entry barriers).

305. See Turner, *supra* note 244, at 656.

306. See *United States v. Microsoft Corp.*, 253 F.3d 34, 85–95 (D.C. Cir. 2001); 3 AREEDA & HOVENKAMP, *supra* note 245, ¶ 617 (examining the *Microsoft* issues).

307. Cf. 3 AREEDA & TURNER, *supra* note 245, ¶ 347 (discussing tying and damages).

308. See, e.g., JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 333–36 (1988).

tion. One consequence is that while antitrust policy is far more sophisticated in its use of economics than it was a half century ago, the gap between high economic theory and antitrust practice is larger than it has ever been.

The marginalist revolution completely revised our understanding of economic competition. Neoclassicism substituted a reasonably strong classical consensus with a complex variety of theories about how competition works. Along with this came an increasing belief that markets differ from one another much more than the classicists had believed. Accommodating these changes to competition policy has taken more than a century. In the process we have developed a set of complex antitrust rules and a corresponding awareness of the need for simplifying assumptions. While neoclassicism taught us that deviations from perfect competition are much more common than we once believed, it also instilled a firm recognition that some deviations must simply be tolerated.