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The Progressives' Antitrust Toolbox

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INTRODUCTION

The American Progressive Era to the New Deal, roughly 1900 into the early 1930s, was the formative age of antitrust policy.[1] During this period antitrust developed nearly all of the analytic tools that it uses today to evaluate business practices or market structures thought to be anticompetitive. In fact, a good case can be made that after

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[1]Politically, the Progressive Era ended with the election of Warren Harding in 1920. As an intellectual and economic movement, it survived and morphed into the New Deal. See, e.g., RICHARD HOFSTADTER, THE AGE OF REFORM: FROM BRYAN TO F.D.R. (1955); MORTON KELLER, REGULATING A NEW ECONOMY: PUBLIC POLICY AND ECONOMIC CHANGE IN AMERICA, 1900-1933 (1996)

decades of experimentation we are returning to it.[2] The extraordinary Progressive influence on antitrust policy was at least partly a historical coincidence. The passage of the Sherman and Clayton Acts and the development of techniques for evaluating practices coincided with the development of marginalism and the rise of industrial organization in economics. Antitrust policy would have looked very different had it developed a half century earlier.

The antitrust movement was both political and economic. It reflected both the emergence of new interest groups and new sources of economic concern. The emergent interest groups were large interstate business, consumers, and labor. The new sources of concern were industrialization, the rise of modern distribution, the labor movement, and the increasing importance of the consumer as market participants. The legislative debate leading up to the Sherman Act can hardly be characterized as a dispute about economic theory. That came later as litigants and courts looked for tools that would enable them to assess practices in a coherent way.

Nevertheless, consistent with the economic-focused language of the Sherman Act itself, the tools that emerged were almost entirely economic. While they were largely applied by noneconomist judges, the record of economic tools that the Progressive period of antitrust enforcement generated is impressive. Judges routinely used them even if they were not aware of their economic origins or technical meaning. Nearly all of these developments placed antitrust theory on an expansion course that prevailed until the reaction against the New Deal found a voice in the neoliberalism of the 1940s and after, particularly as expressed by the Chicago School. Even so, the neoliberal revolution adopted most of these tools, although it substantially modified some of them and rejected a few.

The Progressives are sometimes caricatured as people who really did not care about costs and productivity but were concerned exclusively about bigness as such. This could not be further from the truth. By and large the Progressives appreciated the fact that the trusts had lower costs than smaller firms and did not want to punish them for that. That was clear already in 1900, as expressed in the various

[2]*See* discussion *infra*, text at notes __.

opinions expressed at the Chicago Conference on Trusts.[3] They were worried that the trusts threatened high prices, and that exclusionary practices might be a vehicle for achieving that. Further, there is no inconsistency between lower costs and higher prices. The first resulted from technical progress and scale economies; the second from a reduction in market competition.

THE CHICAGO CONFERENCE ON TRUSTS

The Progressive Era was heavily preoccupied with the rise of larger firms, or the "trust" problem. The initial reaction was an eclectic range of views about what to do about them, or whether to do anything at all. The enormous 1899 Chicago Conference on Trusts, which was hosted by the Civic Federation of Chicago, reflected this diversity of views. Its personnel and proceedings, which were published in 1900, are so valuable because they included nearly every interest group that had something to say about the trusts. The speakers included politicians, economists, lawyers, social scientists and statisticians, labor union leaders, and insurance company representatives.[4] This diverse group identified a number of phenomena that explained the rise of the trusts and that either justified them or damned them. Some argued that the trusts were entirely the consequence of economies of scale or scope and as such were an engine of economic progress, so they should be left alone.[5] Others argued that potential competition and new entry would always be present to discipline monopoly pricing, thus mitigating the concern.[6] Many others saw the trusts as harmful and blamed their rise on deficiencies in state corporate law. They debated about a national incorporation act as a good potential

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[3]*See* discussion *infra*, text at notes __.
[4]CHICAGO CONFERENCE ON TRUSTS: SPEECHES, DEBATES RESOLUTIONS, LIST OF THE DELEGATES, COMMITTEES, ETC., SEP. 13-16, 1899 (Civic Fed. Of Chicago 1900). Pp. iii-vii gives a list of participants and the title of their contributions.
[5]*E.g.*, Charles Foster, former governor of Ohio, id. at 268-271. *See also* MARTIN J. SKLAR, THE CORPORATE RECONSTRUCTION OF AMERICAN CAPITALISM: 1890-1916, at 203-28 (1988) (describing the conference).

[6]*See* discussion *infra*, text at notes __.

solution.[7] Others both blamed and defended tariffs[8] or immoral business actors.[9]

Within this amalgamation of concerns the Sherman Act was hardly dominant. In fact, it played a surprisingly small part, and the speeches tended to emphasize its deficiencies more than its strengths. Henry Rand Hatfield's well known account of the Chicago Trust Conference is very likely responsible for the view that the economists who spoke were nearly all opposed to the Sherman Act.[10] A fair reading of the entire proceeding suggests two different splits. First was the division of those who thought that the trusts were efficient and harmless from those who regarded them as threatening. Contrary to Hatfield's view, a clear majority believed that they presented a serious

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[7]A.E. Rogers, University of Maine, CHICAGO CONFERENCE, *supra* note __ at 409-421. William Jennings Bryan, *id*. at 503-509. *See also* William Dudley Foulke, id. at 579-580 (opposing Bryans' suggestion that corporations be generally forbidden from doing business in more than one state).

[8]*E.g*, William Jennings Bryan, CHICAGO CONFERENCE, *supra* note __ at 501 (trusts the product of high tariffs) Bryron W. Holt, New England Free Trade League, "Tariff the Mother of Trusts," *id*. at 171-176; Samuel Adams Robinson, American Protective Tariff League, *id*. at 193-201; Lawson Purdy, *id*. at 166-171 (arguing that tariffs were a principal vehicle for the rise of the trusts; "the combinations not protected by an iniquitous tariff are few in number"). Contrast Henry W. Blair, former United States Senator, "The Tariff Not Mother of Trust, but Mother of American Wealth and Power," id. at 604-619; *accord* John F. Scanlan, Western Indus. League, *id*. at 177-186; Thomas Updegraff, ex-Congressman 187-188 ("Protectionists would kill the snakes and save the paradise. Free traders in America would devastate the paradise and save the snakes.").

[9]*E.g*., William Fortune, *id*. at 53-57; G.W. Northrup, Jr., *id*. at 522-530; J. G. Schonfarber (Knights of Labor), *id*. at 343-345.

[10]*See* Henry Rand 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. This was necessarily the view of those who advocated trust methods, but it was also advanced by all save one of the professional economists, by the leading labor representatives, and even by some who were avowed anti-trust men.

At the time, Hatfield was an economics instructor at the University of Chicago.

problem. Second was the question of the best legal tools for confronting them. Here, Hatfield's point has somewhat more traction. As correctives, corporate law and tariff reform were at least as prominent as the Sherman Act, and many of the speakers professed strong disappointment in Sherman Act litigation to that time.

By the time of the conference the Sherman Act was nearly ten years old and had produced two important Supreme Court decisions condemning railroad cartels.[11] Even here, the very small number of comments on the railroad cartel decisions were more negative than positive. One complaint was that the railroad cartel cases did not authorize the courts to set reasonable rates, but only to condemn bad agreements.[12] Another was that the *Trans-Missouri* case had largely "expunged" the rule of reason from the law.[13]

By 1900 the Sherman Act had also been used aggressively several times against labor unions, a development that was both praised and condemned by participants. In nearly all of these cases the plaintiff had been the United States, thus inviting debate about what should be government policy toward union activities.[14] Others criticized the Supreme Court's very first antitrust decision, United States v. E.C. Knight,[15] which had concluded that Congress lacked the Constitutional authority to control intrastate manufacturing simply because the goods were destined for interstate shipment. That

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[11]United States v. Trans-Missouri Freight Assn., 166 U.S. 290 (1897); United States v. Joint Traffic Ass'n., 171 U.S. 505 (1898).

[12]CHICAGO CONFERENCE, *supra* note __ at 75 (comments of R.S. Taylor); Id. at 127-133 (comments of F.B. Thurber).

[13]*Id*. at 135 (F.B. Thurber).

[14]*See* United States v. Cassidy, 67 F. 698 (N.D.Cal. 1895) (instructing jury that Sherman Act reaches labor conspiracy); United States v. Elliott, 62 F. 801 (E.D. Mo. 1894) (granting preliminary injunction under the Sherman Act, under what is now 15 U.S.C. §25); United States v. Agler, 62 F. 824 (D. In. 1894) (similar, approving injunction even against defendants who were not named in the bill). *See also In re* Debs, 158 U.S. 564 (1895) (upholding labor conspiracy injunction against Eugene Debs under Congressional power to regulate commerce; not relying on Sherman Act, but noting that the district court did and expressing no opinion about whether that was correct). Other decisions are discussed in Herbert Hovenkamp, *Labor Conspiracies in American Law, 1880-1930*, 66 TEX. L. REV. 919, 950 (1988).

[15]United States v. E.C. Knight Co., 156 U.S. 1 (1895).

provoked the view that the country "must have a constitution change if the general government is to deal with the trust problem."[16] Another speaker praised the railroad cartel decisions as well as *E.C. Knight* for developing the distinction between intrastate and interstate trusts.[17]

The path of antitrust development that took place in subsequent years was much more focused than the Conference debates, mainly because most of the alternatives dropped away. The move for a national incorporation statute ran out of gas.[18] Debates over the tariff remained, but no serious legislation ever linked them to trusts as such. The role of labor became more prominent and was reflected in Congressional legislation in §6 of the Clayton Act in 1914, which became part of the antitrust laws.[19] Debates over good morals in business behavior are of course never ending, but the concerns were never reflected in the text of an antitrust statute. Rather, when it passed the Clayton Act in 1914, Congress doubled down on the use of exclusively economic language. The Act condemned conduct when it threatened to "substantially lessen competition" or "tend to create a monopoly."[20]

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[16]Statement by John I. Yellott, Maryland lawyer, CHICAGO CONFERENCE, *supra* note __ at 434. He concluded that "this enabling amendment must be made, or we must rely upon state legislation for a remedy." *Id*. at 434-435. Largely in accord was William Dudley Foulke, *id.* at 579-580.

[17]*Id*. at 523-524.

[18]On the rise and fall of the movement, *see* GABRIEL KOLKO, THE TRIUMPH OF CONSERVATISM (1963); Camden Hutchison, *Progressive Era Conceptions of the Corporation and the Failure of the Federal Chartering Movement*, 2018 COL. BUS. L. REV. 1017; Theodore H. Davis, Jr., *Corporate Privileges for the Public Benefit: The Progressive Federal Incorporation Movement and the Modern Regulatory State*, 77 VA. L. REV. 603 (1991); Melvin I. Urofsky, *Proposed Federal Incorporation in the Progressive Era*, 26 AM. J. LEGAL HIST. 160, 180 (1982).

[19]15 U.S.C. §17.

[20]15 U.S.C. §§13 (predatory price discrimination); 14 (tying and exclusive dealing), 18 (horizontal mergers). 15 U.S.C. §13 was subsequently amended so as to cover a supplier's discrimination between its dealers; and 15 U.S.C. §18 was subsequently amended to reach both vertical mergers and asset acquisitions, but it continued to use the "substantially lessen competition…" language).

One thing that emerges powerfully in the proceedings of the Conference is that, even though the participants represented a wide variety of political beliefs as well as professions, the dominant concern was with the power of the trusts to set high prices. There were a few exceptions. For example, Progressive economist Henry Carter Adams, at this time a statistician for the Interstate Commerce Commission, complained about the "general social and political results of trust organizations" that must also be considered in addition to their tendency to reduce costs. "For the preservation of democracy there must be maintained a fair degree of equality in the social standing of citizens," he observed, and wondered whether the rise of the trusts was consistent with that.[21] He concluded:

> I would not claim, without discussion, that the trust organization of society destroys reasonable equality, closes the door of industrial opportunity, or tends to disarrange that fine balance essential to the successful workings of an automatic society; -but I do assert that the questions here presented are debatable questions, and that the burden of proof lies with the advocates of this new form of business organization.[22]

He also suggested that the trusts might have outsize political influence.[23] Dudley Wooten, identified only as a member of the Texas legislature, agreed, arguing that the trusts were antidemocratic perversions brought about by selfishness.[24] Aaron Jones, a leader of the national Grange, a populist political organization of farmers,[25] observed that the sugar trust made political contributions to the Republican Party in Republican controlled states and to the Democrats in Democrat controlled states.[26] John W. Hayes, General Secretary of the Knights of Labor, saw a political war between the power of the

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[21]CHICAGO CONFERENCE, statement of Henry Carter Adams, *supra* note __ at 38.

[22]*Ibid*.

[23]*Id*. at 39.

[24]*Id*. at 42 (statement of Dudley G. Wooten, a Texas lawyer and judge).

[25]*See* ROBERT CARROLL MCMATH, JR., AMERICAN POPULISM: A SOCIAL HISTORY, 1877-1898 at 50-142 (1991) (on the Grange, or National Grange Patrons of Husbandry, and other agricultural populist groups).

[26]Statement of Aaron Jones, Grand Master, National Grange Patrons of Husbandry, *id*. at 221.

state and the power of the trusts,[27] as did Edward W. Bemis from the Bureau of Economic Research.[28] William Dudley Foulke, a prominent journalist and literary critic, argued that "the political and social effects of monopoly are far more menacing to society than its economic results."[29] For more conservative political activist George Gunton, by contrast, politics were present but pulling the other way: politicians were being urged to abandon sound economic principles of "industrial freedom" in order to vote the "arbitrary parternalism" of harsh regulation of the trusts.[30]

Following the Chicago Conference, Progressives began to focus more narrowly on the antitrust laws and the discipline of economics as the proper tool for dealing with the trusts. While political rhetoric about the trusts has always been present, there is little evidence that it provided a substantial guide to policy making. The dominant tool became marginalist economics, then in its infancy, and the darling of the younger generation of political economists in the United States. Most of them were Progessives with a much stronger bias in favor of government intervention than their predecessors had supported.[31]

The principal economic tools that emerged were (1) partial equilibrium analysis, which became the basis for concerns about economic concentration, the distinction between short- and long-run analysis, and later came to justify and provide support for the concept of antitrust's "relevant market"; (2) classification of costs into fixed and variable, with the emergent belief that industries with high fixed costs were more problematic; (3) development of the concept of entry barriers, contrary to a long classical tradition of assuming that entry is easy and quick; (4) the distinction between horizontal and vertical relationships and the emergence of vertical integration as a competition problem; (5) price discrimination as a practice that could have competitive consequences. Finally, toward the end of this period came (6) theories of imperfect competition, including the rediscovery

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[27]John W. Hayes, *id*. at 331, 334.
[28]*Id*. at 394, 397-398.
[29]Comments of William Dudley Foulke, *id*. at 454.
[30]George Gunton, Comments, *supra* note __ at 276.
[31]*See* Herbert Hovenkamp, *The First Great Law & Economics Movement*, 42 STAN. L. REV. 993 (1990).

of oligopoly theory and the rise of product differentiation as relevant to antitrust policy making.

MARGINALIST ECONOMICS AND MARKET REVISIONISM

The antitrust movement in the United States coincided with a far-reaching revolution in economics, such as economic thought has not seen before or since. The marginalist revolution has unfortunately been seriously undervalued in history writing about antitrust, mainly because so many historians who are not economists did not understand it and failed to appreciate its implications.[32] Nevertheless, the fact remains that one cannot understand the set of tools that antitrust policy makers deployed without understanding their underlying economics. By 1930 virtually every economist was a marginalist.[33]

Briefly, the classical political economists saw value as inhering in goods or the labor that went into making them.[34] They tended to assess costs and benefits by looking at averages, which were necessarily taken from the past. They also tended to believe that capital would flow

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[32] *E.g.*, HANS B. THORELLI, THE FEDERAL ANTITRUST POLICY: ORIGINATION OF AN AMERICAN TRADITION (1954) (no references to marginalism); WILLIAM LETWIN, LAW AND ECONOMIC POLICY IN AMERICA: THE EVOLUTIONOF THE SHERMAN ANTITRUST ACT (1954) (same). Some later histories contain brief discussions. *See, e.g*, RUDOLPH J. R. PERITZ, COMPETITION POLICY IN AMERICA: HISTORY, RHETORIC, LAW 94-96 (1996) (describing marginalist revolution)

[33] *See* Frank Knight, "Marginal Utility Economics" 148-149, in FRANK H. KNIGHT, THE ETHICS OF COMPETITION (1935), reprinted from THE ENCYCLOPEDIA OF THE SOCIAL SCIENCES (Edwin R. A.Seligman, ed., 1930).

[34] On marginalism and the reaction to classical political economy, *see* MARK BLAUG, ECONOMIC THEORY IN RETROSPECT 277-310 (5th ed. 1997); RICHARD S. HOWEY, THE RISE OF THE MARGINAL UTILITY SCHOOL, 1870-1889 (1960); YUVAL P. YONAY, THE STRUGGLE OVER THE SOUL OF ECONOMICS: INSTITUTIONALIST AND NEOCLASSICAL ECONOMISTS IN AMERICA BETWEEN THE WARS 29-48 (1998). In American Law, *see* Herbert, Hovenkamp, *The Marginalist Revolution in Legal Thought*, 46 Vand. L. Rev. 305 (1993).

naturally toward profit, and that the only practical impediment was government licenses or other restrictions.[35] In sharp contrast, marginalists saw value as willingness to pay or accept for the next, or "marginal," unit of something. As a result, its perspective on value was much more forward looking.

Two features of marginalism account for both its influence and the resistance to it. One was that it both required and enabled expansive use of mathematics unlike anything known to the classical economists. Another was that marginalist analysis enabled various values governing demand, supply, or economic movement to be "metered," or quantified, in ways that classical political economy could not do. This feature also made marginalist economics much more technical, with increasing informational demands, but also promised to give marginalist economics capabilities far beyond those of its predecessors.

Markets as Human Institutions: Coercion

The classical economists saw the world of commercial relationships in binary terms. For private arrangements people were either free or bound. Aside from government constraint, the boundaries of obligation were defined by contract, property, and tort law. Value inhered in things or the labor used to produce them, and people either purchased or not. Setting side public obligations, within that world people were free to make their own economic decisions unless a contract, property right, or sovereign command bound them. That bond was particularly strong because the common law principle of liberty of contract refused to set very many contracts aside.[36] Further, the classical tradition regarded the market itself as a part of nature. Francis Wayland's very popular textbook on political economy defined the discipline in 1886 as "a branch of true science," and by science "we

[35]*See* Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial organization*, 68 TEX. L. REV. 105, 149-150 (1989).
[36]*See* PATRICK S. ATIYAH, THE RISE AND FALL OF FREEDOM OF CONTRACT (1985).

mean a systematic arrangement of the laws which God has established…."[37]

By contrast, one prominent feature of the late nineteenth century was its fascination with change – in everything from biological evolution to physics to mechanics. The historian Howard Mumford Jones described the period as the "Age of Energy."[38] It was only natural that economists would develop marginalism, with its forward-looking concept of value that focused on the next thing rather than on averages from the past.[39] "Equilibrium" became the steady state to which all change aspired but seldom reached.

Marginalism began with the premise that value is a measurable expression of human choice. Value depended on willingness to pay or willingness to forego. Further, marginalism distinguished among goods depending on costs, availability, and preference. One corollary was the increasing belief that markets were not all the same and did not all function equally well. This opened the way for more substantial if selective intervention to correct market deficiencies.[40]

Under the marginalist conception, markets were human creations and not merely a reflection of permanent laws of nature. Their design was a product not only of preference but also of state policy, which could be for good or for ill. As the institutionalist progressive economist John R. Commons put it in his important book on the legal foundations of capitalism:

> Economic phenomena, as we know them, are the result of artificial selection and not of natural selection. Their evolution is like that of a steam engine or a breed of cattle, rather than like that of a continent, monkey or tiger….

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[37]FRANCIS WAYLAND, THE ELEMENTS OF POLITICAL ECONOMY 4 (rev. ed., Aaron L Chapin, ed., 1886).
[38]HOWARD MUMFORD JONES, THE AGE OF ENERGY: VARIETIES OF AMERICAN EXPERIENCE, 1865-1915 (1970).
[39]*See* HERBERT HOVENKAMP, THE OPENING OF AMERICAN LAW: NEOCLASSICAL LEGAL THOUGHT, 1870-1980 at 4-52, 75-158 (2015).
[40]On marginalism and the development of American regulatory policy, *see* Herbert Hovenkamp, *Regulation and the Marginalist Revolution*, 71 FL. L. REV. 455 (2019).

> Thus it is, also, with all of the phenomena of political economy. They are the present outcome of rights of property and powers of government which have been fashioned and refashioned in the past by courts, legislatures and executives through control of human behavior by means of working rules, directed towards purposes deemed useful or just by the lawgivers and law interpreters.[41]

An outpouring of literature stretching from the 1890s through the early decades of the twentieth century developed aspects of this view that markets are "created" rather than simply present in the natural world. One manifestation was unprecedented economic concern with the distribution of wealth and the idea that this was a legitimate target of state policy because the state was responsible for it in the first place.[42] Another was the concern, best expressed by Progressive economist Richard T. Ely, that the legal system itself was strongly biased against the poor. In his important book on the common law and the distribution of wealth, Ely concluded that the coercive rules of property and contract tended to cede power to those who already had it.[43] In a review, Cambridge economist Charles Percy Sanger concluded that "the most salient fact is the mass of evidence

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[41] JOHN R. COMMONS, LEGAL FOUNDATIONS OF CAPITALISM 376-377 (1924).

[42] Published books alone include JOHN BATES CLARK, THE DISTRIBUTION OF WEALTH: A THEORY OF WAGES, INTEREST AND PROFITS (1899); THOMAS NIXON CARVER, THE DISTRIBUTION OF WEALTH (1904); JOHN R. COMMONS, THE DISTRIBUTION OF WEALTH (1893); RUFUS COPE, THE DISTRIBUTION OF WEALTH (1890); CHARLES W. MACFARLANE, VALUE AND DISTRIBUTION (1899); JOHN K. RYAN, DISTRIBUTIVE JUSTICE (1916); CHARLES B. SPAHR, AN ESSAY ON THE PRESENT DISTRIBUTION OF WEALTH IN THE UNITED STATES (1896); DAVID A. WELLS, RECENT ECONOMIC CHANGES, AND THEIR EFFECT ON THE PRODUCTION AND DISTRIBUTION OF WEALTH AND THE WELL-BEING OF SOCIETY (1889).

[43] RICHARD T. ELY, PROPERTY AND CONTRACT IN THEIR RELATIONS TO THE DISTRIBUTION OF WEALTH (2 vols., 1914).

which shows how hostile the constitution of the United States, as interpreted by judges is to the poor or the public."[44]

Another consequence, which had more relevance for antitrust policy, was the idea that markets themselves could be coercive instruments that limited human freedom. Columbia professor Robert Hale, another Progressive who was one of the earliest economists to be hired onto a law school faculty, expressed this idea for an entire generation. In an article entitled "Coercion and Distribution in a Supposedly Non-Coercive State" he observed that the economic systems that had been developed by classical economists gave lip service to freedom. In reality, however, their systems are "permeated with coercive restrictions of individual freedom, and with restrictions, moreover, out of conformity with any formula of "equal opportunity" or "preserving the equal rights of others."[45]

Many of these newly discovered concerns about market coercion showed up in public law – things such as greater protection for labor from onerous wage agreements, prohibitions of child labor, the progressive income tax, and eventually the expansive safety net programs of the New Deal. But they also affected competition policy. As noted later, for example, the law of vertical restraints became increasingly aggressive It abandoned very benign common law rules for virtual per se illegality for most distribution agreements that limited dealer behavior, as well as aggressive rules for vertical mergers.[46] The classical conception that new entry would always be around to discipline monopoly unless the government prevented it gave way to one that saw markets themselves as forestalling new competition.[47] The idea of competition itself came increasingly under attack, and not from socialists who did not believe in it. Rather it was from neoclassically-trained economists who realized that the viability of

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[44]Charles Percy Sanger, *Book Review*, 25 ECON. J. 424 (1915). Sanger was a student of Alfred Marshall and focused on mathematical economics until he drifted into law.

[45]Robert L. Hale, *Coercion and Distribution in a Supposedly Non-Coercive State*, 38 POL. SCI. Q. 470, 470 (1923). On Hale, *see* BARBARA H. FRIED, THE PROGRESSIVE ASSAULT ON LAISSEZ FAIRE: ROBERT HALE AND THE FIRST LAW AND ECONOMICS MOVEMENT (2001).

[46]*See* discussion *infra*, text at notes __.

[47]*See* discussion *infra*, text at notes __.

competitive markets depended on several assumptions that did not invariably obtain.[48]

Partial Equilibrium Analysis

Marginal utility theory permitted the creation of tools for determining the relationship between costs and either competitive or monopoly prices within a firm. By itself, however, it was not able to assess how competition works among multiple firms of what are the conditions for achieving it. That required additional theory about interactions among firms.

Partial equilibrium analysis permitted people to group individual industries into markets, on the assumption that the interactions of firms within the same market were much more important for evaluating competition than the interactions (or lack of them) among firms in different markets. Further, as soon as one relaxed the assumption that resources would move freely and quickly from any place of low utility to any place of higher utility it became prudent to investigate where such movements could be expected to occur and where they would be less likely. Cambridge University Professor Alfred Marshall, the first great marginalist industrial economist, borrowed this approach from the science of fluid mechanics: for goods within the same market, prices and demand would flow toward equality, but not across the market's boundaries.

In 1890 Marshall brought the ideas of marginal utility and equilibrium together in a way that made the analysis of market behavior both tractable and useful. First he developed what came to be known as the Marshallian demand curve, illustrating the inverse relationship between price and output of a single commodity.[49] The downward slope of the demand curve is driven entirely by the next, or "marginal," buyer's willingness to pay for one unit of that commodity. The model ignored choices people might make about different

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[48]*See* discussion *infra*, text at notes __.
[49]Famously specified in Milton Friedman, *The Marshallian Demand Curve*, 57 J. POL. ECON. 463 (1949), who also cites the lengthy history of conceptual development up to that time. Marshall's own specification appears in ALFRED MARSHALL, PRINCIPLES OF ECONOMICS 159 n. 1 (1890).

commodities, even though in a world of limited budgets these choices could be relevant.

Marshall was not the first marginalist,[50] but he did turn marginalism into a practical tool of competition analysis. He explained that he had come

> to attach great importance to the fact that our observations of nature, in the moral as in the physical world, relate not so much to aggregate quantities, as to increments of quantities, and that in particular the demand for a thing is a continuous function, of which the "marginal" increment is, in stable equilibrium, balanced against the corresponding increment of its cost."[51]

For example, a firm would bid a selling offer by comparing the amount of additional cost that production and sale would encounter and the amount of additional revenue that it would produce.[52]

Marginalism provided a partial theory of individual firm behavior, but not so obviously a theory of firm interaction and competition. In order to do that, Marshall needed a mechanism for identifying who in the economy competes with whom. This was in contrast to earlier contemporaries such as Leon Walras and Marshall's own successor at Cambridge, Arthur Cecil Pigou, who were more concerned with the economy as whole. Today this division roughly separates macroeconomics and microeconomics.[53]

Marshall's concern was to make economic analysis more manageable by focusing on those firms that competed with one another in an obvious way. He realized that everything in an economy affects everything else, but the most important influences can be identified

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[50] *See* Howey, *supra* note __; Knight, *Marginal Utility Economics, supra* note __.

[51] MARSHALL, PRINCIPLES, Preface, x (1890).

[52] Alfred Marshall did not use the term "marginal revenue" in reference to the monopolist's profit-maximizing output and price. Rather, he spoke of "net revenue," which appears to mean the same thing. See MARSHALL, PRINCIPLES, *supra* note __ at 458-459. For example, he concluded that in the long run a monopolist might charge a little lower price in order to earn higher profits sufficient to "recoup him" for the short run losses. Id. at 464-465.

[53] Criticized in Friedman, *supra* note __.

and tracked. In the influential eighth edition of *Principles*, published in 1920, Marshall observed that informational demands made it necessary for people, with their "limited powers to go step by step; breaking up a complex question, studying one bit at a time and at last combining [their] partial solutions into a more or less complete solution of the whole riddle."[54]

His described his solution, which came to be known as partial equilibrium analysis, this way:

> The forces to be dealt with [in the economy are] so numerous, that it is best to take a few at a time; and to work out a number of partial solutions as auxiliaries to our main study. Thus we begin by isolating the primary relations of supply, demand and price in regard to a particular commodity. We reduce to inaction all other forces by the phrase "other things being equal": we do not suppose that they are inert, but for the time we ignore their activity. This scientific device is a great deal older than science: it is the method by which, consciously or unconsciously, sensible men have dealt from time immemorial with every difficult problem of ordinary life.[55]

This focus on individual industries quickly took over the entire field of business economics, or "industrial organization," as a distinct field of economic inquiry. Today, antitrust has become a substantially microeconomic discipline, certainly in litigation if not always in theory.

Marshall set industrial organization economics on the path of studying industries individually by identifying goods, which he termed "commodities," that were sufficiently similar that they could be said to compete with each other. This assumption had numerous implications that were relevant to antitrust. One was to invite questions about exactly how to identify who was in such an industry and who was not. A second was to consider whether the identity of the firms in this grouping changed over time. A third was to make the analysis of relationships among competitors, or "horizontal" relationships very different from the analysis of vertical relationships.[56] A fourth one was

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[54] ALFRED MARSHALL, PRINCIPLES OF ECONOMICS 213 (8th ed. 1920).
[55] *Id*, preface, xxvi (8th ed.).
[56] *See* discussion *infra* text at notes __.

a search for the conditions for furthering or undermining competition once such a group of firms or their commodities had been defined.

Marshall clearly realized that in reality there is no such thing as a single market that is completely isolated from the rest of the economy. Partial equilibrium analysis, as it came to be called, was no more than a working assumption – although a very important one for making economic analysis manageable. The idea that groupings of similar (competing) commodities should be industrial economics' principal subject of study had a profound influence on antitrust policy. By focusing on a relatively small number of firms whose products and location were reasonably close to one another, economics could draw powerful conclusions about how price and new market entry are determined and how firms respond to one another's decisions. One of the most important antitrust tools to come out of this focus was the idea of the "relevant market," or the grouping of sales whose products and prices are strongly influenced by one another.[57]

The late nineteenth century was the Golden Age of engineering and science, including social science and economics. Alfred Marshall borrowed his ideas about movement and equilibrium straight from Newtonian physics: "When two tanks containing fluid are joined by a pipe, the fluid, even though it be rather viscous, which is near the pipe in the tank with the higher level, will flow into the other," he wrote.[58] Further, "if several tanks are connected by pipes, the fluid in all will tend to the same level . . ."[59] Marshall appeared to be discussing fluid mechanics. In fact, he was speaking of the principle of economic substitution at the margin, which he defined as the tendency for prices "to seek the same level everywhere,"[60] just as the fluid in a tank. Further, "unless some of the markets are in an abnormal condition, the tendency soon becomes irresistible."[61] Within this model a "market"

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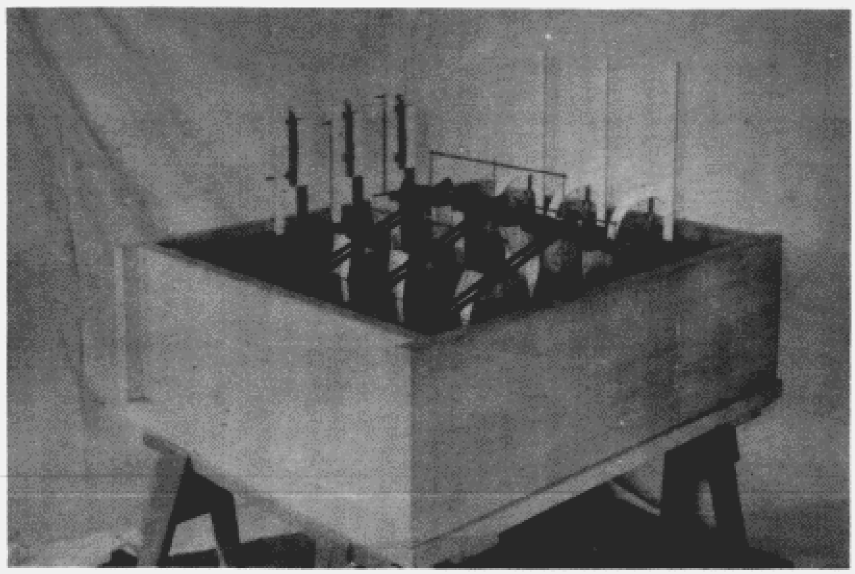
[57]*See* discussion *infra*, text at notes __.
[58]ALFRED, PRINCIPLES, *supra* note __ at 45 (1890).
[59]*Id*. at 46.
[60]*Id*. at 387.
[61]*Ibid*. He observed,

> And similarly the law of substitution is constantly tending by indirect routes to apportion earnings to efficiency between trades, and even between grades, which are not directly in contact with one another, and which appear at first sight to have no way of competing with one another.

was a closed system in which fluids moved naturally toward equality. A different market would be a different enclosed system without any flow from one system to the other.

Irving Fisher, a graduate student in the early 1890s who was to become one of America's most important early marginalists, constructed a utility machine, illustrating with fluids controlled by pumps and levers how prices within the same market flowed to an equilibrium, but did not flow across market boundaries:[62]



FIRST MODEL OF MECHANISM PICTURED ON PAGE 38, CONSTRUCTED IN 1893.

The utility machine was thought to be so innovative that it was scheduled for display at the Columbian Exhibition in Chicago in 1893, but was destroyed in route.[63] Other American economists also used

Id. at 706.

[62]Irving Fisher, *Mathematical Investigations in the Theory of Value and Prices*, 9 TRANSACTIONS OF THE CONNECTICUT ACADEMY 28, 38 (July 1892).

[63]*See* Robert W. Dimand and John Greanakoplos, *Celebrating Irving Fisher: the Legacy of a Great Economist*, 64 AM. J. ECON. & SOC. 3 (2005). *See also* William C. Brainard & Herbert E. Scarf, *How to Compute Equilibrium Prices in 1891*, 64 AM. J. ECON. & Soc. 57 (2005). On the underlying mathematics,

illustrations derived from fluid mechanics to illustrate the equilibrium of prices in a market.[64]

Marshall's conclusion that the fluids in a tank would flow to a level equilibrium even though they were "rather viscuous," presaged another development in marginalist economics: the idea of "costs of movement," in the words of Marshall's successor Arthur Cecil Pigou.[65] These later came to be known as "transaction costs."[66] The idea was simply that the costs of moving resources to an equilibrium varied considerably from one market situation to another, and in some cases these costs prevented the movement altogether. As a result, one feature of some markets was "chronic disequilibria," as Joseph Schumpeter observed in 1934.[67]

One thing that made marginalism attractive to the new generation of young economists was its increased use of mathematics. This was in line with contemporary thinking in all of the sciences and social sciences that emphasized expertise and technique.[68]

Marginalist industrial economics also broke the bond that had always existed between classical political economy and laissez fair policy – at least until significant neoliberal pushback occurred in the 1940s. The classicists had been strenuous opponents of government intervention in the economy, but the new Progressives were not. Indeed, Marshall himself moved significantly to the left as he got

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see Donald Brown and Felix Kubler, *Comment*, 64 AM. J. ECON. SOC. 85 (2005).

[64]*E.g.*, John Maurice Clark, *A Contribution to the Theory of Competitive Price*, 28 Q.J. ECON. 747 (1914).

[65]ARTHUR C. PIGOU, THE ECONOMICS OF WELFARE 138-139 (4th ed. 1932). *See* Herbert Hovenkamp, *Antitrust and the Costs of Movement*, 78 ANTITRUST L.J. 67 (2012).

[66]*See* Herbert Hovenkamp, *Coase, Institutionalism, and the Origins of Law and Economics*, 86 IND. L.J. 499, 503-510 (2011).

[67]Joseph A. Schumpeter, *Robinson's Economics of Imperfect Competition*, 42 J. POL. ECON. 249, 256 (1934)

[68]DOROTHY ROSS, THE ORIGINS OF AMERICAN SOCIAL SCIENCE 98-140 (1991); MARY O. FURNER, ADVOCACY AND OBJECTIVITY: A CRISIS IN THE PROFESSIONALIZATION OF AMERICAN SOCIAL SCIENCE, 1865-1905 (1975).

older.[69] As the technical study of market competition under marginalist principles developed, economists became increasingly concerned about defining the conditions for "perfect" competition. Accompanying this came the realization that the conditions are in fact quite strict, and that nearly all markets deviated from them, although some more than others.[70] One thing that marginalism provided was a set of tools for measuring these deviations, provided that the data were available. Antitrust policy in turn became a tool for examining certain industry structures and practices in order to determine whether they were anticompetitive and, if so, whether they were subject to legal correction.

Industrial Concentration

The idea that a meaningful correlation exists between the number of firms in a market and its degree of competitiveness goes back to Augustin Cournot, a French mathematician who wrote in the mid-nineteen century.[71] As the number of effective competitive players in a market becomes smaller the margin between price and marginal cost increases until it reaches the monopoly level with a single firm. For more than a century, the relationship between industrial concentration and competitive performance has been an important component in competition policy, both at the legislative level[72] and more specifically in merger policy. Nevertheless, its role has been controversial.[73]

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[69]According to John Maynard Keynes. *See* Keynes, *Alfred Marshall, 1842-1923*, 34 ECON. J. 311 (1924). *See also* Theodore Levitt, *Alfred Marshall: Victorian Relevance for Modern Economics*, 90 Q. J. ECON. 425 (1976).

[70] John Maurice Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241 (1940).

[71]AUGUSTIN COURNOT, RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH (1838, Eng. Trans. By Nathaniel T. Bacon, 1897). For a brief biographical introduction, see Antoine Augustin *Cournot, 1801-1877*, https://www.hetwebsite.net/het/profiles/cournot.htm.

[72]*E.g.*, Derek C. Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74 HARV. L. REV. 226, 228-250 (1960) (on Congress' concern in the 1940s with rising industrial concentration).

[73]*See* INDUSTRIAL CONCENTRATION: THE NEW LEANING (Harvey J. Goldschmid, H. Michael Mann, and J. Fred Weston, eds. 1974). *See*

In order to have a measure of industrial concentration someone needs to have a concept of an "industry," and that is why partial equilibrium analysis was an essential premise for talking about industry concentration. Early on, marginalist economists began to examine the relationship between market structure and industry performance. As early as 1888 George Gunton used data from the United States Census of Manufactures to conclude that over the previous half century industrial concentration in some markets had grown significantly.[74] For example, in the cotton industry census data from 1830 and 1880 showed that during that interval the amount of capital invested in the industry grew fivefold, the amount of production more than tenfold, but the number of firms had actually shrunk from 801 to 756.[75] The data also showed that the amount of capital invested per worker had roughly doubled, indicating that the firms were on average becoming more capital intensive.[76] Gunton also identified railroading, telegraphing, petroleum production, and sugar as showing greatly increased concentration.[77]

Gunton's conclusions were not addressed to competitiveness. He never discussed the relationship between the number of firms in a market and the threat of oligopoly of collusion. He observed that some had complained that the "concentration of capital tends to increase prices,"[78] but found no evidence of it. Rather, he found that most of the facts "point the other way." Prices in most of the industries that had experienced higher concentration had actually gone down rather than up.[79] His also rejected the argument that "although these trusts have constantly resulted in reducing prices," still greater saving would result "should the government run the business."[80] He then concluded that the large firms were fundamentally a good thing.[81]

Lawrence J. White, *Book Review*, 76 Col. L. Rev. 1051 (1976) (noting variety of positions and influence of emergent Chicago School).

[74]George Gunton, *The Economic and Social Aspect of Trusts*, 3 POL. SCI. Q. 385, 391 (1888).

[75]*Id*. at 391-392.

[76]*Ibid*.

[77]*Id*. at 392.

[78]*Id*. at 390. Gunton did not identify who the complainers were.

[79]*Id*. at 390 (sugar, freight, petroleum)

[80]*Id*.at 398.

[81]*See id*. at 406:

Increasingly, however, economists and competition lawyers became less sanguine. Boston attorney Lionel Norman lamented that industrial concentration was proceeding at an alarming rate.[82] Cornell economist Jeremiah Jenks and Walter Clark, a professor of mathematics and economics, were also much more pessimistic,[83] as were Progressive economists Richard T. Ely[84] and Edwin R.A. Seligman.[85] Looking at the business landscape just after the turn of the century, Seligman concluded that the "study of modern business enterprise thus becomes virtually a study of concentration."[86] He also relied heavily on data from the U.S. Census of Manufactures, which showed rapidly increasing concentration around 1900, and a significantly greater number of "combinations," or firms that had attained their large size by merger. All but one of the top 25

> Manifestly, therefore, the charge that the concentration of capital in the form of trusts and syndicates, necessarily tends to produce monopoly (in the obnoxious sense), destroy competition, increase prices, oppress labor, or to put the government into the hands of an industrial oligarchy, is without any real foundation in fact, or justification in reason. On the contrary, these institutions, instead of being the evidence of industrial abnormity and economic disease, are the natural consequence of modern industrial differentiation, and in their nature are economically wholesome, and politically and socially harmless.

Gunton did not attribute these charges to any particular person. *See also* Charles Horton Cooley, *The Theory of Transportation*, 9 PUB. AM. ECON. ASSN. 75-76, 109-120 (1894) (finding increasing concentration troublesome, but acknowledging that it led to lower costs).

[82]Lionel Norman, *Legal restraints on Modern Industrial Combinations and Monopolies in the United States*, 33 AM. L. REV. 499 (1899).

[83]JEREMIAH WHIPPLE JENKS, THE TRUST PROBLEM 15-19 (1901). He was joined in several later editions by Walter Clark.

[84]RICHARD T. ELY, AN INTRODUCTION TO POLITICAL ECONOMY 42-47(1901) ("Readers can readily gather from census and trade reports many similar illustrations of this concentration of business, which is one of the main causes of the existence of present economic problems"). Ely ultimately recommended expanded public ownership. *Id*. at 264.

[85]EDWIN R.A. SELIGMAN, PRINCIPLES OF ECONOMICS: WITH SPECIAL REFERENCE TO AMERICAN CONDITIONS (1905).

[86]*Id*., 330.

combinations had been formed between 1890 and 1904.[87] On effects, he noted both the possibility of lower costs but higher profits.[88] He also noted that higher profits did not necessarily mean higher prices, because higher output and lower prices could also be profitable.[89] He seemed particularly troubled by the fact that the trusts earned higher margins, even if they sold at lower prices.[90]

Prominent railroad economist and Harvard Professor William Z. Ripley also undertook a comprehensive examination of industrial concentration data derived from the Census of Manufactures.[91] The two census figures he found to be most informative were those of the number of firms in each consecutive five year census period, and the value of their gross product.[92] He concluded that in 142 out of the 322 industries grouped in the census the number of firms had declined, and there had been significant increases in per firm output. He was able to group industries by their tendency toward monopoly, simply by examining the trend toward increased concentration.[93] "Concentration varies more or less directly with the degree of monopolization," he concluded.[94]

These writers generally assumed a correlation between the data contained in the Census reports and the markets that Alfred Marshall referred to for partial equilibrium analysis. In fact, the census data correlated very poorly with the "relevant market" of antitrust law. For example, one classification in the 1909 Census of Manufactures was "furniture and refrigerators," which included both metal and wood furniture of all kinds, as well as wooden iceboxes and metal

[87]*Id*. at 342-343. *See* the Table, p. 343, which ranks the largest combinations. United States Steel is at the top, followed by American Tobacco Co., and then American Smelting and Refining.
[88]*Id*. at 347.
[89]*Id*., 347.
[90]*Id*., 347.
[91]William Z. Ripley, *Industrial Concentration as Shown by the Census*, 21 Q. J. ECON. 651 (1907).
[92]*Id*. at 652.
[93]*Id*. at 655.
[94]*Id*. at 657.

refrigerators, which were first coming into commercial use.[95] This very poor fit between industry census data and antitrust markets has served to weaken conclusions about industry competitiveness from census classifications – something that some Progressive economists realized already at the turn of the century.[96] This poor correlation has remained to this day as a problem with the measurement of industrial concentration through the use of census data.[97] Nevertheless, data of this type have been in continuous use to produce measures of industry competitiveness ever since the late nineteenth century.[98]

The use of concentration data drawn mainly from the Census of Manufactures has had a controversial but durable history in antitrust policy, notwithstanding significant weaknesses. The Chicago School largely rejected its significance, opting for a position more like George Gunton's that the aggregation of large firms resulted mainly in greater efficiency and lower prices.[99] Numerous other scholars from the mainstream and further left have disagreed.[100] In the mid-1970s the debate produced a major and influential conference collecting

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[95] 9 DEPT. OF COMMERCE AND LABOR, BUREAU OF THE CENSUS, THIRTEENTH CENSUS OF THE UNITED STATES, MANUFACTURES 806, 1046 and many other places (1909).

[96] *See* Balthaser H. Meyer, et al, *Trusts-Discussion,* 5 PUB. AM. ECON. ASSN. 108 (May 1904) (acknowledging that the data were not well designed to answer questions about changes in the number and size of firm and the propensity of a market toward collusion or trust formation). Meyer was an economist at the University of Wisconsin who also served several years as a member of the Interstate Commerce Commission.

[97] *See, e.g.*, Carl Shapiro, *Antitrust in a Time of Populism*, 61 INT'L J. INDUS. Org. 714 (2018) (observing the poor correlation between the census data and relevant markets).

[98] *E.g.*, ALBERT O. HIRSCHMAN, NATIONAL POWER AND THE STRUCTURE OF FOREIGN TRADE 98-99 (1945); ORRIS C. HERFINDAHL, CONCENTRATION IN THE U.S. STEEL INDUSTRY (1950). *See also* CLAIR WILCOX, COMPETITION AND MONOPOLY IN AMERICAN INDUSTRY (TNEC Monograph, 1940). The FTC raised some alarm in FTC, THE PRESENT TREND OF CORPORATE MERGERS AND ACQUISITIONS (1947), a preclude to the 1950 Celler-Kefauver amendment to §7 of the Clayton Act.

[99] E.g., George J. Stigler, *Monopoly and Oligopoly by Merger*, 40 AM. ECON. REV. 23 (1950).

[100] For example, Ralph Nader. *See* Ralph K. Winter, Jr., *Economic Regulation vs. Competition: Ralph Nader and Creeping Capitalism,* 82 YALE L.J. 890 (1973).

representatives from both sides.[101] That book hardly put the debate to rest, however, and census-driven concentration data continues to find a controversial but important place in debates about American competitiveness. For example, the Biden Administration's 2021 Presidential Executive Order on American competitiveness lamented declining competition and relied on concentration data to make the point.[102]

Fixed Costs and Competitive Equilibrium

Both marginalism as a theory of value and Marshall's theory of equilibrium made cost classification essential. In fact, for Marshall the cost problem produced significant frustration. Competition drives prices to marginal cost which, by definition, are costs encountered for each incremental change in output. But if hard competition drives prices to marginal costs, then how could a firm pay off its other costs?

Marshall used the term "marginal cost" to describe the immediate additional cost that a firm faced when it increased output by a single unit. In a chapter on the "Equilibrium of Normal Demand and Supply"[103] he observed that under what he called "free competition" prices would be driven to a level very close to this cost.,[104] and this would become a stable equilibrium.[105]

Marshall's theory of marginal cost was an effort to determine how firms decide on prices. He observed that prices are related to costs but not all costs are the same. Some costs seem to be quite unrelated to a firm's decision about what price to charge, at least over the short

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[101]INDUSTRIAL CONCENTRATION: THE NEW LEARNING, *supra* note __. See the review by Richard R. Nelson, 7 BELL J. ECON. 729 (1976); and Frederic M. Scherer, *The Causes and Consequences of Rising Industrial Concentration*, 22 J.L. & ECON. 191 (1979); Sam Peltzman, *The Gains and Losses from Industrial Concentration*, 20 J. L. & ECON. 229 (1977).

[102]Exec. Order No. 14036 on Promoting Competition in the American Economy, 86 Fed. Reg. 36,987 (July 9, 2021). For antitrust analysis, *see* Herbert Hovenkamp, *President Biden's Executive Order on Competition: an Antitrust Analysis*, __ ARIZ. L. REV. (2022) (in press), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3887776.

[103]*Id*. at 399, 704. Marshall used the term "marginal cost(s)" three times in the 1890 edition but 56 times in the 8th edition.

[104] *Id*. at 412.

[105] *Id* at 535.

run. This included administrative costs as well as depreciation on plant and durable equipment.[106] In calculating whether a particular price is immediately profitable the firm largely ignores these costs. Marshall identified "total cost" as the sum of these supplemental costs plus marginal costs."[107] In the short run each additional sale would add to a firm's profit so long as it was at a price that exceeded the firm's marginal costs.

Marshall never used the terms "fixed costs" and "variable costs." He devoted an entire chapter to "cost of production," which spoke of "prime costs," "total costs," and "marketing costs." The words "prime" and "direct" were almost always used as references to what we would call variable costs.[108] Within prime costs he included:

> The (money) cost of raw material used in making the commodity and the wages of that part of the labour spent on it which is paid by the day or the week.[109]

He excluded salaries such as are paid to management because these did not vary with output over the short run.[110]

Marshall also noted, however, that for goods that require a "very expensive plant" the "supplementary" costs is a "large part of their total cost." As a result, a "normal price" "may leave a large surplus above their prime cost." In today's terminology, in order to be profitable a business with high fixed costs would have to charge a premium above its variable costs. He also observed what would become a significant problem for establishing equilibrium in markets with high fixed costs. "[I]n their anxiety to prevent their plant from being idle" producers may "glut the market." If they "pursue this policy constantly and without moderation," price may be so low "as to drive capital out of the trade, ruining many of those employed in it,

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[106]On Marshall and the operative types of cost, *see* Ragnar Frisch, *Alfred Marshall's Theory of Value*, 64 Q.J.ECON. 495 (1950).
[107]MARSHALL, PRINCIPLES (1890), *supra* note __, Ch. 6.
[108]MARSHALL, PRINCIPLES (1890), *supra* note __, at 452, 518-519, 522. In fact, Marshall devoted Chapter VI to "cost of production," which classified a large number of costs.
[109]*Id*. at 519.
[110]*Ibid*.

themselves perhaps among the number"[111] When firms are under "keen competition" this urge becomes inevitable, and firms "whose business is of this kind … are under a great temptation" to sell "at much less than normal cost."[112]

Marshall's problem was getting an equilibrium that would sustain a market that was both competitive and had high fixed costs – an increasingly prominent feature of industrial production. By his Eighth edition in 1920 Marshall had come up with a largely unsatisfactory biological model to explain how firms with significant fixed costs might attain equilibrium. Firms were like trees in a forest, he explained. They have individual lifecyles, and thus come and go, and some never survive infancy.[113] This organic metaphor never fit very well into the emergent neoclassical model of equilibrium that looked strictly at the mathematics of profit-maximization.[114]

During the formative years of antitrust policy in the United States a "fixed cost controversy" produced by Marshall's model of competition dominated important debates about the appropriate roles of competition policy or regulatory policy.[115] In industries such as the railroads or heavy steel manufacturing, the argument went, "ruinous" competition would occur because firms would be forced to cut their prices toward marginal cost, leaving insufficient revenue to pay of their fixed costs. The equilibrium solutions were the emergence of monopoly, perhaps by merger, collusion, or price regulation. These concerns were very likely a major contributing factor to the great

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[111]*Id*. at 520.

[112]*Id*. at 640.

[113]MARSHALL, PRINCIPLES (8th ed. 1920), *supra* note __ at 315-316. He even used different species of trees as a metaphor for "different branches of industry." Id. at 434. On Marshall's changing use of the trees metaphor through successive editions, *see* Douglas C. Hague, *Alfred Marshall and the Competitive Firm*, 68 ECON. J. 673 (1958).

[114]On the role of the biological model in addressing the equilibrium problem, see Neil Hart, *Marshall's Dilemma: Equilibrium versus Evolution*, 37 J. ECON. ISSUES 1139 (2003). On the subsequent debate over equilibrium within Marshall's framework, *see* Herbert Hovenkamp, *Coase, Institutionalism, and the Origins of Law and Economics*, 86 IND. L.J. 499 (2011).

[115]The debate is recounted in HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW, 1936-1937, Ch. 23 (1991).

merger wave that occurred around the turn of the twentieth century.[116] Antitrust lawyers representing cartel defendants in markets with high fixed costs repeatedly asserted a "ruinous competition" defense to price fixing, but the federal courts consistently rejected it,[117] as they have to this day.[118]

On the other side, several of the more left leaning Progressives denied that there was any such thing as chronic overproduction.[119] By rejecting the defendants' arguments, the Supreme Court was effectively taking their position. In the *Joint-Traffic* case the Court expressed strong doubts about the ruinous competition argument, concluding that the principal consequence of very low rates was increased demand, which would in turn produce a larger supply.[120] Justice Peckham's clever response to the defense in the *Addyston Pipe* case was that, whether or not competition was ruinous, the defendants themselves could not be trusted to set a price no higher than necessary to prevent it. In fact, it had set prices so high as to deprive the public

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[116]*See* NAOMI R. LAMOREAUX, THE GREAT MERGER MOVEMENT IN AMERICAN BUSINESS, 1895-1904 (1988); George Bittlingmayer, *Decreasing Average Cost and Competition: A New Look at the Addyston Pipe Case*, 25 J.L. & ECON. 201 (1982) (generalizing from the railroads to heavy manufacturing industries).

[117]United States v. Trans-Missouri Freight Ass'n, 166 U.S. 290, 368-369 (1897) (rejecting defense that competition would push railroads to "ruinous extremes"); United States v. Joint-Traffic Ass'n, 171 U.S. 505, 576 (1898) (rejecting ruinous competition defense); Addyston Pipe & Steel Co. v. United States, 175 U.S. 211, 213-214 (1899) (same); United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 220-221 (1940) (same, dicta); Arizona v. Maricopa County Medical Society, 457 U.S. 332, 346 (1982) (same, dicta).

[118]More recently, *see* United States v. Apple, Inc., 791 F.3d 290, 332 (2d Cir. 2015) (same, dicta, in the market for ebooks, which also have very high fixed costs).

[119]RICHARD T. ELY, AN INTRODUCTION TO POLITICAL ECONOMY 149 (1891); *see also* HENRY SEAGER, INTRODUCTION TO ECONOMICS 160-61 (1904) (arguing against general overproduction); EDWIN R. A. SELIGMAN, PRINCIPLES OF ECONOMICS 584-86 (3d ed. 1908) (the problem is not overproduction, but rather overcapitalization based on expectations of future orders); Charles J. Bullock, *Trust Literature: A Survey and a Criticism*, 15 Q.J. ECON. 167, 205-10 (1901) (rejecting a general overproduction problem; "the evils of competition are greatly exaggerated").

[120] *Joint-Traffic*, 171 U.S. at 576.

of the advantages of any competition.[121] The court also cited cost evidence developed below that had concluded that the reasonable cost of the defendants' pipe, including a fair profit, did not exceed $15 per ton and could have been delivered profitably to Atlanta for $17 to $18 per ton, but the bid price was actually $24.25 per ton.[122] That statement at least suggested that one judicial response to a ruinous competition defense could be a judicial inquiry into costs, but the Court never pursued that route. It simply rejected the defense outright, as it has always done ever since.

Theorizing about the behavior of firms with high fixed costs became a central focus of early antitrust literature, as well as the early American economic literature on the theory of industrial organization.[123] It also proved to be a general attack on the model of perfect competition.

Prior to the development of imperfect and monopolistic competition models in the early 1930s[124] the principal Progressive theorist of the role of fixed costs was the Institutionalist economist John Maurice Clark. Clark found the existence of significant fixed costs, which he termed "overhead" costs, to be a disruptor of the standard notion of the equilibrium of supply and demand under competition.[125] The problem, as he noted, was that in the short run of immediate demand price and output are determined by demand and marginal cost, but in the presence of fixed costs this could be attained only over some longer run.[126] High fixed costs continuously produced "irregularities" that threw the relationship between demand and supply out of balance, with some periods of excess capacity and others of excessive demand.[127] Echoing Marshall, he observed that "where overhead costs are a substantial item, the perfect theoretical equilibrium is not found."[128]

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[121] Addyston Pipe & Steel Co. v. United States, 175 U.S. 211, 236-237 (1899).
[122] *Id*. at 237.
[123] See Hovenkamp, *Antitrust Movement*, *supra* note __ at 122-143.
[124] *See* discussion *infra*, text at notes __.
[125] JOHN MAURICE CLARK, STUDIES IN THE ECONOMICS OF OVERHEAD COSTS 463 (1923).
[126] *Id*. at 464.
[127] *Id*. at 465.
[128] *Id*. at 468.

The implications, as Clark worked them out, were chronic overproduction in plants with excess capacity, because any price above short run marginal cost would serve to reduce the deficit in payment of fixed costs.[129] Another result was that price discrimination became a profitable strategy to the extent that a firm was able to maintain higher prices on established demand while bidding a lower price for new sales.[130] One characteristic of price discrimination as a solution to the problem of high fixed costs is that when it occurs it results in increased output. Clark concluded that there was nothing inherently anticompetitive or even suspicious about most instances of price discrimination.[131] They were simply a mechanism that firms used to sell individual batches or product at a profit-maximizing (or loss-minimizing) price. That view has very largely persisted within antitrust policy.

The Marshall equilibrium problem ultimately went away when economic models began to incorporate product differentiation, particularly in the theory of monopolistic competition.[132] The principal problem had been that Marshall's assumption that all sellers in competition sold identical "commodities." As a result, firms competed only on price. When differences in the product or even the terms of sale were incorporated it became possible to have equilibrium without relying on any non-economic theorizing about the nature of the firm. The significance of this debate, which occurred almost entirely during the Progressive and New Deal eras, is difficult to exaggerate. It gave us much of our theory about equilibrium in industrial markets, analysis of costs, and theories about the limits of competition and the appropriate scope of regulation.[133] It also fueled the Harvard School view that markets differ from one another, and antitrust policy thus requires intense factual queries into particular industries and practices.

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[129]*Id*. at 469 ("with some capacity unused the differential cost of producing more goods is low, and it pays to sell them for anything above differential cost, but if all goods are sold as cheap as this, the concern will not even cover all its operating expenses.").
[130]*Id*. at 469. *See also Id.*, at 428-433
[131]*Id*. at 2-4.
[132]The developments are briefly recounted in MARK BLAUG, ECONOMIC THEORY IN RETROSPECT 375-378 (5th ed. 1996).
[133]*See* Hovenkamp, *Regulation and Marginalist Revolution*, *supra* note __ at 454-470, 484-492.

Price Discrimination

Price discrimination, which technically refers to selling to two or more customers at different ratios of price to cost, has always produced divisions in antitrust policy, most typically between economists and non-economists. Lawyers often view it with suspicion, something like race or gender discrimination. By contrast, economists have always tended to be more circumspect, and more inclined to divide it up into different varieties. Even a Progressive institutionalist economist such as John Maurice Clark discussed it in relatively benign terms. Minnesota economist and eventual Director of the United States Census Edward Dana Durand probably stated the consensus view among Progressive economists. In a critique of the Clayton Act he observed that price discrimination "is an all but universal practice and is not necessarily injurious or calculated to bring about monopoly."[134] However, he also observed that price discrimination could be a strategy of selective predatory pricing used to drive competitors out of the market.[135]

Most of the economic foundations for our understanding of price discrimination developed during the Progressive Era as an outgrowth of marginal analysis. The principal originator of the modern theory was Arthur Cecil Pigou, successor to Alfred Marshall's Chair at the University of Cambridge.[136] Pigou divided price discrimination into three types, which he named first-, second-, and third- degree price discrimination. First-degree, or "perfect" price discrimination is an analogue of perfect competition: it never exists in the real world but is a good tool for analysis. Under it a seller sells every unit at that customer's reservation price, or the highest price the customer is willing to pay. The result is that output is restored to the competitive level but there is no consumers' surplus.[137]

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[134]Edward Dana Durand, *The Trust Legislation of 1914*, 29 Q. J. ECON. 72 (1914).
[135]*Id*. at 79.
[136]On Pigou, *see* IAN KUMEKAWA, THE FIRST SERIOUS OPTIMIST: A.C. PIGOU AND THE BIRTH OF WELFARE ECONOMICS (2017)
[137]For Pigou's classification, *see* ARTHUR C. PIGOU, ECONOMICS OF WELFARE II.17.6 (4th ed. 1932). On the three degrees of price discrimination and antitrust policy, *see* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §14.4 (6th ed. 2020).

Second-degree price discrimination occurs when the seller adopts a discriminatory pricing formula and the buyer "chooses" its price by selecting how to purchase. A quantity discount schedule is one prominent example. The purchaser can obtain a lower price by buying more.

In third degree price discrimination the seller preselects categories of customers based on certain observed characteristics and charges them different prices – for example, one price for commercial users and another for residential users.

United States antitrust law has never developed general antitrust rules governing price discrimination. Section 2 of the Clayton Act, subsequently amended by the Robinson-Patman Act, addressed a practice that it called "price discrimination."[138] But the set of practices that statute reached often had nothing to do with economic price discrimination. Rather, the statute simply condemned price differences.[139] The Progressives did often identify predatory price discrimination as one of the evils brought about by the trusts, particularly Standard Oil.[140] The result was original §2 of the of the Clayton Act,[141] which the Robinson-Patman Act later amended. The

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[138] 15 U.S.C. §13.

[139] *See* 14 HERBERT HOVENKAMP, ANTITRUST LAW ¶2320a (4th ed. 2019).

[140] E.g., 2 IDA M. TARBELL, THE HISTORY OF THE STANDARD OIL COMPANY 31-63 (1904). *See* Christopher Leslie, *Revisiting the Revisionist History of Standard Oil*, 85 S. CAL. L. REV. 573 (2012).

[141] The original Clayton Act §2 provided:

> That it shall be unlawful for any person engaged in commerce, in the course of such commerce, either directly or indirectly to discriminate in price between different purchasers of commodities.., where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly in any line of commerce: Provided, That nothing herein contained shall prevent discrimination in price between purchasers of commodities on account of differences in the grade, quality, or quantity of the commodity sold, or that makes only due allowance for difference in the cost of selling or transportation, or discrimination in price in the same or different communities made in good faith to meet competition: And provided further, That nothing herein contained shall prevent persons engaged in selling goods, wares, or merchandise in commerce from selecting their

original statute was intended to reach a particular form of predatory pricing widely attributed to the Standard Oil Company as well as others.[142] The House Judiciary Committee report on the provision indicated that its purpose was to target the practice of large corporations of using local price cutting intended to destroy a competitor.[143] In a 1923 decision the Second Circuit described the condemned practice this way:

> It is a matter of common knowledge that prior to the enactment of the Clayton Act a practice had prevailed among large corporations of lowering the prices asked for their products in a particular locality in which their competitors were operating for the purpose of driving a rival out of business. Such lowering of prices was maintained within the particular locality while the normal or higher prices were maintained in the rest of the country; and this practice was continued until the smaller rival was driven out of business, whereupon the prices in that locality would be put back to the normal level maintained in the rest of the country. The Clayton Act was aimed at that evil.[144]

The statute did not explicitly require that the lower price be below cost, but that was largely the way it came to be interpreted,[145] even though the Supreme Court initially construed the statute broadly without discussing any requirement of below cost pricing.[146] Further,

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own customers in bona fide transactions and not in restraint of trade.

[142]On the early litigation history, *see* Breck P. McAllister, *Sales Policies and Price Discrimination Under the Clayton Act*, 41 YALE L.J. 418 (1932).

[143]REPORT OF HOUSE COMMITTEE ON THE JUDICIARY, 63d Cong., 2d. Sess., Misc. H. R. Rep., v. 2, no. 627, May 6, 1914, at 8 ("This section expressly forbids discrimination in price ... when such discrimination is made with the purpose or intent to thereby destroy or wrongfully injure the business of a competitor either of such dealer or seller.").

[144]Mennen Co. v. FTC, 288 F. 774, 778-779 (2d Cir. 1923). The court went on to include that the defendant's practice of refusing to charge retailers the same price as wholesalers was not a violation.

[145]*See, e.g.*, United States v. Nat'l Dairy Prds. Corp., 372 U.S. 29 (1963) (requiring sales "below cost" in order to protect the statute from a void for vagueness Constitutional challenge).

[146] *See* George Van Camp & Sons Co. v. American Can Co., 278 U.S. 245 (1929) (not addressing whether the statute required the lower price to be

the statute's express limitation to "commodities" meant that it could not apply to things such as railroad rates, which were one of the biggest targets of price discrimination concern.[147]

John Maurice Clark's important 1923 book on fixed costs made a convincing argument that, setting aside differences in bargaining relationships or customer sophistication, price discrimination is largely a consequence of fixed costs.[148] A firm with a heavy fixed cost investment needs to keep its output up, and any sale at a price greater than incremental costs will improve its bottom line. When a firm has excess capacity, these pressures are great. That justification for price discrimination was already known in the railroad industry by Clark's time. Forty years earlier Yale economist and eventual President Arthur Twining Hadley had made a similar observation in justifying railroads' policies of charging different freight rates for different commodities depending on the shippers' willingness to pay. By doing this the railroads were able to maximize output, and given their high fixed costs this meant that the average cost of transportation went down.[149]

The Robinson-Patman Act was passed in 1936, subsequent to the period under discussion here. It was *not* a way of approaching the problem of fixed costs. The statute condemned many of the things that Clark's analysis had explained as causing no competitive harm. In any event, the Robinson-Patman Act was a complete misfire. The concern motivating the statute was the emergence of large chain stores such as A&P, which had become the nation's largest grocer. A&P drove many smaller grocers out of business, mainly because it was vertically integrated and also because it was able to purchase in large quantities, enabling it to undersell small grocery stores.

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below cost). *See* Porto Rican Am. Tobacco Co. v. Am. Tobacco Co., 30 F.2d 234 (2d Cir. 1929) (price discrimination among buyers of cigarettes unlawful when the lower price was below cost); American Can Co. v. Ladoga Canning Co., 44 F.2d 763 (7th Cir. 1930). *See also* William S. Stevens, *Unfair Competition*, 29 POL. SCI. Q. 282, 284 (1914).

[147] *See* Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 YALE L.J. 1017, 1050-1055 (1988).

[148] CLARK, OVERHEAD COSTS, *supra* note __.

[149] ARTHUR TWINING HADLEY, RAILROAD TRANSPORTATION: ITS HISTORY AND ITS LAWS 117 (1885).

But the statute was not at all effective in reaching vertical integration because of its requirement that both the higher priced and lower priced transactions be "sales."[150] The vertical passage of a good from a firm to its wholly owned store or other subsidiary was not a "sale," as the courts repeatedly held.[151] Further, because the statute targeted "sales" it did not effectively reach powerful *buyers* such as A & P. The statute did contain a buyers' liability provision, almost as an afterthought, which was never very effective.[152] It did condemn a few large suppliers, such as Borden, for selling milk to large grocers at a lower price than to small grocers.[153]

During the Progressive Era through the new deal the antitrust analysis of price discrimination was spotty and indeterminate. The fact is, however, that it remains indeterminate to this day. We have never developed good theory for generalizing about the competitive effects of price discrimination. The consensus of economists today is probably not much different from what it was in the 1920s and 1930s – namely, most instances are competitively harmless, particularly if the discrimination tends to increase output.[154]

Assessing Power: Potential Competition, Barriers to Entry, and the Relevant Market

In 1890, when the Sherman Act was passed, legal doctrine did not have a coherent conception of market power as a measurable presence, and economics was just beginning to develop it. Judicial decisions contained plenty of discussions of "monopoly," but virtually always in relation to patents or other grants of exclusive rights. In most cases "monopoly" was simply assumed from the existence of the grant itself.

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[150]*See* 14 HERBERT HOVENKAMP, ANTITRUST LAW ¶2312 (4th ed. 2019).

[151]See 14 HOVENKAMP, ANTITRUST LAW, *supra* note __, ¶2311. *See, e.g.*, Security Tire & Rubber Co. v. Gates Rubber Co., 598 F.2d 962, 966 (5th Cir.), cert. denied, 444 U.S. 942 (1979) ("transfers from a parent corporation to its wholly owned subsidiary" not a "sale" under the Act); Snyder v. Howard Johnson's Motor Lodges, Inc., 412 F.Supp. 724 (S.D.Ill. 1976) (intra-firm transfers not a "sale" under Robinson-Patman Act).

[152]*14* HOVENKAMP, ANTITRUST LAW, *supra* note __, ¶2361.

[153]FTC v. Borden Co., 383 U.S. 637 (1966) (condemning Borden for selling its name brand and house brand milk at different prices); FTC v. Morton Salt Co., 334 U.S. 37 (1948) (condemning Morton salt for quantity discount program that was not justified by cost savings).

[154]*See* HOVENKAMP, FEDERAL ANTITRUST POLICY, *supra* note __, §14.5.

The law dealing with various aspects of monopoly came essentially from three sources: patent and copyright law, the common law of unfair competition and contracts in restraint of trade, and state corporation law. None contained a market power requirement, and power was generally either assumed or irrelevant.

Estimation of market power by reference to the share of a relevant market, as it is used today in antitrust cases, is a relatively late arrival. Today it has become so conventional that we regard it as routine, and in 2018 a divided Supreme Court mistakenly concluded as a matter of law that it is the only way to assess power in a vertical case.[155] Econometric tools such as the Lerner Index were actually developed earlier.[156] Today econometric methods often produce better results than traditional measurement.[157] Further, the use of econometric devices are fundamentally inconsistent with the model of perfect competition. The firms within a perfectly competitive market have no power to price above marginal cost. Implicit in the index, and later in the development of more sophisticated econometric tools for assessing the power of individual firms, is that the firms are not operating in perfectly competitive markets.[158]

From Potential Competition to Exclusionary Practices

The belief that trusts both promised lower costs and threatened higher prices at least partly explains the focus on "potential competition" as a disciplinary tool. Even a dominant trust would not charge monopoly prices if the looming threat of competition was sufficient to keep its prices down.[159] Classical political economists had

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[155]Ohio v. American Express Co., 138 S.Ct. 2274, 2285 n. 7 (2018).
[156]In Abba P. Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 REV. ECON. STUD. 157 (1934).
[157]*See* Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437 (2010).
[158]*See id.* On the use of such methods in antitrust cases, *see* 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶521 (5th ed. 2020).
[159]Justice Brandeis would have required either the erection of barriers to potential competition or "flagrant" oppression of the weak by the strong. *See* FTC v. Klesner, 280 U.S. 19, 28 (1929), per J. Brandeis:

> To justify filing a complaint the public interest must be specific and substantial. Often it is so, because the unfair method employed

always assumed that any attempt to charge monopoly prices would invite new competitive entry that would drive prices back down. About the only things that would prevent this were government restrictions on entry, including patents.

In his 1884 critique of traditional political economy Richard T. Ely, who was to become one of the most prominent Progressive economists, caricatured the classical assumptions of easy market entry, which he described as

> the absolute lack of friction in economic movements. Not only do capital and labor move with perfect ease from place to place and from employment to employment, but this … is accomplished without the slightest loss….[160]

Under this image of the economy, Ely continued:

> The silk manufacturer diverts his capital into another employment like the construction of locomotives with precisely the same facility with which he turns his family carriage horse from an avenue into a cross street, while the Manchester laborer on a moment's warning finds a suitable purchaser for his immovable effects and without expense or loss of time transfers himself to London where employment is at once offered him at the rate of wages there current. Equality of profits and equality of wages flowed naturally from these assumptions.[161]

By contrast, the emerging discipline of industrial economics began to consider how long this might realistically take, what were the market factors that determined the speed and scope of new entry, and the power of incumbent firms to throw obstacles in the way. Privately created barriers emerged as a concern of antitrust law early in the Progressive Era. They were undoubtedly heightened by the Progressives' increased sensitivity to the natural coercive power of

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> threatens the existence of present or potential competition. Sometimes, because the unfair method is being employed under circumstances which involve flagrant oppression of the weak by the strong.

[160] RICARD T. ELY, THE PAST AND THE PRESENT OF POLITICAL ECONOMY 12 (1884).

[161] *Ibid*.

markets.[162] The Supreme Court recognized one such barrier already in 1904. In an early private action under the Sherman Act the Supreme Court condemned a guild rule that limited membership and effectively prohibited market participation by tile layers who were not members of the defendant organization.[163] Members of the association were prohibited from dealing with non-members. As Justice Peckham noted in his opinion for a unanimous Court, the association's rules prohibited dealers from acquiring tile "upon any terms" from members of the guild, and all of the manufacturers in the area were members.[164] A few years later in the *American Tobacco* case the Court referred to a dominant firm's vertical integration and market foreclosure as creating "perpetual barriers to the entry of others into the tobacco trade…."[165] Some lower courts were much more sanguine. For example, in United States v. Quaker Oats Co.,[166] the court rejected the government's claim of attempt to monopolize, noting that the product at issue, packaged rolled oats, was a commodity produced by many firms, and that the defendant had no reasonable means of excluding them.[167]

Most of the participants in the multi-disciplinary proceedings of the Chicago Conference on Trusts saw potential competition as crucial to any assessment of market power, although they disagreed about its effectiveness. The debates revealed that the classical assumption of free entry had become controversial. For example, Jeremiah Jenks was a skeptic. He acknowledged the existence of potential competition as a disciplinary force, but doubted that the power of the large trusts to charge high prices would be effectively controlled.[168]

Attorney A. Leo Weil was less concerned. He observed that the trusts generally reduced costs and prices, but if there were any tendency toward price increases potential competition from new firms would tamp them down. Further, this new entry could be expected to occur "unless the laws of trade are to be reversed…."[169] Statistician

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[162] *See* discussion *supra*, text at notes __.
[163] W.W. Montague & Co. v. Lowry, 193 U.S. 38 (1904).
[164] *Id*. at 44.
[165] United States v. American Tobacco Co., 221 U.S. 106, 183, 190 (1911).
[166] 232 F. 499 (N.D. Ill. 1916).
[167] Id. at 502.
[168] Jeremiah Jenks statement, CHICAGO CONFERENCE, *supra* note __ at 27.
[169] Statement of A. Leo Weil, *id*. at 89.

Joseph Nimmo observed that as a consequence of the revolution in railroad transportation the range of potential competition was much wider than it had been previously.[170] Economist James R. Weaver from De Pauw University was even less concerned. He suggested that potential competition "rarely fails" to aid the consumer. Accumulations of capital were easily assembled, and those who controlled it stood "ready to enter any specific field of production, whenever the profits of the industry offer sufficient inducement."[171] Further, it was well known that at the present time entrepreneurs were sitting on "a great mass of idle capital." As a result, "to avoid this new competition, prices must be lowered or profits shared with the consumer."[172] Francis B. Thurber, the President of the United States Export Association believed that the trusts merely moved competition to a higher and more beneficial level:

> If a combination of capital in any line temporarily exacts a liberal profit, immediately capital flows into that channel, another combination is formed, and competition ensues on a scale and operates with an intensity far beyond anything that is possible on a smaller scale, resulting in breaking down of the combination and the decline of profits to a minimum.[173]

By contrast, John Bates Clark, the most prominent economist among the participants, was much more skeptical.[174] In theory, he observed "potential competition … is the power that holds trusts in check." But "at present it is not an adequate regulator." The "potential competitor encounters unnecessary obstacles when he tries to become an active competitor."[175] He mentioned patents as one obstacle, but refused to endorse abolition of the patent system.[176] He was also more

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[170]Statement of Joseph Nimmo, Jr., *id*. at 161-162.
[171]Statement of James R. Weaver, *id*. at 297.
[172]*Ibid*.
[173] F.B. Thurber Comments, *ibid*. at 130.
[174]John Bates Clark, address on "The Necessity of Suppressing Monopolies While Retaining Trusts," *id*. at 404. Clark had developed these ideas previously in John Bates Clark, *The Limits of Competition*, 2 POL. SCI. Q. 45 (1887); *see also* John Bates Clark, *Monopolies and the Law*, 16 POL. SCI. Q. 463 (1901).
[175]*Id*. at 407.
[176]*Id*. at 407-408.

cynical about the railroads, which he regarded as using manipulation of shipping rates as a device for deterring potential competition.[177] Clark also blamed selective price discrimination – or the power of the trusts to exclude entrants by charging unreasonably low prices in that particular portion of the market where new entry was threatened.[178] A particularly pernicious form of price discrimination was selective predatory pricing:

> The ability to make discriminating prices puts a terrible power into the hands of a trust. If … it can sell goods at prices that are below the cost of making them, while it sustains itself by charging high prices in a score of other fields, it can crush me without itself sustaining any injury. If, on the other hand, it were obliged, in order to attack me, to lower the prices of all its goods, wherever they might be sold, it would be in danger of ruining itself in the pursuit of its hostile object. Its losses would be proportionate to the magnitude of its operations.[179]

This observation became the theory under which original §2 of the Clayton Act was passed in 1914 – namely to prevent firms from using selective, geographically limited discounts to drive rivals out of business.[180] Finally, Clark opposed tariffs because their higher costs deterred the potential competitor "from becoming an actual one."[181]

Several years later Clark was even more pessimistic.[182] At one time potential competition may have been more effective at keeping

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[177]*Id*. at 408.
[178]*Ibid*.
[179]*Id*. at 408.
[180]*See* 15 U.S.C. §13 (prior to the Robinson-Patman Act amendments). *See* discussion *supra*, text at notes __.
[181]*Id*. at 407.
[182]John Bates Clark, *The Possibility of Competition in Commerce and Industry*, 42 ANNALS, AM. ACAD. POL. SOC. SCI. 63 (1912). Largely in agreement was ARTHUR S. DEWING, CORPORATE PROMOTIONS AND REORGANIZATIONS (1914). *See also* the similar contribution by John Maurice Clark, John Bates Clark's son, *A Contribution to the Theory of Competitive Price*, 28 Q. J. Econ. 747 (1914); and also Robert L. Raymond, *Industrial Combinations—Existing Law and Suggested Legislation*, 20 J.Pol.Econ. 309 (1912):

prices down, he acknowledged, but today that power had largely been eliminated by incumbent firms' use of selective preferential rates, local discrimination, and exclusionary agreements.[183] Clark then gave a strong endorsement to the Sherman Act, although he believed that more was necessary, including a federal law chartering corporations and an "industrial commission" designed to exam the competitiveness of individual large firms. Further, he would impose on them "a burden of proof," first to show that they do not dominate the entire market and, secondly, to show that "that the way is so open for the entrance of more that prices cannot become extortionate."[184]

Prominent Progressive economist Henry Carter Adams agreed in his 1903 essay on the trusts,[185] as did Robert L. Raymond.[186] Raymond argued what came to be a common position held by Progressives – that potential competition was natural and ordinarily to be expected, but that dominant firms could devise practices that would prevent or limit its operation. He also observed that potential competition did not "instantaneously" become actual competition. Rather, "even with abundant capital one cannot erect a steel manufacturing plant or a sugar refinery until considerable time has elapsed."[187] This delay, he observed, gave dominant firms an opportunity to behave strategically.[188] He also warned, however, that competition policy should not go further; it had to preserve the "true economic value" that they promised while also preserving the power of potential competition to limit their prices.[189] Progressive economist Richard T. Ely, who published his book on monopolies and trusts

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> From a theoretical point of view competition, actual or potential, will not permit the existence of monopoly control. What would happen in theory can, I believe, be made to occur in fact. At present it does not represent the usual course of events. Effective in theory, potential competition under actually existing circumstances is impotent.

Id. at 313.

183 Clark, *The Possibility of Competition*, *supra* note __ at 64.

184 *Id*. at 66.

185 HENRY C. ADAMS, TRUSTS (1904) (reprinted from *Papers and Proceedings of the American Economic Association*, Dec. 1903).

186 Robert L. Raymond, *A Statement of the Trust Problem*, 16 HARV. L. REV. 79 (1902).

187 *Id* at 90-91.

188 *Id*. at 91.

189 *Id*. at 93.

simultaneously with the conference, expressed extreme doubts about potential competition as a device for disciplining monopoly. He concluded that "no evidence has been adduced of the sufficient action of potential competition in the case of monopoly."[190]

Clark returned to this problem in *The Control of Trusts*, a book he had had originally published in 1901.[191] For subsequent editions he was joined by his son, John Maurice Clark.[192] The revised edition was even more pessimistic than John Bates' original. "When the first edition of this work was issued, so called potential competition had shown its power to control prices," the Clarks lamented, but

> The potentiality of unfair attacks by the trust tended to destroy the potentiality of competition. Under these conditions it was and is clearly necessary to disarm the trusts —to deprive them of the special weapons with which they deal their unfair blows. It is necessary to repress the specific practices referred to and so to enable every competitor who, by reason of productive efficiency, has a right to stay in the field, to retain his place and render his service to the public.[193]

As a result, they concluded, while experience has shown that "potential competition is a real force, it has also shown that it is a force which can be easily obstructed."[194] A few years later John Maurice Clark argued that potential competition was an unlikely discipline for monopoly in market with "heavy permanent investment" – i.e., with high fixed costs.[195] In such cases, he noted, incumbent firms will be holding excess capacity and be able to expand their own output in response to new entry. Knowing this, potential competitors will not wish to make a significant investment in entry.[196] Further, he observed, prospective entrants into such a market would realize that total output would be higher when their own production was added in, and thus

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[190] RICHARD T. ELY, MONOPOLIES AND TRUSTS 251 (1900).
[191] JOHN BATES CLARK, THE CONTROL OF TRUSTS: AN ARGUMENT IN FAVOR OF CURBING THE POWER OF MONOPOLY BY A NATURAL METHOD (1901).
[192] JOHN BATES CLARK AND JOHN MAURICE CLARK, THE CONTROL OF TRUSTS (Rewritten and Enlarged, 1912)
[193] *Id*, preface at vii.
[194] *Id*. at 28.
[195] JOHN MAURICE CLARK, OVERHEAD COSTS, *supra* note __ at 446.
[196] *Id*. at 446.

prices lower. So what appeared to be profitable entry before might not be so later.[197]

The Clarks' work developed the basic model that emerged by mid-century for monopolization cases that prevails today. That judge made formulation required a showing of both monopoly power and anticompetitive practices. This model retained faith that in a market that is not restrained by either the government or private action, new entry could be expected to maintain competition. The problem for the antitrust laws was anticompetitive practices that forestalled competitive entry before it could occur or become effective. "A merely possible mill which as yet does not exist may forestall and prevent monopolistic acts," the Clarks observed, provided that the way is "quite open for it to appear."[198]

Writing in 1911 about the ongoing government cases against Standard Oil and American Tobacco, Robert Raymond observed that the cases depended on the suppression of potential competition.[199] In *American Tobacco* the district court condemned a trust agreement that involved a group of the same shareholders' acquiring interests in multiple companies. It acknowledged the defense that potential competition would remain because the union itself did not involve any sort of market exclusion.[200] But entry would take some time, the court observed, and the "objection is to present and not future conditions." He believed that argument to be worthy of "serious consideration."[201]

By contrast, in the first *United Shoe Machinery* (USM) case the Supreme Court refused to condemn the union of several shoe machinery makers into what became the USM Company.[202] The government's argument was that the merged companies were potential competitors who could have turned into actual competitors but for the merger. The case thus invited a tradeoff question that remains to this

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[197]*Ibid*. Cf. Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 283 (1977) (adapting this model to illustrate possibility of predatory pricing at above cost prices).

[198]Clark and Clark, *supra* note __ at 121.

[199]Robert L. Raymond, *The Standard Oil and Tobacco Cases*, 25 HARV. L. REV. 31 (1911).

[200]United States v. Am. Tobacco Co., 191 F.371 (S.D.N.Y. 1911).

[201]*Id*. at 389.

[202] United Stats v. United Shoe Mach. Co., 247 U.S. 32 (1918).

day: some mergers increase productive efficiency by enabling a firm to do things at lower cost, but in the process may harm competition by preventing competition that might have developed had the merger not occurred. The USM union itself was a merger of complements, and the district court had concluded that the individual companies were not in competition with one another at the time of the union.[203] Justice Holmes had actually elaborated on that conclusion several years earlier in a decision that approved the original merger.[204] He also observed that the participating firms had not been competitors but rather were makers of complements. It was not the purpose of the Sherman Act to "reduc[e] all manufacture to isolated units of the lowest degree." In this case "the combination was simply an effort after greater efficiency."[205] He compared the merger to a situation in which a single firm was created to make "every part of a steam engine," rather than using the antitrust laws to force "one to make the boilers and another to make the wheels."[206]

In the *American Can* case, which condemned the can making trust but declined to break it up, the court also cited potential competition as the reason for being cautious about the remedy.[207] The court observed that the American Can company, given its large size and multiple plants, was highly efficient and made good cans.[208] Further, the record revealed "that there are many ways in which a large and strong can maker can serve the trade, and a small one cannot." In any event, the defendant's power to restrain competition was limited by "a large volume of actual competition and to a still greater extent by the potential competition" from which it cannot escape.[209] For example, when the defendant raised its price – perhaps prematurely believing that it had destroyed sufficient rivals – new competitors

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[203]*See Id.* at 41-42.

[204] United States v. Sidney W. Winslow, 227 U.S. 202 (1913).

[205]*Id*. at 217.

[206]*Id*. at 217-218.

[207] United States v. American Can Co., 230 F. 859, 903 (D.Md. 1916).

[208]*Id*. at 894:

> Defendant makes good cans…. The impression produced by the testimony is that it has been more uniformly successful in so doing than perhaps any of its competitors, although the larger and more responsible of these have, in recent years, habitually turned out thoroughly satisfactory packers' cans.

[209]*Id*. at 903.

quickly re-emerged. It became "apparently profitable for outsiders to start making cans with any antiquated or crude machinery they could find in old lumber rooms…."[210] At that point the defendant became so desperate that it actually started buying cans from its rivals, even though these were "very badly made." Many of these were later destroyed.[211]

The language of potential competition gradually evolved into the modern doctrine of "barriers to entry." An entry barrier could be either natural or fabricated obstacles that made it more difficult for competition to enter the market. The Supreme Court first used the term in the *American Tobacco* case, when it referred to the defendant's acquiring control of numerous "seemingly independent corporations, serving as perpetual barriers to the entry of others into the tobacco trade."[212] More specifically, the court referred to the defendant's acquisition of plants "not for the purpose of utilizing them, but in order to close them up and render them useless" and noncompetition clauses placed on sellers that kept them from re-entering the market.[213] A few years later a district court quoted this language in condemning Eastman Kodak of monopolization by acquiring around twenty companies and from them assembling all of the components of the photography industry.[214] The term did not find much use in the economic literature until the 1940s, followed by significant expansion in the 1950s.[215] It entered the mainstream antitrust literature after Joe S. Bain's pioneering work on barriers to entry in the 1950s.[216]

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[210] *Id*. at 879.
[211] *Id*. at 880.
[212] United States v. American Tobacco Co., 221 U.S. 106, 183 (1911).
[213] *Ibid*.
[214] United States v. Eastman Kodak Co., 226 F. 62, 75 (W.D.N.Y. 1915).
[215] *E.g.*, Ralph George Hawtrey, *Competition from Newcomers*, 10 ECONOMICA 219 (1943). *See also* Joe S. Bain's first article on the subject. Joe S. Bain, *A Note on Pricing in Monopoly and Oligopoly*, 39 AM. ECON. REV. 448 (1949).
[216] E.g., JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES (1956).

From Potential Competition to the Relevant Market

As long as confidence was high that potential competition could be trusted to prevent monopoly prices, the precise definition of the market in which firms operated was relatively unimportant. As that confidence decreased it becomes more important to know the number and robustness of a firm's actual competitors. Discipline of monopoly would have to come from them.

Concerns about potential competition are inherently dynamic. They ask about where a market is going, rather than how it may appear today. In fact, accounting for movement and the ability to make useful predictions about it is one of the most challenging questions of antitrust policy. Traditional economists assumed markets were competitive unless the government intervened because they focused so completely on the long run. The fact that monopoly might be dissipated by new market entry is certainly reassuring. Eventually such a market may reach an acceptably competitive equilibrium, but how long will that take, and who will be affected along the way? Focusing on macroeconomics in the 1920s, John Maynard Keynes famously compared the optimistic faith of many economists that eventually the economy would move to a healthier equilibrium with the policy maker's concern about time and short-run costs. He famously concluded that the "long run is a misleading guide to current affairs. In the long run we are all dead."[217] Further, focusing on the long run makes economics worthless as a policy tool: "Economist set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again."[218]

The "relevant market" in antitrust analysis emerged as a device for trading off these static and dynamic concerns. It revealed who was competing with whom in the present instant. If the market was well defined and included consideration of entry barriers, it also estimated what was likely to change over time. The fundamental concern was

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[217]JOHN MAYNARD KEYNES, A TRACT ON MONETARY REFORM 80 (1923).
[218]*Ibid*.

with how rivals and customers would respond to a future price increase above competitive levels.

The idea of the "relevant market" is entirely a creature of partial equilibrium analysis. While that proposition is uncontroversial, it was not commonly acknowledged in the antitrust literature until Oliver Williamson began talking about antitrust policy and welfare tradeoffs in the 1960s.[219] As Alfred Marshall had observed, in selecting a market economists should group sales of close substitutes and then make a working assumption that those within the grouping affect one another's behavior, but that firms outside of the group do not. Marshall also realized that this was a simplifying assumption and not a hard picture of a situation in which the elasticity of substitution between goods in the same market is infinitely high, while the substitution between goods inside and goods outside is zero.[220] Today we commonly say that to the extent a market is "well defined" these two conditions come closer to applying.

Assessing antitrust practices by reference to the "market" in which they occur naturally produced several questions about delineation and measurement. The most obvious one was how to identify the particular grouping of firms to which the analysis should be applied. Alfred Marshall himself paid scant attention to the issue. He identified the grouping of sales in a particular market as a "commodity," such as tea, his favorite choice of an example.[221] In that case, sales of tea constituted the relevant market. He gave only a little thought to questions about whether tea competed with coffee or water,

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[219]Oliver E. Williamson, *Economies as an Antitrust Defense: the Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968). *See also* Oliver E. Williamson, *Economies as an Antitrust Defense Revisited*, 125 UNIV. PA. L. REV. 699 (1977). On Williamson's usage, see Herbert Hovenkamp, *The Looming Crisis in Antitrust Economics*, 101 BOSTON UNIV. L. REV. 489 (2021).

[220] *Cf*. Williamson, *Economies, supra* note __ at 23:

> Our partial equilibrium analysis suffers from a defect common to all partial equilibrium constructions. By isolating one sector from the rest of the economy it fails to examine interactions between sectors. Certain economic effects may therefore go undetected, and occasionally behavior which appears to yield net economic benefits in a partial equilibrium analysis will result in net losses when investigated in a general equilibrium context.

[221]*E.g.*, MARSHALL, PRINCIPLES (1890), *supra* note __ at 154, 159.

or even the extent to which a coffee producer might switch to tea in response to a higher price. He did conjecture at one point that a failure in the coffee harvest might lead to an increase in demand for tea.[222] He also noted that questions about "where the lines of division between different commodities can be drawn must be settled by the convenience of the particular question under discussion."[223] For some purposes, he acknowledged, we might even acknowledge Chinese and Indian teas as different.[224]

Early Sherman Act cases took roughly the same approach, never putting a fine point on market definition. For example, neither the 1911 *Standard Oil*[225] nor *American Tobacco*[226] decisions discussed the boundaries of the "market" under consideration. In *American Tobacco* the Court did observe that the defendant produced a number of products, including "cheroots, smoking tobacco, fine cut tobacco, snuff and plug tobacco."[227] The Court did discuss some vertical practices that involved different products. For example, the defendant also tried to control sales of licorice paste, an essential ingredient in plug tobacco, in order to exclude rivals.[228] The *American Can* decision a few years later described a large litany of bad practices but said virtually nothing about the scope of the market, other than to refer to it as "cans."[229] It gave no thought to such questions as whether glass

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[222] *Id*. at 160 (describing coffee as something that could be used as a substitute for tea). *See also* 168 n. 2, noting that the price of substitutes might change, thus affecting the demand for the primary good. He gave as an example a fall in the price of beef, which could cause it to be used in place of mutton.
[223] *Id*., 160 n. 2.
[224] *Ibid*.
[225] Standard Oil Co. of New Jersey v. United States, 221 U.S. 1 (1911)
[226] United States v. American Tobacco Co., 221 U.S. 106 (1911) (noting that the complaint referred to "tobacco and the products of tobacco"; no further analysis of market boundaries).
[227] *Id*., 221 U.S. at 159. A cheroot is an inexpensive, untapered cigar.
[228] *Id*. at 170. In United States v. Reading Co., 253 U.S. 26, 56-57 (1920), the Supreme Court did address rather one railroad line eliminated competition when it acquired a contiguous line, and held that the lines were not competing. *See also* United States v. Lake Shore & M.S. Ry. Co., 203 F. 295 (S.D.Ohio 1912) (similar; some lines competed but others did not).
[229] United States v. American Can Co., 230 F. 859 (D. Md. 1916). *See also* United States v. U.S. Steel Corp., 251 U.S. 417 (1920) (dismissing complaint with no discussion of relevant market); United States v. International

bottles, which were also widely used for preserving food, were in the same market. Such questions arose regularly after mid-century.[230]

Harvester Co., 214 F. 987, 991 (D. Minn. 1914), app. dism'd, 248 U.S. 587 (1918), which condemned a voting trust of several companies that formed the defendant. The product was identified as "harvesting machinery," of which the defendant controlled 85%, but with no dispute or discussion about market boundaries. The court did observe that IH was a New Jersey corporation and that its charter stated that it was formed to

> Manufacture, sell, and deal in harvesting machines, tools, and implements of all kinds, including harvesters, binders, reapers, mowers, rakes, headers, shedders, machinery, engines, wagons, motor vehicles, and vehicles of all kinds; agricultural machinery, tools, and implements of all kinds, binder twine, and all devices, materials, and articles used or intended for use in connection therewith, and all repair parts and other devices, materials, and articles used, or intended for use, in connection with any kind of harvesting or agricultural machines, tools, or implements, or any gasoline, electric, or other vehicles.

See also United States v. Corn Refining Co., 234 F. 964, 974 (S.D.N.Y. 1916), app. dism'd, 249 U.S. 621 (1919) (condemning a trust, but in the process noting that the relevant process including wet milling and dry milling of corn; the court observed that cost distinctions among them were relevant:

> If the wet process is cheaper than the dry, then, although a monopoly of the wet will be limited by the dry, it is improper to consider the production of the dry millers, when ascertaining the proportion of production controlled by a supposed monopolist of wet milling. If, on the other hand, the dry process is cheaper than the wet, and if, which would be hardly possible, a sustained competition between them existed, then one could not disregard the dry production for all purposes.

Accord O'Halloran v. American Sea Green Slate Co., 207 F. 187, 193 (N.D.N.Y. 1913), *rev'd on other grounds*, 229 F. 77 (2d Cir. 1915) (where black and green slate competed for some buyers but the green slate manufacturers had both production and cost disadvantages, their power was limited by the price of black slate). *Cf*. Standard Oil Co. v. United States, 283 U.S. 163 (1931) (although gasoline made by traditional refining methods and the defendant's large scale "cracking" method was fungible, the latter had an advantage in production costs).

[230] *Cf*. United States v. Cont'l Can Co., 378 U.S. 441 (1964) (combining metal cans and glass bottles into the same relevant market for antitrust analysis).

The *International Shoe* case, decided in 1930, included a brief discussion of the proper delineation of a product market. It also reflected the emergence of product differentiation as a factor in market analysis. The FTC challenged a merger of two manufacturers of dress shoes. McElwain made more expensive, attractive, and "modern" shoes entirely of leather. International made cheaper shoes that included some non-leather components.[231] Without discussing the scope of the market, the Court did credit the defendants' testimony that there was "no real competition" between the two firms.[232]

Estimating market power today by reference to a share of a "relevant market" is not a pure exercise in static partial equilibrium analysis. In Marshall's model, one examined equilibrium in the market under study on the assumption that the price and output of everything else remained constant. "For instance," he wrote, "the demand schedule for tea is drawn out on the assumption that the price of coffee is known."[233] However, he also acknowledged that this assumption often fails to obtain in the real world:

> The demand schedule represents the changes in the price at which a commodity can be sold … other things being equal. But in fact other things seldom are equal over periods of time sufficiently long for the collection of full and trustworthy statistics…. This difficult is aggravated by the fact that in economics the full effects of a cause seldom come out at once but often spread themselves out…."[234]

A price increase naturally invites other sellers to move into the price increaser's market territory, and customers to defect away. The increase upsets the equilibrium, and within Marshall's model these

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[231]International Shoe Co. v. FTC, 280 U.S. 291 (1930).

[232]*Id*. at 299. *Cf*. Appalachian Coals, Inc. v. United States, 288 U.S. 344 (1933) (defendants controlled 74.4% of coal production in their area but only 12% of production east of Mississippi River, and nearly none of the purchasers were in the smaller area); Indiana Farmer's Guide Pub. Co. v. Prairie Farmer Pub. Co., 293 U.S. 268 (1934) (reversing and remanding after noting dispute about whether the area of effective competition for the defendants' farm publications was limited to the territory in which they operated or should include the entire country).

[233]MARSHALL, PRINCIPLES (1890) *supra* note __ *at* 160.

[234]*Id*. at 170.

movements occur until the equilibrium is restored. To the extent the market is more rigorously defined and the market share of the price increaser is higher, the movements would take longer or be less likely to occur.[235]

The 1940s and 1950s saw a significant expansion in antitrust usage of relevant markets to estimate market power. Judge Hand's discussion in the Second Circuit's 1945 decision in United States v. Alcoa has become famous.[236] The first Supreme Court decision to contain a significant discussion about the scope of a relevant market was *United States v. Columbia Steel* in 1948.[237] It concluded that the market as the government alleged it was too narrow.[238] First, the area of effective competition was larger than the government claimed. Second, the two firms actually made different although somewhat overlapping types of steel. On a 5-4 vote, it dismissed the complaint. Justice Douglas' dissent (joined by Justices Black, Murphy, and Rutledge) is interesting because it contained almost no discussion of the relevant market issues except to dispute the fact that the acquired firm's 3% share of the purchasing market under consideration was insubstantial.[239]

The chronology of these concerns is revealing because of what it says about the declining faith in potential competition to solve monopoly problems. As noted previously, for some participants in the Chicago Trust Conference even monopoly was not a matter of concern because potential competition could be trusted to keep prices down.[240] Subsequently, greater doubts about the disciplinary effects of new entry naturally led to increased concerns about just how competitive the market was when entry is disregarded. By the 1930s most antitrust cases involving large firms were harboring significant doubts about the

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[235]*See* Edward S. Mason, *Monopoly in Law and Economics*, 47 YALE L.J. 34 (1937).

[236]*E.g.*, United States v. Aluminum Co. of America (Alcoa), 148 F.2d 416 (2d Cir. 1945). *See also* United States v. E. I. du Pont de Nemours & Co (Cellophane), 351 U.S. 377 (1956) (cellophane).

[237]334 U.S. 495, 495 (1948).

[238]*Columbia Steel*, 334 U.S. at 510-522.

[239]*Id*. at 538 (Douglas, J., dissenting).

[240] *See* discussion *supra*, text at notes __.

ameliorating effects of potential competition. That explains the rising importance of market definition in antitrust cases.

PROGRESSIVE ANTITRUST POLICY AND VERTICAL RELATIONSHIPS

Progressive antitrust policy makers developed a view of vertical business integration and contract practices that has proven to be very durable in antitrust. This was no small accomplishment, because vertical business practices have historically been the most poorly understood in antitrust and have provoked the most controversy. Articulate writers have argued that they should be governed by both the extreme rules of per se illegality and per se legality.[241]

Shortly after the Progressive period the antitrust law of vertical business relationships veered to the left and became very aggressive. Then in the 1970s it changed course, veering very far to the right and developing rules of virtual nonliability in academic writing, although the case law never went quite that far.[242] Today it is moderating. The rule of reason that is currently the law is somewhere in between, although somewhat closer to a rule of nonliability. This is at least partly a consequence of the fact that we have made it much too difficult for plaintiffs to win antitrust cases under rule of reason.

The thoroughly conventional distinction that antitrust makes today between "horizontal" and "vertical" practices is actually a creature of the twentieth century. Today most of our rules of illegality depend on it: horizontal restraints are more suspicious than vertical ones; unlike vertical arrangements, horizontal arrangements increase the effective market share of the participants; horizontal price fixing is more threatening than vertical price fixing; vertical arrangements have a greater potential to produce cost savings; horizontal mergers get closer scrutiny than vertical ones. The list goes on.

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[241] *See* Robert Pitofsky, *In Defense of Discounters: The No-Frills Case for a Per Se Rule Against Vertical Price Fixing*, 71 GEO. L.J. 1487 (1983) (per se illegal); Richard A Posner, *The Next Step in the Antitrust Treatment of Restricted Distribution: Per Se legality*, 48 Univ. Chi. L. Rev. 6 (1981) (per se legal).

[242] E.g., ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 280-309 (1978).

This distinction has not always obtained. The classical political economists tended to see competition as "rivalry," and the vertical rivalry that might occur between a buyer and a seller, or employer and employee, counted just as much as the rivalry between two competitors. For example, in the 1888 edition of his text on political economy, MIT economist Francis Walker defined competition as "the operation of individual self-interest among buyers and sellers."[243]

Alfred Marshall did only a little better in *Principles of Economics*. In his discussion of labor he distinguished horizontal movement of workers from one firm to another from vertical movement, or promotion within a firm.[244] Speaking again of labor, he also discussed the "vertical" competition that existed between skilled and unskilled workers who performed the same task.[245] On horizontal dominance, he focused almost entirely on single firms that accounted for all sales in a market. In a footnote he spoke briefly about "partial monopoly," which he described as a firm whose wares were better known than those of other firms.[246] His chapter on "The Theory of Monopolies" largely assumed exclusivity and was focused on how the monopolist determines its output and price.[247] He did mention that a vulnerable monopolist, such as a railroad threatened by new competition, would very likely charge a lower price in order to protect its trade.[248] Never once in the 750 pages of the first edition of *Principles* did Marshall mention cartels or price fixing.[249]

Even Justice Holmes, who knew economics better than most contemporary judges, spoke of competition in both vertical and horizontal terms. While a Justice on the Supreme Judicial Court of

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[243] FRANCIS WALKER, POLITICAL ECONOMY 263 (3d ed. 1888).
[244] MARSHALL, PRINCIPLES (1890), supra note __, at 277.
[245] *Id*. at 705.
[246] *Id*. at 112 n. 1.
[247] *Id*., Chapter 8, pp. 456 et seq.
[248] *Id*. at 465.
[249] In his Eighth Edition, published in 1920, Marshall did acknowledge the rise of "trading federations," including "German cartels and centralized cooperative associations," and blamed these for rising industrial concentration. *See* MARSHALL, PRINCIPLES (8th ed. 1920), *supra* note __ at 282. He also commented on the rise of the "trust" in the United States as an alternative to German cartels. *Id*. at 304. He concluded that the formation of cartels was "treacherous," *id*. at 495

Massachusetts, he had defined competition in a tort case as "not limited to struggles between persons of the same class" but rather as applying "to all conflicts of temporal interests."[250] He continued,

> One of the eternal conflicts out of which life is made up is that between the effort of every man to get the most he can for his services, and that of society, disguised under the name of capital, to get his services for the least possible return.[251]

In keeping with more modern views, in 1908 the Supreme Court of Illinois rejected that characterization, describing it as "fanciful and far-fetched." It then concluded that an employer and its unionized employees could not be said to be in "competition" with one another, even though their interests clearly diverged.[252]

Holmes also dissented from the United States Supreme Court's decision condemning resale price maintenance. The Court had reasoned that resale price maintenance served to eliminate competition among dealers in the sale of Dr. Miles brand of medicines.[253] Holmes responded that the competition of "conflicting desires" should be sufficient to do that for most goods that were not essential, and Dr. Miles medicines were not.[254] If a good was not essential (Holmes gave the example of "short rations in a shipwreck") the price would be set by the "competition" between the seller's wish to charge more and the buyer's wish to pay as little as possible.[255] In the *Northern Securities* merger case he dissented from the majority's condemnation of a merger to monopoly under §1 of the Sherman Act.[256] The "act says nothing about competition," he observed. He then described the litany

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[250]Vegelahn v. Guntner, 167 Mass. 92, 107, 44 N.E. 1077, 1081 (1896) (Holmes, j., dissenting) Holmes also developed this view in Oliver W. Holmes, *Privilege, Malice and Intent,* 8 HARV. L. REV. 1(1894).

[251]*Vegelahn*, 44 N.E. at 1081.

[252]Barnes v. Chicago Typographical Union No. 15, 232 Ill. 424, 432-432 (1908).

[253]Dr. Miles Medical Co. v. John D. Park & Sons Co., 220 U.S. 373, 407-408 (1911) (describing the resale price maintenance agreement at issue as "designed to maintain prices after the complainant has parted with the title to the articles, and to prevent competition among those who trade in them.").

[254]*Id*.at 412.

[255]*Id*. at 412.

[256]Northern Securities Co. v. United States, 193 U.S. 197 (1904).

of common law situations characterized as contracts in restraint of trade and concluded that the facts of the present case did not fit into any of them.[257] The idea that elimination of competition might result in higher prices did not obviously trouble him.

With one implicit exception, the Sherman Act itself never distinguishes vertical from horizontal practices. The exception is the reference to "contracts … in restraint of trade" in §1 of the Act.[258] As Holmes pointed out in his *Northern Securities* dissent, at common law that phrase referred to "contracts with a stranger to the contractor's business … which wholly or partially restrict the freedom of the contractor in carrying on that business as otherwise he would."[259] Holmes gave as an example the British decision in Mitchel v. Reynolds.[260] The lessor of a building to be used by the plaintiff as a bakery promised not to open a competing bakery in the vicinity. Noncompetition agreements such as this are vertical because they are formally between the seller (lessor) and buyer (lessee) of property, or in other situations between an employer and an employee. Nevertheless, the agreement also has a horizontal component to the extent that its purpose is to limit the competitive choices of the promisor. In *Mitchel*, the lessor had promised the lessee that he would not enter into business in competition with the lessee.

At the time the Sherman Act was passed the idea of a distinct set of vertical practices was almost entirely absent, and the term was even largely foreign to economics. The nearly 700 pages of proceedings of the Chicago conference on trusts never discusses vertical integration or vertical practices. Alfred Marshall did not use the term to describe vertical distribution practices, although he did use "vertical' to speak about the upward as opposed to lateral mobility of labor.[261] Federal antitrust case law did not use the term "vertical" to refer to challenged practices until the 1930s. A district court opinion in 1934 in the *Sugar Institute* case spoke about the possibility that

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[257]*Id*. at 403-404.
[258]15 U.S.C. §1.
[259]Northern Securities Co. v. United States, 193 U.S. 197, 403-404 (1904) (Holmes, j., dissenting).
[260]1 PWms 181, 24 Eng. Rep. 347 (QB, 1711).
[261]MARSHALL, PRINCIPLES, *supra* note __ at 277, 705.

"vertical organization of distribution agencies" might result in "a lower price to the ultimate consumers."[262]

Explicit case law recognition of a distinction between horizontal and vertical distribution practices took hold in the 1930s, and in an unlikely way. After the *Dr. Miles* decision holding resale price maintenance (RPM) unlawful, interest groups dominated by small business began a "fair trade" campaign to permit individual states to opt out and permit RPM in their borders.[263] After some state attempts to do so unilaterally, Congress passed the Miller-Tydings Act in 1937. The statute gave states the authority to legalize RPM within their borders, but it invited considerable dispute about its scope. That statute itself never used the terms "vertical" nor "horizontal." It also contained a proviso that it did not immunize agreements among manufacturers, producers, and wholesalers.[264] Nevertheless, the scope of its immunity had to be determined judicially. Because the proviso was triggered by state legislation, it was interpreted mainly by state courts, who very largely concluded that the statute exempted "vertical"

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[262]United States v. Sugar Institute, 15 F. Supp. 817, 900 (S.D.N.Y. 1934).

[263]On the Fair Trade movement, *see* LAWYER PHILLIPS SAWYER, AMERICAN FAIR TRADE: PROPRIETARY CAPITALISM, CORPORATISM, AND THE "NEW COMPETITION," 1890-1940 at 303-304 (2018).

[264]The Act provided that §1 of the Sherman Act should not

> render illegal, contracts or agreements prescribing minimum prices for the re-sale of a commodity which bears, or the label or container of which bears, the trademark, brand, or name of the producer or distributor of such commodity and which is in free and open competition with commodities of the same general class produced or distributed by others, when contracts or agreements of that description are lawful as applied to intrastate transactions, under any statute, law or public policy now or hereafter in effect in any State ..in which such resale is to be made or to which the commodity is to be transported for such resale ....

However, then the statute provided further:

> That the preceding proviso shall not make lawful any contract or agreement, providing for the establishment or maintenance of minimum resale prices on any commodity herein involved, between manufacturers, or between producers, or between wholesalers, or between brokers, or between factors, or between retailers, or between persons, firms, or corporations in competition with each other.

Miller-Tydings Act of 1937, 250 Stat. 693 (1937), *repealed by* Consumer Goods Pricing Act of 1975, 89 Stat. 801.

agreements but not "horizontal" ones. For example, the North Carolina Supreme Court explained:

> The agreements authorized by the law are vertical, between manufacturers or producers of the particular branded commodity and those handling the product in a straight line down to and including the retailer; not horizontal, as between producers and wholesalers or persons and concerns in competition with each other.[265]

The Supreme Court eventually confirmed this view as a matter of federal antitrust law in Schwegmann Bros. v. Calvert Distillers Corp,[266] concluding that "the statute did "not authorize horizontal contracts, that is to say, contracts or agreements between manufacturers, between producers…."[267]

In distinguishing vertical from horizontal practices, the difficult part was to determine how a firm's control of a vertically related market affected competition. Economists of the day were keenly aware that vertical integration could reduce costs,[268] as were the courts. Already in 1866, a British decision observed that one effect

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[265]Ely Lilly & Co. v. Saunders, 216 N.C. 163, 4 S.E.2d 528, 535 (1939). *See also* Seagram-Distillers Corp. v. Old Dearborn Distributing Co., 363 Ill. 610, 614 (1936):

> Contracts between plaintiff and wholesale distributors, or between distributors and retailers, are denominated vertical price-fixing contracts. Such contracts are permitted by the statute. Contracts between producers or between wholesalers or between retailers as to sale or resale prices are denominated horizontal price-fixing contracts and are not within the terms of the statute because of their character as combinations in restraint of trade.

See also Port Chester Wine & Liquor Shop v. Miller Bros Fruiterers, 1 N.Y.S. 802, 808 (N. Y. S. Ct. 1938) (explicitly distinguishing horizontal and vertical agreements); Joseph Triner Corp. v. McNeil, 363 Ill. 559, 561-562 (1936) (same).

[266]341 U.S. 384 (1951).
[267]*Id*. at 410. *See* Comment, *Resale Price Maintenance by an Integrated Firm: the McKesson & Robbins Case*, 24 UNIV. CHI. L. REV. 533 (1957)
[268]*E.g.*, William F. Willoughby, *The Integration of Industry in the United States*, 16 Q. J. ECON. 94, 108 (1902)

of a railroad's acquisition of a colliery was to reduce the cost of coal necessary for its operations.[269] They were also aware of foreclosure threats but did not generally find them decisive. In 1886 the Supreme Court held that a railroad that had integrated vertically into express freight delivery services had no obligation to provide equivalent services for an independent delivery company.[270] Justices Miller and Field dissented, observing that the effect would be to exclude competing express companies from the market. There was no relevant antitrust law, but they would have found a duty under the law of common carriers.[271] A few years later Justice Harlan wrote an opinion for the Court declaring that an exclusive dealing contract between a railroad and a provider of sleeping cars was not contrary to public policy.[272]

Speaking of noncompetition covenants, which are a form of vertical exclusive contracting, Judge Taft's 1898 opinion in United States v. Addyston Pipe & Steel Co,[273] noted that they could sometimes be harmful. They might injure the parties by depriving them of opportunities; or they might deprive the public of services that would be valuable and thus discourage enterprise. In addition, he gave two reasons more directly related to competition policy: they might "prevent competition and enhance prices," and they "expose the public to all the evils of monopoly."[274] For its part, the common law approved the great majority of vertical agreements with the exception of some noncompetition contracts.[275]

That analysis still left many questions open. For example, how does one account for the fact that vertical arrangements may simultaneously reduce costs and exclude rivals? Further, how much weight should be given to the common law's traditional strong protection for liberty of contract and the freedom to trade? Those concerns loomed large in cases involving resale price maintenance and

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[269] Lyde v. Eastern Bengal Ry., 55 Eng. Rep. 1059, 1062 (1866).
[270] Memphis & L.R.R. Co. v. Southern Exp. C0., 117 U.S. 1 (1886).
[271] *Id*. at 29, 33.
[272] Chicago, St. Louis & New Orleans R.R. v. Pullman S. Car Co., 139 U.S. 79, 89-90 (1891)
[273] 85 F. 271 (6th Cir. 1898), *modified and aff'd*, 175 U.S. 211 (1899).
[274] *Id*. at 280, quoting Alger v. Thacher, 19 Pick. 51, 54, 36 Mass. 51 (1837).
[275] *See* Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial Organization*, 68 TEX. L. REV. 105, 156-158 (1988).

other vertical restraints, where the freedom to trade came to be the freedom to be free from restrictions on distribution.[276] As the Supreme Court reiterated in a 1919 decision declining to find an agreement to engage in resale price maintenance, the purpose of the Sherman Act is to "preserve the right of freedom to trade."[277]

Historically the common law did recognize limitations on business firms' vertical integration by contract, but the concerns did not arise in the first instance under competition law. First was the common law policy against restraints on alienation, which the courts frequently cited as a rational for condemning vertical contractual limitations on resale.[278] The Supreme Court cited this concern as recently as 1967, when it declared territorial restraints on dealers to be per se antitrust violations.[279]

Second, by their nature many of these contracts were incomplete because they did not specify price or quantity. The common law itself exhibited a strong preference for "one off" contracts that contemplated sales with precise terms covering all of the important elements. Here, the most frequently challenged practice was requirements contracts, which later came to be called exclusive dealing. Such contracts were routinely struck down, not because of concerns for competition, but because contracts specifying all of a purchaser's needs, as opposed to a specific number of units, lacked specificity. Samuel Williston approved of that restrictive interpretation in his highly influential 1920 treatise on contracts, concluding that a

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[276]*See* Dr. Miles Medical Co. v. John D. Park & Sons Co., 220 U.S. 373, 403 (1988) (condemning resale price maintenance agreement: citing the "public interest in maintaining freedom of trade with respect to future sales after the article has been laced on the market and the producers has parted with his title.").

[277] United States v. Colgate Co., 250 U.S. 300, 307 (1919).

[278]Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373, 403-404 (1911) ("The right of alienation is one of the essential incidents of a right of general property in moveables…," citing JOHN CHIPMAN GRAY, RESTRAINTS ON THE ALIENATION OF PROPERTY §§27, 28 (1895), and 2 SIR EDWARD COKE, COKE UPON LITTLETON §360 (1628)).

[279]United States v. Arnold, Schwinn & Co., 388 U.S. 365, 377-378 (1967) (agreeing with government that territorial restraints are "restraints upon alienation which are beyond the power of the manufacturer to impose upon its vendees").

promise to sell all of a purchaser's needs without precise specification of the number is "not sufficient consideration" to make an enforceable contract.[280] This rule threatened the early development of business franchising, because franchise agreements were by nature open ended as to price, quantities and other terms of dealing.[281]

Another concern that the case law reflected and that did breach the boundary into antitrust policy was when contractual restraints were included in patent licenses. Initially the courts refused to enforce such agreements under patent law under a variety of doctrines intended to limit the power of patentees to impose restrictions on patented articles once they had been sold.[282] For example, in the famous case of Wilson v. Simpson, forty years prior to the Sherman Act, the Supreme Court held that a patentee could not require purchasers of its wood planing machine to purchase its own disposable blades.[283] In Adams v. Burke (1873) the Supreme Court refused to enforce a condition imposed by the manufacturer/patentee of coffin lids limiting the geographic area where the lids could be used for a burial.[284] In Bobbs-Merrill Co. v. Straus,[285] it refused to enforce a resale price maintenance agreement contained in a book copyright license, three years before the Supreme Court applied the antitrust laws in the *Dr. Miles* decision. In sum, beginning long prior to the application of antitrust law the Supreme Court was routinely denying enforcement to vertical restrictions contained in patent or copyright licenses.

The IP cases generated considerable pushback from judges, on competition grounds. One example was Judge (later Justice) Horace

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[280] SAMUEL WILLISTON, THE LAW OF CONTRACTS §104 (1920) (citing numerous decisions). *See, e.g.*, Oscar Schlegel Mfg. Co. v. Peter Cooper's Glue Factory, 132 N.E. 148, 149 (N.Y. 1921) (contract that did not specify quantity void). Other developments are analyzed in Herbert Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880-1960*, 95 IOWA L. REV. 863 (2010).

[281] *E.g*, Huggman v. Paige-Detroit Motor Car Co., 262 F. 116 (8th Cir. 1919) (automobile franchise agreement invalid for indefiniteness). *See* Hovenkamp, *Law of Vertical Integration*, *supra* note __ at 892-900.

[282] *See* Herbert Hovenkamp, *Antitrust and the Design of Production* 103 CORN. L. REV. 1155 (2018).

[283] Wilson v. Simpson, 50 U.S. 109 (1850).

[284] Adams v. Burke, 84 U.S. 453, 460 (1873).

[285] 210 U.S. 339, 349-351 (1908).

Lurton's 1896 opinion in Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.[286] The seller of a patented button-fastening machine prohibited purchasers of the machine from using it with any except its own unpatented fasteners, one of which connected each button to a garment. In modern terms we would characterize this arrangement as a variable proportion tying arrangement.[287] In addition to a dispute over the reasonable scope of the patent license in which the restriction was placed, the purchaser made an argument "based upon principles of public policy in respect of monopolies and contracts in restraint of trade."[288] The gist was that "public policy forbids a patentee from so contracting with reference to his monopoly as to create another monopoly in an unpatented article"[289] Judge Lurton responded by noting that the tying clause served the useful purpose of measuring usage of the machine in order to determine the royalty.[290]

In 1912 a divided Supreme Court relied heavily on the *button fastener* case to hold in Henry v. A.B. Dick Co. that the maker of a patented office copying machine could tie its own unpatented paper, stencils, and ink to the machine.[291] The Sherman Act had now been passed, but the Court rejected the contention that it prohibited this kind of agreement. Rather, the Court noted the general rule of "absolute freedom in the use or sale of rights under the patent laws."[292]

The *Henry* decision proved to be too much. Congress responded two years later with §3 of the Clayton Act, which prohibited ties of goods "whether patented or unpatented," provided that harm to competition was shown.[293] With that statement, the law of tying migrated from patent law into antitrust law. The statute actually went further, prohibiting not only absolute ties but also discounts or rebates

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[286]77 F. 288 (6th Cir. 1896).

[287]*See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §10.6e (6th ed. 2020).

[288]*Id*. at 292.

[289]*Ibid*.

[290]*Id*. at 296 ("The fasteners are thus made the counters by which the royalty proportioned to the actual use of the machine is determined.").

[291]Henry v. A.B. Dick Co., 224 U.S. 1 (1912). By this time Judge Lurton had been elevated to the Supreme Court and wrote the opinion.

[292]*Id*. at 29-30.

[293]15 U.S.C. §14.

conditioned on tying.[294] However, it did not condemn all ties or even all patent ties, but only those that threatened to "substantially lessen competition or tend to create a monopoly." Indeed, it is hardly clear that the Clayton Act would have condemned the button and office copier ties that provoked Congress to act. Both were of common commodities and very likely caused no harm to competition.

In 1917 the Supreme Court overruled *Henry* in condemning a tying arrangement involving the Edison motion picture projector. It was sold subject to a patent license agreement that prohibited users from showing any films other than the seller's own.[295] By the time of the litigation separate patents on the film had expired, and the Court read the notice as effectively attempting to continue the film patent's exclusivity by tying the film to the patent projector.[296] While the decision generally relied on patent law, the Court quoted the new Clayton Act provision as confirming its conclusion.[297] Unlike *Henry*, the *Motion Picture Patents* case did very likely involve a serious threat of monopoly in the infant motion picture industry.[298] After 1930 the tying decisions were not so circumspect.[299]

Resale price maintenance – a so-called intrabrand restraint because it does not limit competition with rival products – received harsher treatment. Today we are inclined to think that tying arrangements present greater potential for competitive harm than do resale price maintenance agreements. In 1907 Judge Lurton, still on the Sixth Circuit held that an agreement between a proprietary medicine manufacturer and its various distributors and resellers stipulating their resale price was not enforceable as a contract in

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[294] *Ibid*. ("discount from, or rebate upon").
[295]Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917).
[296]*Id*. at 518.
[297]*Id*. at 517.
[298]*See* Alexandra Gil, *Breaking the Studios: Antitrust and the Motion Picture Industry*, 3 NYU J. L. & LIBERTY 83, 92-93 (2008).
[299]*E.g.*, Carbice Corp. v. American Patents Development Corp., 283 U.S. 27 (1931). *See* discussion *infra*, text at notes __.

restraint of trade.[300] There were no antitrust issues.[301] The difference between this case and his own previous decision in the *Button-Fastener* case, the court held, was that the medicines in question may have been protected by a trade secret, but they were not patented.[302] Four years later the Supreme Court agreed in Dr. Miles Medical Co. v. John D. Park & Sons Co.[303] It referenced the Sherman Act only to conclude that earlier decisions refusing to apply it had all involved patented products.[304]

By 1930 the law of vertical practices had developed to a place not all that different from where it is today, save for the differential treatment of resale price maintenance. Tying arrangements were addressable under antitrust, but liability was very largely limited to firms that had dominant market shares, or where foreclosure percentages were high. For example, in addition to *Motion Picture Patents* the IBM tying case of 1936 found a tie of IBM's computation machine and its data cards to be unlawful, but only on a market share that exceeded 80%.[305] By contrast, GM's tie of car repairs to its original equipment parts was approved when the court concluded that the tie was essential for quality control and that there was plenty of competition in any event.[306] The same thing was true of exclusive dealing, which condemned the practice when it realistically threatened to perpetuate market dominance. In a decision applying the Clayton

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[300] John D. Park & Sons Co. v. Hartman, 153 F. 24 (6th Cir. 1907).

[301] Judge Lurton did note that a case involving a horizontal agreement to engage in resale price maintenance had proceeded under the antitrust laws. *Id*. at 35, discussing Jayne v. Loder, 149 F. 21 (3d Cir. 1906).

[302] *Id*. at 27-28.

[303] 220 U.S. 373 (1911). Justice Lurton was already on the Supreme Court but did not participate.

[304] 220 U.S. at 400, referring to E. Bement & Sons v. Nat. Harrow Co., 186 U.S. 70 (1902) (price fixing agreement contained in patent license enforceable)

[305] IBM Corp. v. United States, 298 U.S. 131, 136 (1936) (IBM made 81% of the tabulating cards while its only rival, Remington-Rand, made 19%).

[306] Pick Mfg. Co. v. General Motors corp., 80 F.2d 641, 643 (7th Cir. 1935) aff'd per curiam, 299 U.S. 3 (1936). See also United States v. United Shoe Machinery Co., 264 F. 138, 167 (E.D. Mo. 1920) aff'd 258 U.S. 451 (1921) (noting delicate nature of tied repair parts); FTC v. Sinclair Refining Co., 261 U.S. 463, 475 (1923) (refusing to condemn gasoline franchisor's tie of its own gasoline; noting that the market was competitive)

Act to exclusive dealing the Court noted that the supplier controlled roughly 40% of the dress pattern outlets in the country and that the exclusive agreement in question threatened to create several local monopolies.[307] There was no antitrust law of vertical nonprice restraints until the Supreme Court addressed the issue in White Motor Co. v. United States, where Justice Douglas held for the Court that it was too early to say.[308] Resale price maintenance, which was unlawful per se, was the outlier.

The law of vertical mergers and ownership vertical integration cut a roughly similar path. The courts condemned it when it threatened to create or preserve monopoly, but most generally only in circumstances that involved substantial evidence of market dominance or foreclosure. For example, judicial condemnation of vertical integration in the *American Tobacco*,[309] *Corn Products*,[310] *Kodak*[311], and *Keystone Watch* decisions were all predicated on dominant market shares.[312] On the other hand, the court refused to condemn United States Steel's integration into distribution facilities,[313] finding that the integration improved efficiency and reduced costs and uncertainty.[314] In affirming, the Supreme Court cited evidence that it was cheaper for the defendant to combine several operations in a single facility, and

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[307]Standard Fashion v. Margrane-Houston, 258 U.S. 346, 362-363 (1922).
[308]White Motor Co. v. United States, 372 U.S. 253 (1963).
[309] United States v. American Tobacco Co., 221 U.S. 106 (1911). See also *United States v. American Can Co.*, 230 F. 859, 874 (D. Md. 1916), *appeal dismissed*, 256 U.S. 706 (1921) (condemning a pot pouri of vertical practices by a dominant firm).

[310]United States v. Corn Prods. Ref. Co., 234 F. 964 (S.D.N.Y. 1916) (acquisition of candy companies and then sold candy below cost; price squeeze on syrup – both efforts unsuccessful but condemned as attempt to monopolize)
[311]Eastman Kodak Co. v. Southern Photo Materials Co., 273 U.S. 359 (1927)
[312] United States v. Keystone Watch Case Co., 218 F. 502 (E.D.Pa. 1915) (condemning combination of watch case and watch movement manufacturers).
[313]United States v. United States Steel Corp., 223 F. 55, 103-108 (D.N.J. 1915), *aff'd*, 251 U.S. 417 (1920) (not unlawful to develop its own warehouses, freight lines and shipping facilities if these were responsive to ordinary needs of trade).
[314] *Id*. at 124-125, 134.

that this combination would enable it to compete more effectively in the world market.[315]

In its unanimous decision in Eastern States Retail Lumber Dealers Assn. v. United States, the Court even intervened to protect ownership vertical integration in the lumber industry.[316] The defendants were classic examples of Progressive Era small businesses who organized in order to protect themselves from larger vertically integrated firms under the mantle of "fair trade." In this case they organized a boycott, agreeing among themselves that they would not purchase lumber at wholesale from anyone who had vertically integrated into retailing.

The law of vertical relationships began to go off the rails in the 1940s and after. The reasons are a confluence of factors. One of course was the Great Depression and the dramatic rise of small business as an interest group. Another was Roosevelt's appointment of Thurman Arnold to be head of the antitrust division, turning the Antitrust Division into a potent anti-patent tool. The development of influential models of imperfect competition may also have had some influence.[317]

In its *International Salt* tying decision in 1947 the Supreme Court applied both the Sherman Act and the Clayton Act to condemn a non-foreclosing tie involving a common staple – salt – that was not realistically capable of being monopolized.[318] The case effectively migrated patent act tying policy into antitrust law by holding that the defendant's patents on its salt injecting machine created a presumption of market power sufficient to condemn that tie. It also watered down the Clayton Act requirement that an unlawful tie may "substantially lessen competition"[319] by holding that proof of competitive harm did not require foreclosure – something that would have been impossible to show given that the tied product was ordinary salt.[320] Rather it was simply enough to show that the tying contracts covered a significant

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[315] 251 U.S. at 443-444.
[316] Eastern States Retail Lumber Dealers' Ass'n. v United States, 234 U.S. 600, 611 (1914) (noting that those who refused to participate were branded as "unfair dealers").
[317] *See* discussion *infra*, text at notes __.
[318] International Salt Co. v. United States, 332 U.S. 392 (1947).
[319] 15 U.S.C. §14.
[320] *International Salt*, 332 U.S. at 396.

amount of salt. In this case that was approximately $500,000 per year.[321]

From that point tying law was used aggressively to condemn competitively harmless practices that the Court did not understand. Nor did it need too, because the per se rule for tying that the court adopted a few years later created a strong presumption of illegality without structural analysis.[322] The Court relied on Justice Frankfurter's dicta in the *Standard Stations* exclusive dealing case that "[t]ying agreements serve hardly any purpose beyond the suppression of competition."[323]

In the *Standard Stations* decision in 1949 the Supreme Court expanded the rules against exclusive dealing to prohibit Standard of California from engaging in single-branding, or insisting that its franchised gasoline stations pump only its own gasoline.[324] The record indicated that Standard's contracts covered 6.7% of the gasoline sold in California.[325] The Court's condemnation of the practice was too much for Justice Douglas, otherwise an aggressive antitrust enforcer, who predicted in his dissent that forcing franchised gasoline stations to sell multiple brands of gasoline would force the refiners to build their own stations, thus eliminating the smaller dealers altogether.[326]

One effect of these decisions was a long-standing hostility toward tying arrangements that never extended to exclusive dealing.[327] That distinction does not make a great deal of sense. While a tie requires a dealer to carry a specific second product as a condition of obtaining the first, exclusive dealing excludes a particular product from the dealer's entire business. For example, under tying a dealer

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[321]*See id* at 395.
[322]Times-Picayune Pub. Co. v. United States, 345 U.S. 594 (1953).
[323]Standard Oil Co. v. United States (Standard Stations), 337 U.S. 293, 305-306 (1949).
[324]*Ibid*.
[325]*Id*. at 295.
[326]*Id*. at 315-318.
[327]*See, e.g.*, Tampa Electric Co. v. Nashville Coal Co., 365 U.S. 320 (1961) (applying rule of reason in exclusive dealing case and dismissing complaint for inadequate showing of foreclosure).

that sells GM cars might be required to repair them using GM parts.[328] By contrast, under exclusive dealing the dealer would be prohibited from selling non-GM cars altogether. While outcomes vary with facts, often the amount of market exclusion produced by exclusive dealing exceeds the amount produced by thing.

The courts also became more aggressive about vertical integration by merger and even by new entry.[329] In fact, vertical integration almost became a suspect category. After the merger law was amended in 1950 so as to reach vertical as well as horizontal mergers the Court applied it liberally to situations where foreclosures were not in the 70%-100% range that Progressive Era and New Deal courts had condemned, but sometimes as low as 3% or 4% on the Supreme Court,[330] or barely over 1% in the lower courts.[331] Internal vertical expansion earned similar treatment. For example, some decisions condemned automobile makers' decisions to distribute cars through wholly owned dealerships rather than contracting with independents.[332] Numerous decisions in the 1960s and 1970s prohibited nondominant firms for doing no more than switching to self-distribution rather than relying on independent dealers.[333] None of these decisions has survived today.

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[328]Pick Mfg. Co. v. General Motors corp., 80 F.2d 641, 643 (7th Cir. 1935) aff'd per curiam, 299 U.S. 3 (1936).

[329] E.g., United States v. Pullman Co., 50 F.Supp. 125 (E.D.Pa. 1943) (condemning vertical integration and exclusive dealing in sleeping cars).

[330]*E.g.*, Brown Shoe Co. v. United States, 370 U.S. 294, 302-303, 328 (1962).

[331]United States v. Bethlehem Steel Corp., 168 F. Supp. 576, 611-613 (S.D.N.Y. 1958).

[332]Mt. Lebanon Motors, Inc. v. Chrysler corp., 283 F.Supp. 453 (W.D.Pa. 1968), *aff'd per curiam*, 417 F.2d 622 (3d Cir. 1969).

[333]*See also* Hiland Dairy, Inc. v. Kroger Co., 402 F.2d 968 (8th Cir. 1968) (condemning Kroger's decision to build its own dairy, covering about 20% of a local market); Photovest corp. v Fotomat corp., 606 F.2d 704 (7th Cir. 1979) (condemning vertical integration on a very narrow market for "drive through" as opposed to general photofinishing); Industrial Bldg. Materials, Inc. v. Interchemical Corp., 437 F.2d 1336 (9th Cir. 1970) (the defendant was the largest among 70 manufacturers of industrial sealants); Poster Exch., Inc. v. National Screen Serv. Corp., 431 F.2d 334 (5th Cir. 1970), cert. denied, 401 U.S. 912 (1971) (self-distribution of movie posters); Lessig v. Tidewater Oil Co., 327 F.2d 459 (9th Cir. 1964) (condemning vertical integration by nondominant refiner).

CONCLUSION

In 1932, two disruptive books appeared that presented the theories of imperfect and monopolistic competition. One was written by Cambridge University's Joan Robinson,[334] and the other by Edward Chamberlin from Harvard.[335] Both books reflected the Progressives' increased skepticism about the benign qualities of markets. In the process they also paved the way for significantly more aggressive enforcement.

The theories of imperfect and monopolistic competition immediately became influential in academic circles. They gradually evolved into a single set of theories that today go by the name of imperfect competition.[336] Whether incidentally or as a result, antitrust policy began to veer left and often went past all reasonable boundaries, condemning efficient practices where the creation of monopoly was virtually impossible.

This increased level of antitrust enforcement subsequently provoked a fierce neoliberal reaction, mainly from the Chicago School and prominently represented in the writing of George J. Stigler and, a little later, Robert Bork.[337] The Chicago School fought an ultimately losing battle to present imperfect competition models as untestable or incoherent. An empirical renaissance in economics, mainly in the 1970s and after, refuted that critique.[338] Today imperfect models clearly dominate the economic industrial organization literature as many areas of antitrust law, and their empirical robustness is well established.[339]

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[334] JOAN ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION (1932).
[335] EDWARD CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION (1932)
[336] *See* Herbert Hovenkamp, *Antitrust Error Costs*, __ UNIV. PA. J. L. & BUS. (2022) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3853282.
[337] *Ibid*.
[338] *Ibid*.
[339] *See* Herbert Hovenkamp and Fiona Scott Morton, *Framing the Chicago School of Antitrust Analysis*, 168 UNIV. PA. L. REV 1843 (2020).

The most general result has been a shift back toward the center. Today antitrust policy sits between the decaying remnants of the final years of the Roosevelt Court and the now defunct Chicago School revolution. Against all of this the Progressive response – aggressive in its own time but quite moderate today – has proven to be surprisingly durable.