

Jack High

Economic Theory and the Rise of Big Business in America, 1870–1910

Between 1870 and 1910, big business established itself as a prominent feature of the American economy. American economists paid close attention to its rise and confronted the difficulties of integrating large firms into economic theory. The result was a theory that emphasized the importance of entrepreneurship, that enlarged the scope of competition, that distinguished profit from other forms of income, and that was compatible with large-scale enterprise. The insights of earlier American economists have been lost to modern economic theory, which extols the virtues of small firms.

This essay explores the extent to which the rise of big business influenced economic theory in the United States between 1870 and 1910. Looked at from the distance of a century, it appears that the emergence of large firms had little effect on economic theory. The main propositions of modern theory are established without reference to large firms. Marginal utility and marginal productivity are derived under the assumption of small, incremental additions to consumption and production. Perfect competition assumes that goods are produced by numerous small firms making identical products. Welfare standards are based on static assumptions that hold tastes and technology fixed. Large, innovating enterprises play no essential role in the modern theories of consumption, production, or economic welfare.

George Stigler, one of America's most influential historians of economic thought, has argued that "the dominant influence upon the working range of economic theorists is the set of internal values and pressures of the discipline." Stigler argued that great events, such as wars or famines or even industrial revolutions, do not influence economic

The author thanks Thomas McCraw, George Lodge, Robert Merton, Michael Scherer, members of the business history seminar at Harvard University, and several anonymous referees for criticisms of earlier drafts of this paper.

Business History Review 85 (Spring 2011): 85–112. doi:10.1017/S0007680511000043
© 2011 The President and Fellows of Harvard College. ISSN 0007-6805; 2044-768X (Web).

theory, whereas more mundane problems, such as the formation of market prices or income distribution, do exert influence, because they are pervasive. While Stigler is certainly correct that internal values exert a powerful pressure on economic theory, it would nevertheless be surprising to discover that large firms did not influence economic theory during the Gilded Age and the Progressive Era. The wave of creative destruction unleashed by big business touched everything, from the factory floor to the urban tenement to the church pulpit. For economic theory to remain outside the changes wrought by big business would require a high degree of insularity. In contrast to Stigler, I argue that big business exerted important influences on economics. In formulating theories of production, income distribution, and competition, economists integrated big business into their analyses. To be sure, there were deficiencies in economics, especially with regard to the organization of the large firms, but the shortcomings of theory, and the subsequent neglect of large firms by later economists, should not obscure the fundamental influences that the rise of big business had on the development of economics in the United States.¹

The Rise of Big Business

Thanks to the work of business historians, the rise of big business in the United States is well understood and can be briefly summarized. The emergence of big business was a revolution in technology and business organization. The first large businesses developed in the 1850s and 1860s in two industries—railroads and telegraphs. Both of these industries involved large, complex networks spread over great distances. To coordinate these vast networks, the owners hired professional managers to organize their operation and maintenance. This was no simple task. It required innovations in managerial hierarchy, especially in the assignment of responsibilities, the employment of salaried managers, and the creation of information flows that were relevant and timely. In addition, the creation of the networks required large capital investments that had to be made well in advance of any revenues that would come from the investments. The complexity of operations and the scale

¹George Stigler, "The Influence of Events and Policies on Economic Theory," *American Economic Review* 50, Papers and Proceedings of the Seventy-second Annual Meeting of the American Economic Association (May 1960): 40. Stigler writes (p. 37), "At the height of the industrial revolution, when great technological advances were crowding hard upon one another, the main tradition of classical economics treated the state of the arts as a datum. The arts were held to be subject to sporadic improvements, but not of a magnitude comparable to the force of diminishing returns in agriculture. Here, then, the almost overwhelming characteristic of economic life was excluded from economic theory."

of finance led to a division of labor between these functions and to a separation of ownership and control, as well as to the development of capital markets that could sell bonds and equities to raise large sums. By 1870, these two service industries had created the distinctive features of big business in the United States.²

The development of railroads and communications lowered the costs of obtaining supplies and delivering goods over long distances. Inland freight rates dropped from six cents per ton mile in 1844 to one cent per ton mile by 1884. Substantial reductions in transportation costs are important to any economy, but they were particularly important in the United States because of a large, geographically dispersed population. In 1870, a population of forty million was spread east to west between the Atlantic seaboard and the Mississippi River, and north to south between the Canadian border and the Gulf of Mexico. The sharp reductions in shipping costs created a national market and the opportunity for firms to exploit economies of mass production. The stage was set for the appearance of large firms, and during the next decades they cropped up with increasing frequency. During the 1870s, Standard Oil, Carnegie Steel, and Singer achieved dominant positions in their industries. In the 1880s and 1890s, General Electric, Westinghouse, Swift, Armour, American Sugar, and American Tobacco quickly grew to massive size. Between 1895 and 1905, the Great Merger Wave swept through the American economy, and by 1910 big business was firmly established in the American economy.³ Thomas McCraw provides a perspective on the size of these firms:

Before the 1880s, even the largest manufacturing firms seldom had been capitalized at more than \$1 million. But by 1900, John D. Rockefeller's Standard Oil Company had grown into a multinational corporation capitalized at \$122 million. By 1904 J. B. Duke and his colleagues had built the American Tobacco Company into a behemoth capitalized at \$500 million. And in 1901, when the financier J. Pierpont Morgan engineered a merger of leading steel firms . . . he capitalized the new United States Steel Corporation at \$1.4 billion. At that time the nation's Gross National Product was about \$21 billion.⁴

² Alfred D. Chandler Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass., 1977), 79–121, 195–205.

³ For railroad freight rates, see Douglass C. North, *Growth and Welfare in the American Past* (Englewood Cliffs, N.J., 1966), 111; population and its distribution is given in Alfred D. Chandler Jr. and Richard Tedlow, *The Coming of Managerial Capitalism: A Casebook on the History of American Economic Institutions* (Homewood, Ill., 1985), 96. The founding dates of companies are given by Thomas K. McCraw, "American Capitalism," in Thomas K. McCraw, ed., *Creating Modern Capitalism* (Cambridge, Mass., 1995), 321–23. On the merger wave, see Naomi Lamoreaux, *The Great Merger Movement in American Business* (Cambridge, U.K., 1985).

⁴ McCraw, ed., *Creating Modern Capitalism*, 320.

The growth of large firms, whether internally or by merger, followed a typical pattern. First, technological innovations enabled firms to lower average variable costs by investing in large-scale plants. In order to capture cost savings, the plants had to be kept running at near capacity, which required effective sales and distribution to customers as well as reliable flows of materials into the plants. So the firms integrated forward into marketing and backward into sources of supply. The resulting large-scale production, distribution, and purchasing required management structures that could coordinate the complex of activities, as well as raise and invest the capital funds necessary to the growth of the enterprise. The professional managerial class that had appeared with railroads was extended into manufacturing, marketing, purchasing, and finance.⁵

The growth of large-scale enterprise stimulated controversy. The vast fortunes accumulated by the pioneers of big business drew fierce criticism. The Adams brothers, Charles and Henry, said of railroad financiers, "Pirates . . . are not extinct; they have only transferred their operations to the land." Henry Demarest Lloyd argued that concentrated wealth imposed poverty upon workers. Upton Sinclair hoped to foment a socialist revolution with his exposé of working conditions in the Chicago meatpacking industry. In addition to criticisms from the intelligentsia and the popular press, big businesses were the targets of organized action. The Granger movement sought to curb the pricing powers of the railroads. Labor strikes and unions sought to improve working conditions. Court cases, such as *Munn v. Illinois* (1878), and legislation, such as the Interstate Commerce Act (1887), the Sherman Act (1890), the Hepburn Act (1906), the Meat Inspection Act (1906), and the Pure Food and Drugs Act (1906), explicitly sought to limit the powers of large firms. A Supreme Court ruling in 1911 carved Standard Oil into smaller pieces. Of course, the large firms were hardly passive recipients of judicial judgment and legislative action. They often were able to obtain publicity, rulings, and legislation favorable to their interests.⁶

The criticism of big business took place in an environment of rapid economic growth and falling prices. The wholesale price index fell from

⁵ Glenn Porter, *The Rise of Big Business, 1860-1910*, 1st ed. (New York, 1973), 43-71; Chandler, *The Visible Hand*, 209-83.

⁶ Charles Francis Adams Jr. and Henry Adams, *Chapters of Erie and Other Essays* (New York, 1886), quoted in Porter, *The Rise of Big Business*, 38. On regulation and antitrust during this period, see Gabriel Kolko, *The Triumph of Conservatism* (New York, 1963); Hans Birger Thorelli, *The Federal Antitrust Policy* (Baltimore, 1954); Thomas K. McCraw, *Prophets of Regulation* (Cambridge, Mass., 1984), 1-56; James Harvey Young, *Pure Food* (Princeton, 1991); Clayton Coppin and Jack High, *The Politics of Purity* (Ann Arbor, 1996). For a comprehensive treatment of the effects of big business on law, politics, and the economy, see Martin J. Sklar, *The Corporate Reconstruction of American Capitalism, 1890-1916* (Cambridge, U.K., 1988).

135 in 1870 to 82 in 1890, a decline of 40 percent. During the same period, gross domestic product (GDP) more than doubled: measured in constant 1958 dollars it grew from \$23 billion in 1870 to \$53 billion in 1890. It doubled again between 1890 and 1910. This was a period of rapid population growth, but GDP grew impressively on a per capita basis as well. Between 1875 and 1910, GDP per person increased 2.4 times—from \$531 to \$1,299—a compounded annual growth rate of 2.6 percent. Sustained economic growth rates of this magnitude are possible only when innovation increases the productive efficiency of economic resources. Total factor productivity, a broad measure of the impact of entrepreneurial innovation, grew at a rate of 0.3 percent during most of the nineteenth century, but jumped to a rate of 1.7 percent between 1889 and 1919.⁷

Big Business and Entrepreneurship

Economists began to incorporate large firms into their theory in the mid-1870s, by emphasizing the role of the entrepreneur in economic life. The entrepreneur had been discussed in economics since Richard Cantillon's *Essay on Commerce* (1755), but American economists put this concept to new use by attributing the establishment of large firms to superior entrepreneurial ability. In *The Wages Question*, which appeared in 1876, Francis A. Walker, a leading economist who also served as president of MIT, argued that the traditional division of production into land, labor, and capital neglected an evident and important figure of the modern industrial world—the entrepreneur. To attribute output to labor and capital is fine for primitive conditions, he wrote, but when production becomes “infinitely numerous and complicated,” an employer is required “to furnish technical skill, commercial knowledge, and powers of administration; to assume responsibilities and provide against contingencies; to shape and direct production, and to organize and control the industrial machinery.” Walker identified a distinct “entrepreneur class,” whose job is to “assume the responsibilities of production; to decide what shall be made, after what patterns, in what quantities, at what times; to whom the product shall be sold, at what prices, and on what terms of payment.” Although the entrepreneurial

⁷ GDP figures and price indexes are given in *Historical Statistics of the United States: Colonial Times to 1970*, pt. 1 (Washington, D.C., 1975), 200–31. GDP is expressed in constant 1958 dollars. Total factor productivity numbers are taken from McCraw, ed., *Creating Modern Capitalism*, 320. On total factor productivity and entrepreneurship, see Arnold Harberger, “A Vision of the Growth Process,” *American Economic Review* 88 (Mar. 1998): 1–32, and Jack High, “The Roles of Entrepreneurship in Economic Growth,” in *Entrepreneurship in the Spatial Economy*, ed. Henri de Groot, Peter Nijkamp, and Roger Stough (Cheltenham, U.K., 2004), 46–77.

class was not confined to large employers, they were its most prominent members. Walker's term, "captains of industry," aptly described them.⁸

Simon Newcomb, whose *Principles of Political Economy* was, according to Joseph Schumpeter, "the outstanding performance of American general economics" of the period, attributed the rise of large firms to three interrelated causes. The first was technological change in the form of labor-saving devices. The second was the possibility of exploiting advances in technology through larger organizations. But what really stimulated the increase in firm size, Newcomb said, was the railroad: "With the extension of the railways over every part of the country," he wrote, "each industrial organization has the whole land . . . as a market for its products. It has thus become possible to mass together much larger industrial organizations than were possible when each could supply only a limited market." Newcomb drew two conclusions from his analysis. First, lower costs of transportation extended the field of competition over a much wider area; goods made in one part of the world could compete with goods made in another. Second, large firms required leaders with two related skills—the ability to create a large, hierarchical organization with finely honed coordination between the parts and keen insight into business conditions, meaning market prices, sources of supply, and future conditions of demand.⁹

Sidney Sherwood, a prominent economist at Johns Hopkins University, whose career was cut short by an untimely death, emphasized the organizational innovations of entrepreneurs. He distinguished between the mercantile function of entrepreneurship, which anticipated future demand, and the organizing function, which arranged capital and labor so as to meet those demands efficiently. According to Sherwood, the increased length of production, the worldwide extension of markets brought about by decreased costs of transportation, the increased complexity of production brought about by technical advances, and the increased scale of production brought about by accumulations of capital, put a premium on foresight, judgment, organizational ability, and industrial statesmanship. He wrote, "Our economic conditions placed a large premium on inventiveness and organizing skill." As a result, he continued, "The managers of the trusts, that inner ring of control . . . are in reality inventors of superior processes of production,

⁸Francis A. Walker, *The Wages Question* (London, 1876), 244–45; Francis A. Walker, *Political Economy*, 3rd ed. (New York, 1887), 60–61, 74–75. See also Francis A. Walker, "American Manufactures," *Princeton Review* (Jan.–June 1883). For a summary of Walker's contributions to entrepreneurial theory, see A. F. Weber, "American Economists of Today," *New England Magazine* 21 (Nov. 1899): 260.

⁹Joseph A. Schumpeter, *History of Economic Analysis* (Oxford, 1954), 866; Simon Newcomb, "The Organization of Labor," *Princeton Review* 1 (May 1880): 398.

and as such deserve special recognition no less than the patentees of new mechanical inventions." I will return to the entrepreneur in my discussion of income distribution, but I can say briefly that, by 1910, the entrepreneur was an important figure in American economics. He appeared regularly in textbooks written by American economists and his influence in the economy, especially in large firms, was generally recognized. The role of entrepreneurship in the emergence and operation of large firms was summed up nicely by John R. Commons of the University of Wisconsin, who said that the "entrepreneur is the speculating, progressive, organizing, inventive, economizing agent of industry."¹⁰

Big Business and Competition

If entrepreneurship was the main concept used to explain the existence of big business, competition was the theoretical concept on which big business had the biggest influence. Mary Morgan has deftly analyzed different meanings of competition used by five prominent American economists, and she attributes the meanings, which vary widely, to the difficulty that economists were having in understanding big business: economists could not reach consensus on the meaning of competition because big business was too new and different from what had come before. There is no doubt that competitive behavior and its effects grew more complicated with the rise of big business. Despite the disagreements, American economists came to grips with these complexities rather well.¹¹

In classical theory, competition was exhibited by rivalry in both consumers' goods and factor markets. This rivalry, which consisted of competitive bidding for resources among prospective buyers and sellers, established prices at their market-clearing levels, and apportioned land, labor, and capital more or less efficiently among their various uses. In classical theory, competition also spurred inventive activity and

¹⁰Sidney Sherwood, "The Functions of the Entrepreneur," *Yale Review* 6 (Nov. 1897): 233-50; Sherwood, "Influence of the Trust in the Development of Undertaking Genius," *Publications of the American Economic Association*, 3rd ser., 1 (Feb. 1900): 163-76; quotations are from the latter article, 174, 175; see also Simon Newcomb, *Principles of Political Economy* (New York, 1885), 101-3; John B. Clark, "The Limits of Competition," *Political Science Quarterly* 2 (Mar. 1887): 52-53; Richard T. Ely, *An Introduction to Political Economy* (New York, 1889), 170; Frank A. Fetter, *Principles of Economics* (New York, 1904), 265-72; Frank Taussig, *Principles of Economics*, 2 vols. (New York, 1911), 1: 105-6; 2: 158-71; Herbert Joseph Davenport, *Outlines of Economic Theory* (New York, 1896), 151; John R. Commons, *The Distribution of Wealth* (New York, 1893), 172.

¹¹Mary S. Morgan, "Competing Notions of 'Competition' in Late Nineteenth-Century American Economics," *History of Political Economy* 25 (Winter 1993): 563-604. See also Thomas J. Leonard, "'A Certain Rude Honesty': John Bates Clark as a Pioneering Neoclassical Economist," *History of Political Economy* 35 (Fall 2003): 521-58.

efficiency, both of which lowered costs and increased profits. Competition was compared favorably to government grants of monopoly (trading companies, guilds) or other restrictions (tariffs, bounties), which usually benefited particular groups at the expense of the general public. In the classical system, competition and its effects were almost wholly beneficial.¹²

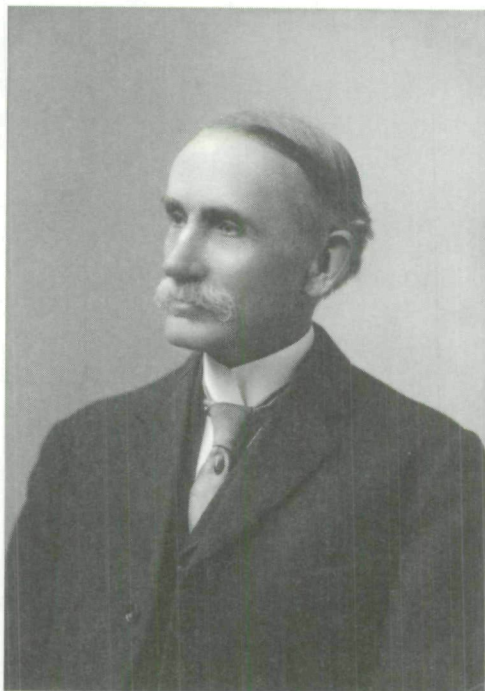
The rise of big business forced several changes to competitive theory. It led to the realization that the size of the competitive unit was vital to understanding the effects of competition. A particularly important instance of this was identified by Arthur Hadley, a leading American economist and a president of Yale. In *Railroad Transportation*, which appeared in 1885, Hadley distinguished mercantile competition, which applied to small concerns and operated much as the classical economists described, from industrial competition, which applied to large firms. To Hadley, a crucial characteristic of big business was a large investment in specific, durable equipment. This condition rendered the classical theory of price competition not merely misleading, but also positively wrong. Under these conditions, Hadley argued, competition would drive prices down below average costs, which was bad for the investor, the industry, and ultimately for the consumer:

The competition of different stores finds a natural limit. It brings rates down to near the cost of service and then stops. The competition of railroads or factories finds no such limit. Wherever there is a large permanent investment, and large fixed charges, competition brings rates down below cost of service. . . . Then we have bankruptcy, ruin to the investor, and—when these things happen on a large scale—commercial crises.¹³

Large firms also resulted in a new form of competition, which John Bates Clark of Amherst College and later Columbia University called “residual competition.” Like Hadley, Clark realized that firms formed horizontal combinations to avoid the destructive effects of price competition. These combinations had the beneficial effect of repressing cut-throat competition, but they had the deleterious effect of removing the main social force by which prices were forced down to average costs. What then prevented the combinations from monopoly pricing? Clark’s answer was residual competition. A lumber syndicate could prevent lumber producers from undercutting one another, but it could not prevent an equally powerful cabinetmakers syndicate from forcing the

¹² See Jack High, ed., *Competition* (Cheltenham, 2001), i–xvii, 3–84.

¹³ Arthur T. Hadley, *Railroad Transportation: Its History and Laws* (New York, 1885), 40, 70–76. Pricing below average cost was often called “cutthroat” competition; see, for example, Irving Fisher, *Principles of Economics* (New York, 1910), 317–21.



John Bates Clark in an undated photograph. (From the John Bates Clark Papers, Rare Book & Manuscript Library, Columbia University, New York.)

lumber syndicate's price down to its average cost. Residual competition, Clark believed, was the main reason that combinations had been unable to sustain high prices. The ability of large business units to check one another through residual competition exemplifies what John Kenneth Galbraith later called "countervailing power."¹⁴

Another new theoretical idea related to large firms was Clark's potential competition. If a combination charged prices that would yield too high a profit, firms within the combine would shave price, or else new firms, attracted by high profits, would enter the industry, expand output, and lower price. The threats of defection and entry often kept prices near average costs. Franklin Giddings, Clark's colleague at Columbia, also made an interesting contribution related to firm size. In arguing that it was more difficult to suppress competition than commonly believed, he pointed out that monopolists could not prevent

¹⁴Clark, "The Limits of Competition," 55-59; John Kenneth Galbraith, *American Capitalism* (Boston, 1952).

other firms from introducing new and improved goods or improved production techniques. Although Giddings did not follow this process through to the establishment of industry equilibrium, he nevertheless elaborated a competitive activity that would create the differentiated products of monopolistic competition, which Edward Chamberlin developed in the 1930s.¹⁵

In a 1903 paper delivered to the American Economics Association, Henry Carter Adams of the University of Michigan took issue with Clark. He argued that actual competition among firms in the same industry afforded protection to the consumer by insuring that the price of a product would approximate its cost of production. Neither competition among substitute goods, nor potential competition, afforded the same protection to the consumer. Competition from substitute goods might make the demand curve of a monopolist more elastic, but it would not drive price down to the cost of production. Much the same is true for potential competition. The expense, time, and risk in building up a business to compete with a monopolist "means a very considerable margin of excessive profit before latent competition can be brought into play. . . . Is it not evident, therefore, that the administrators of a trust will calculate upon this barrier against the inroad of competition and adjust prices accordingly?" Adams offered a clear statement of barriers to entry and limit pricing, two subjects that later held considerable interest for economists.¹⁶

The appearance of large firms also led economists to consider the effects of competitive behavior on culture and values. A striking contribution in this direction came from Thorstein Veblen. In *The Theory of Business Enterprise*, Veblen identified a competition that took place, not between business units, but between cultures within firms. He distinguished between the machine culture—which consists of the scientific outlook of engineers, chemists, and other workers concerned with

¹⁵J. B. Clark, *The Control of Trusts* (New York, 1901), 13, 28; John Bates Clark, "Trusts," *Political Science Quarterly* 15 (June 1900): 186; Franklin Giddings, "The Persistence of Competition," *Political Science Quarterly* 2 (Mar. 1887): 62–78. See also Alvin S. Johnson, *Rent in Modern Economic Theory: An Essay in Distribution* (New York, 1903), 101–2. Robert Dorfman discusses this aspect of Johnson's work in *The Economic Mind in American Civilization*, 4 vols. (New York, 1946–59), 3: 421. In a perceptive essay, Thomas C. Leonard argues that Clark's approach to trusts is essentially neoclassical. See "A Certain Rude Honesty," 541–48.

¹⁶Henry Carter Adams, "Trusts," *Publications of the American Economic Association*, 3rd ser., 5, Papers and Proceedings of the Sixteenth Annual Meeting, pt. 2 (May 1904): 96–97. Adams developed his ideas on trusts two years before his address to the American Economics Association. In a letter to F. W. Taussig, 5 Mar. 1901, Adams wrote, "The recent movements toward industrial combinations seem to contradict everything that I have held relative to the persistence of competition. I take no stock whatever in Giddings's and Clark's view of this subject. I must therefore, for my own satisfaction, work this subject out." Box 13, Henry Carter Adams Papers, Bentley Historical Library, University of Michigan (hereafter HCAP). See also the folder labeled "Trusts," box 25, HCAP.

cause and effect, quantitative precision, and uniformity—and the business culture, which consists of purchase and sale, pecuniary gain, and the conventions of property and the legal system. These two cultures inculcate different values in their respective members. The machine culture nurtures matter-of-factness and concern for cause and effect in the material world; it breaks down respect for convention and authority. The business culture nurtures a respect for property and for precedent and authority. It is backward looking and conservative, especially in its English, common-law form. The two cultures are incompatible, and in the competition between these two cultures, the business culture is bound to lose. Veblen wrote, "The growth of business enterprise rests on the machine technology as its material foundation. The machine industry is indispensable to it. . . . In their struggle against the cultural effects of the machine process, therefore, business principles cannot win in the long run." Although Veblen can be faulted for his prediction and for his emphasis on the backward-looking nature of enterprise, nevertheless he extended competitive analysis to the realm of cultural values.¹⁷

Economists also discussed the effects that competition had on business ethics. Henry Carter Adams advanced a Gresham's law of competitive behavior. He argued that bad business morals drive out good: if one firm puts out shoddy products and succeeds, its competitors have to do likewise. Herbert Davenport of the University of Missouri concurred with Adams. "There is a strong tendency in business," wrote Davenport, "toward the survival of the morally most unfit." Clark, while critical of business morals, was not as pessimistic as Adams and Davenport: "It is, probably, not true that competition tends to lower the moral standard of the business community to the level set by its worst members," he wrote. "There is a certain grade of honesty, and a certain grade of humanity, which are good commercial policy." Clark did worry, however, that competition, when not tempered by proper ethical considerations, drove wages to below-market levels, and he decried cutthroat competition between large firms. Richard T. Ely of the University of Wisconsin, in his presidential address to the American Economics Association, took a long-term, historical look at the interaction between competition and ethics. He argued that improved ethics were moving competition in a positive direction: in earlier times, competition took the form of robbery and slavery, but these had been displaced by ideals that extolled productivity and charity.¹⁸

¹⁷Thorstein Veblen, *The Theory of Business Enterprise* (New York, 1904). The quotation is from p. 177.

¹⁸Henry Carter Adams, "The Relation of the State to Industrial Action," 1887, reprinted in Joseph Dorfman, ed., *Two Essays: Relation of the State to Industrial Action and Economics*



Richard T. Ely, c.1900. (From the Richard T. Ely Papers, Wisconsin Historical Society, Madison, Wisconsin. WHS Image ID 4763. Reprinted with permission of the Wisconsin Historical Society.)

The size of the competitive unit led to another addition to competitive theory—the social advantages of temporary monopoly. Using the patent as an example, Sidney Sherwood argued that temporary monopolies, such as patents, stimulated individual initiative and innovation, which led to economic progress. He then carried the argument to trusts,

and Jurisprudence (New York, 1969), 91–120; Davenport, *Outlines*, 152; J. B. Clark, “The Moral Outcome of Labor Troubles,” *New Englander and Yale Review* 45 (June 1886): 535; J. B. Clark, “Business Ethics, Past and Present,” *New Englander* 38 (Mar. 1879): 165–67; J. B. Clark, “Non-competitive Economics,” *New Englander and Yale Review* 41 (Nov. 1882): 837–47. See also Adams, “Labor and the Monopoly Problem,” box 25, HCAP.

which were temporary monopolies that stimulated organizational innovation among the ablest entrepreneurs.¹⁹

Jeremiah Jenks of Cornell University studied the "wastes of competition," which, he argued, led to high expenses for advertising, sales, cross-shipping, and manufacturing. Competitive expenses were reduced by large firms. In addition, Jenks emphasized that combinations could employ machinery and managerial talent, and could secure access to raw materials, better than smaller firms could. There was no presumption, as in the modern model of perfect competition, that an industry structure of small firms is superior to a structure of large firms.²⁰

The behavior of prices in consolidated industries became a point of debate. George Gunton, the influential editor of *Gunton's Review*, argued that large firms like Standard Oil lowered prices and raised wages, thus making society better off. Davenport, on the other hand, believed that combinations did not lower price, because they had no competitors to force them to do so. Hadley thought that combinations sometimes did restrict output and raise price, but that they represented a short-sighted and impractical policy. The high prices would attract competitors and impair the ability of the combination to exploit the cost advantages of large-scale production. Standard Oil found it advantageous to keep prices low in order to secure a large customer base: the copper syndicate had failed, said Hadley, because their attempt to charge high prices had dramatically diminished demand. Sherwood offered a broader perspective on trusts and prices. He contested Adam Smith's notion that the benefits of competition are confined to low prices: adequate wages and dividends are also beneficial, and it is "the ability to maintain the proper balance between these three forces which will decide the ultimate fate of the trust as a form of industrial organization."²¹

It is evident that, in attempting to understand competition among large units, American economists expanded the scope of competitive theory, enriched its content, and judged it according to its effects. American economists understood, as Schumpeter would later argue in *Capitalism, Socialism, and Democracy*, that competition among small firms is not the only, or even the most important, kind of competition in modern economies. This was an advance to economics that was lost to the theory of perfect competition.

¹⁹ Sidney Sherwood, "Influence of the Trust in the Development of Undertaking Genius," *Publications of the American Economic Association*, 3rd ser., 1 (Feb. 1900): 163-76.

²⁰ Jeremiah W. Jenks, *The Trust Problem* (New York, 1900), 21-43. Jenks also pointed out the costs of competition in "Capitalistic Monopolies and Their Relation to the State," *Political Science Quarterly* 9 (Sept. 1894): 488-91.

²¹ George Gunton, *Principles of Social Economics* (New York, 1891), 406-10; Davenport, *Outlines*, 204-5; Hadley, *Economics*, 159-64; Sherwood, "Influence of the Trusts," 167.

Big Business and Income Distribution

The large fortunes and the labor conflicts that accompanied the rise of big business gave the theory of income distribution a special urgency in American economics. In 1886, Richard Mayo-Smith wrote, "The burning question in political economy, at the present time, is that of the distribution of wealth, especially in respect to the so-called laboring class. Does the laborer get his fair share of the wealth which his labor has aided in producing? This is the question of wages, or, more broadly, the labor question." Addressing the question of what determines incomes led American economists to two of their most impressive contributions—the theory of marginal productivity and the theory of profit.²²

American economists had inherited from the British a theory of factor payments known as the classical theory of income distribution, but the Americans found this theory unsatisfactory and criticized it from the beginning. In 1875, Francis Walker launched an assault on the wage-fund doctrine, which was the idea that workers are paid from the savings of capitalists, with the result that each worker receives an average wage equal to the amount of savings divided by the number of workers. Walker argued that labor was paid, not from the savings of capitalists, but from the output of workers. His criticisms convinced most American economists that the wage-fund doctrine was untenable, although some, most notably F. W. Taussig of Harvard, continued to defend it.²³

Once they realized that wages were dependent on a worker's output, economists soon argued that wages were set by the monetary value of the marginal worker's output—what is now called the "marginal productivity theory." Between 1888 and 1894, marginal productivity theory was advanced by Stuart Wood, John Bates Clark, and Thomas Nixon Carver. Clark noted, "It is a familiar commercial principle that the price of the last increment of the supply of any commodity fixes the general price of that article," and he went on to argue, "General wages tend to equal the actual product created by the last labor that is added to the social working force." Thomas Nixon Carver of Harvard succinctly expressed the new principle: "The law of wages at which we finally arrive will be that *the price of a labor unit will equal the marginal productivity*

²²Richmond Mayo Smith, "American Labor Statistics," *Political Science Quarterly* 1 (Mar. 1886): 45.

²³Francis A. Walker, "The Wage-Fund Theory," *North American Review* 246 (Jan. 1875): 86–119; Francis A. Walker, *The Wages Question* (London, 1876); F. W. Taussig, "The Employer's Place in Distribution," *Quarterly Journal of Economics* 10, no. 1 (Oct. 1895): 67–94; F. W. Taussig, *Wages and Capital: An Examination of the Wages Fund Doctrine* (New York, 1896). Frank A. Fetter criticized Taussig in *Political Science Quarterly* 12 (Mar. 1897): 146–51.

of labor units, on the one hand, and the marginal cost, on the other." (Italics in original.) Clark and Carver applied the same logic to land and to capital goods, thus bringing the pricing of productive resources under a single explanatory principle, something the classical economists had not achieved.²⁴

Marginal productivity theory did not go unchallenged. It was criticized, sometimes mildly, as by Herbert Davenport, and sometimes harshly, as by Thorstein Veblen. Davenport developed a theory of distribution based upon the competitive bidding of entrepreneurs for land, labor, and capital goods. He argued that the payment to these productive factors depended on the market value of their output, but not on their marginal product, which could not be isolated.²⁵

Veblen's criticisms were more fundamental. Although the traditional division of productive agents into land, labor, and capital goods might be useful for some purposes, Veblen argued that the classification missed an important distinction: the difference between industrial and pecuniary employments, the same distinction that he so ably exploited in his theory of cultural competition. "The two classes of occupations differ in that the men in the pecuniary occupations work within the lines and under the guidance of the great institution of ownership, with its ramifications of custom, prerogative, and legal right; whereas those in the industrial occupations are, in their work, relatively free from the constraint of this conventional norm of truth and validity." Instead, workers must pay attention to "conditions impersonally imposed by the nature of material things."²⁶

The industrial occupations lead, through a long historical process, to an accumulation of practical knowledge, which "vests in the group at large." As the knowledge of productive processes accumulates, machines replace hand tools. With productive knowledge embodied in large pieces of equipment, it "becomes feasible for the individual with

²⁴ John B. Clark, "The Possibility of a Scientific Law of Wages," *Publications of the American Economic Association* 4 (Mar. 1889): 44, 49; Stuart Wood, "A New View of the Theory of Wages I," *Quarterly Journal of Economics* 3 (Oct. 1888): 60-86; Stuart Wood, "A New View of the Theory of Wages II," *Quarterly Journal of Economics* 3, no. 4 (July 1889): 462-80; Stuart Wood, "The Theory of Wages," *Publications of the American Economic Association* 4 (Mar. 1889): 5-35; Stuart Wood, "A Critique of Wage Theories," *Annals of the American Academy of Political and Social Science* 1 (Jan. 1891): 426-61; John B. Clark, "Distribution as Determined by a Law of Rent," *Quarterly Journal of Economics* 5 (Apr. 1891): 289-318. Clark came very close to articulating marginal productivity theory in 1883 in "Recent Theories of Wages," *New Englander and Yale Review* 42 (May 1883): 359-61; Thomas Nixon Carver, "The Theory of Wages Adjusted to Recent Theories of Value," *Quarterly Journal of Economics* 8 (July 1894): 377-402 (quotation on p. 399).

²⁵ Herbert Davenport, *Value and Distribution* (Chicago, 1907), 439-79.

²⁶ Thorstein Veblen, "Industrial and Pecuniary Employments," *Publications of the American Economic Association*, 3rd ser., 2, no. 1. (Feb. 1901): 190-235. Quotations are from p. 229.

the strong arm to engross, or 'corner,' the usufruct of the commonplace knowledge of ways and means by taking over such of the requisite material as may be relatively scarce and relatively indispensable for procuring a livelihood under the current state of the industrial arts." Once someone has established ownership in machinery, his income depends not merely on its productivity, but also on his ability to engross the output of workers. As plant and equipment increase in size, the "pecuniary magnate" (the owner of industrial machinery) has even more opportunity to enlarge his income: he can engross the output not only of workers, but also of capitalist-employers, the owners of smaller firms who manage the production processes of their own companies.²⁷

Veblen did not deny that the work and decisions of the pecuniary magnate could be productive; in fact, his control over industrial assets was likely to be so. But many of his decisions were not serviceable to the community at large, especially decisions regarding intangible assets, such as good will or speculative value. Building intangible assets, such as brands, led to investment in "obsequious salesmen," "vainglorious show-windows," and advertising. Veblen argued that investments in these intangible assets benefited the capitalist but not the community. It would take me too far afield to compare Veblen's theory of distribution with marginal productivity theory, but I will say briefly that his emphasis on the primacy of monetary calculation and on the skill and knowledge of workers are aspects of big business that deserve emphasis and that were relatively neglected by those who devised the theory of marginal productivity. On the other hand, Veblen underemphasized the productive aspects of large enterprises.²⁸

Despite the criticisms of marginal productivity theory, it made steady headway among American economists. Frank Fetter, Irving Fisher, and Edwin R. A. Seligman presented the theory in their popular textbooks, and Taussig contributed to the theory in 1910, when he applied time discounting to productivity: he argued that land, labor, and capital goods were paid the discounted value of their marginal product. Schumpeter dates the acceptance of the theory at 1910, when Taussig put the weight of his authority behind it.²⁹

²⁷Thorstein Veblen, "On the Nature of Capital," *Quarterly Journal of Economics* 22, no. 4 (Aug. 1908): 518, 525. This aspect of Veblen's thought is emphasized in Geoffrey M. Hodgson, *How Economics Forgot History* (London, 2001), 149.

²⁸Thorstein Veblen, "On the Nature of Capital: Investment, Intangible Assets, and the Pecuniary Magnate," *Quarterly Journal of Economics* 23, no. 1 (Nov. 1908): esp. 116-20.

²⁹Fetter, *Principles of Economics*, 205-25; Irving Fisher, *Elementary Principles of Economics* (New York, 1916), 440-44; Edwin R. A. Seligman, *Principles of Economics* (New York, 1905), 411-19; F. W. Taussig, "Outlines of a Theory of Wages," *American Economic Association Quarterly*, 3rd ser., 11, no. 1 (Apr. 1910): 136-56; Schumpeter, *History of Economic Analysis*, 939.



Edwin R. A. Seligman, 1909. (From the Edwin Seligman Papers, Rare Book & Manuscript Library, Columbia University, New York.)

Although modern economics presents marginal productivity theory without reference to large enterprises, the connection between the two can be seen in the uses to which Clark put the theory. That all productive resources were paid the value of what they produced demonstrated, Clark said, the “right of society to exist in its present form.” He further argued that “the earnings of capital are subject to identically the same law as those of labor,” so that “labor is robbed by capital in the same way that capital is robbed by labor, and in no other; for the returns of each agent are fixed in identically the same manner. Each gets an amount gauged by the product of its own final increment.” Here we see Clark, in the same article in which he developed the theory of interest and wages, responding to the criticism that capitalists are robber barons.³⁰

Also, Clark specifically explored the effect of large firms on wages. His demonstration that workers were paid the value of their output

³⁰Clark, *The Distribution of Wealth*, 411–12; Clark, “The Possibility of a Scientific Law of Wages,” 53, 61.

rested on competitive bidding for workers by competing firms. Where a single large firm bid for labor and capital goods, it could restrict the amount of capital and labor that came into a particular industry. The restriction would raise wages and returns on capital in the monopolized industry, but only by increasing the supply of labor and capital in other industries. Thus the large firm would lower wages elsewhere in the economy. Clark also pointed out that labor unions would have the same effect on wages, raising them in the restricted industry and lowering them elsewhere.³¹

Despite his argument that unions could distort wages, he nevertheless favored unions, as did American economists generally: they recognized that unions performed useful functions, one of which was to equalize the bargaining strength of workers vis-à-vis large firms. Clark noted that "the competition which depresses wages is indefinitely stronger than that which raises them," and that unions could offset this unequal competition. Taussig wrote, "The strength which the trades-union gives the hired laborer in dealing with his employers was not doubted even in the days of greatest faith in the natural laws which were supposed to regulate economic phenomena in general and wages in particular." Richard Ely argued that, in addition to improving labor's bargaining position, unions could reduce the uncertainty of wage income through the establishment of relief funds. Hadley agreed with Ely, pointing out that the better unions were organized as much for mutual aid as for strikes. However, economists were divided on the desirability of strikes. The ability of unions to hurt nonunion workers was often pointed out. Newcomb, for example, argued that strikes, through their diminution of output, hurt not just the striking workers, but all workers. Walker, on the other hand, thought that strikes were beneficial on net, because they made workers less servile. Through strikes, Walker wrote, "the men have acquired confidence in themselves and trust in each other; the masters have been taught respect for their men, and a reasonable fear of them." To retain the benefits of unions but eliminate the harm from strikes, Clark advocated compulsory arbitration.³²

Although large firms and labor were connected to marginal productivity theory, it was in their consideration of profit that American

³¹ Clark, "The Possibility of a Scientific Law of Wages," 61-62.

³² F. W. Taussig, "The Employer's Place in Distribution," *Quarterly Journal of Economics* 10, no. 1 (Oct. 1895): 93; J. B. Clark, "The Moral Outcome of Labor Troubles," *New Englander and Yale Review* 45 (June 1886): 533-37; Clark, "On What Principles Should a Court of Arbitration Proceed in Determining the Rate of Wages," *Publications of the American Economic Association*, 3rd ser., 8, no. 1 (Feb 1907): 23-28; Hadley, *Economics*, 359-60; Richard T. Ely, *The Labor Movement in America* (New York, 1886), 92-119; Arthur Hadley, *Economics*, 354-55; Simon Newcomb, *A Plain Man's Talk on the Labor Question* (New York, 1886), 130-31; Walker, *Political Economy*, 372.

economists directly linked income distribution to big business. We have already seen that American economists, starting with Walker, added a fourth factor of production, the entrepreneur, to the usual British classification of land, labor, and capital. At the same time that Walker added the entrepreneur, he added a fourth category of income, profit, which, he argued, is distinct from wages, rent, and interest. In considering how profit was determined, Walker adopted the Ricardian theory of land rent. In Ricardo's theory, the rent paid to a parcel of land depended on its superior productivity over the "no rent margin," that is, the least productive land under cultivation. Walker applied the idea to entrepreneurs. The amount earned by an Andrew Carnegie equaled his superior productivity over the marginal entrepreneur, the small employer who was just able to stay in business but earned nothing on his entrepreneurial abilities. Great ability was rewarded with large profits. Just as classical economists had argued that land rents did not detract from wages, so Walker argued that the profits of entrepreneurs did not detract from the earnings of workers: on the contrary, he claimed, superior entrepreneurship increased the wages of workers by directing their labor into more productive uses.³³

Clark entered the discussion on profits by claiming that the remuneration of the entrepreneur contained two independent components. Clark defined the entrepreneur much as Walker and Sherwood did, as someone who performed a mercantile function and an organizational one. The mercantile function—which meant paying a fixed remuneration for inputs into the production process, taking ownership of the output, and selling it for what it would bring in the market—was rewarded with profits. But the organizational function was not rewarded with profits, in Clark's view: it was labor, in the same way that accountants or lawyers or other skilled labor were rewarded; that is, entrepreneurial labor was rewarded according to its productivity. This was especially true in large corporations, where the organizational function of the entrepreneur was divided among several persons with specialized expertise in management.³⁴

Walker strongly objected to Clark's view that the entrepreneurial function was rewarded with wages. For Walker, the employer and the employed provided markedly different services to the economy, and he considered it a grave mistake to confound the two.

³³ Walker, "The Wage-Fund Theory," 86–119; Walker, *The Wages Question*.

³⁴ See the following by John B. Clark: "Profits Under Modern Conditions," *Political Science Quarterly* 2, no. 4 (Dec. 1887): 603–19; "Distribution as Determined by a Law of Rent," *Quarterly Journal of Economics* 5, no. 3 (Apr. 1891): 289–318; "The Statics and the Dynamics of Distribution," *Quarterly Journal of Economics* 6, no. 1 (Oct. 1891): 111–19; and *The Distribution of Wealth: A Theory of Wages, Interest, and Profits* (New York, 1900).

The fortunate possessors of that power of organizing and conducting with success considerable business enterprises, whether in agriculture, in manufacture, in commerce, or in transportation, are able to reap for themselves gains which popular usage denominates profits—gains too large to be treated by the economist as not worthy of separate account; gains so large as to constitute the real *gravamen* of the discontent and anger of the working classes; gains which are not of the same nature as wages, and which cannot, without loss at once of public interest and scientific accuracy, be merged in the mass of wages.³⁵

Frederic Hawley, a businessman who contributed to the economic theory of both the trade cycle and entrepreneurship, also objected to treating payments to entrepreneurs as wages. Hawley argued that the primary function of the entrepreneur was to shoulder the risk of business ventures, and that the reward was profit. "If science is to justify the popular conception of profit as fundamentally distinct from other kinds of income, it must do so by pointing to something the undertaker does for pay which is rewarded by neither wages nor interest nor rent. . . . Now, just such a peculiar industrial function of the undertaker is found in his being the person who relieves others of risk." Hawley's insistence that profit is the reward for risk-taking led to a fundamental disagreement with Clark, who argued that capitalists shoulder the risk. Hawley also disagreed with Clark, Walker, and Newcomb that organization or coordination within the firm is an entrepreneurial function: coordination, said Hawley, is undertaken by managers for a salary. Neither risk nor profit attends this function. Hawley did not emphasize large firms in his treatment of profit and enterprise, but his conception of them is consistent with his view of big business: sizable investments that are made well in advance of output, and sales of necessity entail large risks and, consequently, create the opportunity for large profits.³⁶

Perhaps Clark's most important contribution to the theory of profit was to establish that they are temporary, that they do not exist in the static state but rather result from change. Through the introduction of a new good, for example, an entrepreneur can capture profit, but as other producers move into the new field, wage rates and other prices are bid up, and profit disappears. Just as he had done in the theory of wage rates, Clark applied his views on profits to the controversy over the large

³⁵ Francis A. Walker, "The Doctrine of Rent, and the Residual Claimant Theory of Wages," *Quarterly Journal of Economics* 5, no. 4 (July 1891): 437.

³⁶ Frederick B. Hawley, "The Fundamental Error of 'Kapital und Kapitalzins,'" *Quarterly Journal of Economics* 6, no. 3 (Apr. 1892): 283. See also by Hawley: "The Risk Theory of Profit," *Quarterly Journal of Economics* 7, no. 4 (July 1893): 459-79; and "Enterprise and Profit," *Quarterly Journal of Economics* 15, no. 1 (Nov. 1900): 75-105.

fortunes accumulated by big businessmen. Because profits are temporary, Clark argued, workers reap the lasting advantages of entrepreneurial improvements. Clark wrote, "The vast sums that to-day are accruing to the rich, who do the marshalling of the industrial line, are bound, under static law, to add themselves with an increase in wages and interest. They add themselves, moreover, chiefly to wages."³⁷

Profit was not universally praised, however. It could be got by shady methods, including, in the words of Carver, "the method of terrorism," which consists of "underhanded and unscrupulous methods of driving competitors out. . . . This is the method uniformly adopted by the trusts, and is . . . the chief purpose of their organization."³⁸

Empirical Studies of Big Business

The theoretical developments of American economists were in close touch with the behavior of large firms: in-depth, empirical studies of big business by economists were common during the period. The first extended studies were by Elisha B. Andrews and Jeremiah Jenks. In "Trusts According to Official Investigations," Andrews examined records of hearings, all held in 1888, of the U.S. Congress, the Canadian House of Commons, and the New York State Senate, as well as litigation records. From these records he distinguished various kinds of trusts, ranging from loose amalgams, such as the New York City Milk Exchange, to trusts proper, such as the Sugar Trust and Standard Oil. His treatment of the subject was balanced. He argued that competition was not always good or cooperation always bad. He thought that some trusts—Standard Oil, sugar, and cotton oil—had captured great economies in production, but that many of the trusts—lead, glucose, Kentucky whiskey—had come to nothing. Andrews doubted the testimony of businessmen who said that trusts had not resulted in centralized management. If not, asked Andrews, how could the trusts capture efficiencies? Even at this early date, Andrews saw that, unless large-scale technology led to economies in production or management, trusts did not last, a point later emphasized by business historians. Andrews also argued that the successful trusts had not passed their gains from efficiency along to consumers in the form of lower prices, and he criticized Standard Oil for combining with drillers to restrict output. However, he did not condemn Standard Oil for securing railroad rebates, as most of his contemporaries did. To

³⁷Clark, *The Distribution of Wealth*, 411–12. See also Henry Seager, *Introduction to Economics* (New York, 1904): 488; Edwin R. A. Seligman, *Principles of Economics* (New York, 1906): 95, 329. For an analysis of profit theory in the U.S., see William S. Hopkins, "Profit in American Economic Theory," *Review of Economic Studies* 1, no. 1 (Oct. 1933): 60–66.

³⁸Thomas Nixon Carver, *The Distribution of Wealth* (New York, 1913), 266–67.

Andrews, the firm was simply trying to do what all firms try to do: secure services at the lowest price.³⁹

Jenks, in a study of the Whiskey Trust, which was formed in 1887, concluded that the trust was run more efficiently than any of the eighty or so independent distillers that comprised the trust. Jenks ascribed the lower costs of the trust to better utilization of facilities and to reduced expenses for management. At the time he wrote, 1889, he could draw no firm conclusions about the price policies of the trust, but since it still faced rivals, he thought the trust would do best to keep prices low and steady, so as to keep its rivals from expanding. The Whiskey Trust had learned this from experience: it had lowered prices when it was first formed but then raised them, only to see its rivals expand production and force lower prices. Jenks also studied the Michigan Salt Association in some detail, concluding that the Association probably kept the price slightly higher, costs slightly lower, and quality considerably higher than these would be in the absence of the combination.⁴⁰

J. B. Clark, in a series of articles for the *Review*, studied the formation, financing, and competitive practices of several trusts—sugar, whiskey, linseed oil, white lead, cordage, steel rails, and oil. He paid special attention to the behavior of prices and costs before and after the combinations were formed. Although the cases varied, Clark found that both costs and prices generally fell under the trusts, but that costs fell more than prices. In the case of Standard Oil, for example, Clark concluded, "No doubt great economies have been made in the manufacture of oil. Yet the price has been kept up ever since the trust came into control." However, Clark also pointed out that if the combinations raised prices by too much, or if they offered high prices to buy out competitors, they encountered additional competition from new entrants.⁴¹

In all the studies of trusts, there was a determined attempt at dispassionate investigation. As Jenks put it, the goal was "to study as accurately as is possible the history, management, and tendency of the individual organizations."⁴²

³⁹ E. Benjamin Andrews, "Trusts According to Official Investigations," *Quarterly Journal of Economics* 3 (Jan. 1889): 117–52.

⁴⁰ Jeremiah Jenks, "The Development of the Whiskey Trust," *Political Science Quarterly* 4 (June 1889): 296–319; and "The Michigan Salt Association," *Political Science Quarterly* 3 (Mar. 1888): 78–98. Martin J. Sklar, *The Corporate Reconstruction of American Capitalism, 1890–1916* (Cambridge, U.K., 1988), 60–61, summarizes Jenks's views on trusts.

⁴¹ John B. Clark, "Experience of the Sugar Monopoly," *The Review*, 18 Feb. 1892; "The Linseed Oil Trust," *The Review*, 25 Feb. 1892; "The Whiskey Trust," *The Review*, 25 Feb. 1892; "The Lead Trust," *The Review*, 10 Mar. 1892; "The Cordage Trust," *The Review*, 17 Mar. 1892; "Standard Oil," *The Review*, 7 Apr. 1892; John Bates Clark papers, Rare Book and Manuscripts Collection, Columbia University, folder 1886–94, box 16. I have been unable to locate the publication in which Clark's manuscripts appeared.

⁴² Jenks, "Whiskey Trust," 297.

Big Business and Organization

In 1905, Edward Jones pointed to an "insufficiently noticed" aspect of the American economy, namely, a "sequence of production, capable of manipulating materials from their first appearance as economic goods until they are ready for the ultimate consumer, without at any time making them the object of purchase or sale." Manufacturing firms, he noted, had extended their operations backward into the control of raw materials and forward into retailing. Backward integration into raw materials had occurred to improve quality control, to improve coordination in the flow of materials, to finance roundabout methods of production, to better utilize waste products, and to secure more favorable railroad rates, which, as Standard Oil had shown, could be secured through shipment of raw materials. Forward integration into retailing was accomplished through direct sales (including mail order), through the control of dealers (whereby the manufacturer assumed many of the functions of formerly independent dealers), and through the establishment of company-owned retail outlets. Forward integration was made possible by advertising and national branding; and controlling retail operations enabled the manufacture to control quality, distribution, and price, to provide expert sales and service, and to reap the share of profits that had previously gone to independent retailers. Although Jones did not explicitly recognize that manufacturing firms could exploit scale economies by expanding the scope of their activities, he nevertheless explained many of the advantages of vertical integration. His treatment touched on resale price maintenance, exclusive dealing contracts, the effects of advertising, and other subjects that would eventually fall under the subdiscipline of industrial organization. His emphasis on vertical integration stands out as the only attempt of the period to come to terms with this distinctive practice of large firms.⁴³

Summary and Conclusions

American economic theory in 1910 looked very different from that of 1870, as different as the economy itself. The appearance of big business influenced the change. American economists altered their theories of production, distribution, and competition to account for big business. In the theory of production, economists identified entrepreneurs as independent productive agents in the economy. By introducing technical

⁴³Edward D. Jones, "The Manufacturer and the Domestic Market," *Annals of the American Academy of Political and Social Science* 25, Business Management and Finance (Jan. 1905): 1-20. The quotation is from p. 7.

improvements into the economy, by organizing and directing complex production processes, by exercising foresight and judgment toward business conditions, by providing leadership and initiative, entrepreneurs were responsible for the expanding output and rising incomes that characterized the American economy during the rise of big business. Separating the entrepreneur from the capitalist and identifying the distinctive functions of the entrepreneur were notable achievements in the theory of production. American economists also modified their analysis of costs to account for large-scale production: they recognized that large investments in durable equipment with a specific use created a cost structure radically different from that of small firms. A large fixed investment in capital equipment, combined with low variable costs, would produce declining average costs. Declining average costs meant that large firms could produce more efficiently than their smaller counterparts, but it also meant that pricing at marginal cost, which competing firms were tempted to do, would wreak havoc with profitability. Declining average costs meant that the theory of competition had to be reworked.

Competition was revised to take account of the size of the competing unit: large units as well as small competed with one another. Economists recognized that firms competed not merely on price, but on quality and innovation as well. They also identified new kinds of competition, such as potential and residual, and they realized that competition occurred simultaneously in the output, input, and credit markets, thus concurrently influencing prices, wages, and interest rates. They further recognized that price competition between large units could have deleterious consequences. "Ruinous" or "cutthroat" competition drove prices below average costs, a consequence that hurt investors, workers, and eventually consumers. Therefore, in some circumstances, cooperation in the form of large combinations was required to secure cost advantages and to keep competition from becoming harmful. Economists also understood that morals were fundamental to competition: moral sentiments and the law circumscribed permissible forms of competition. Veblen also identified a competition between the machine and business cultures. While he erred in his prediction that the machine culture would displace the business culture, he nevertheless identified an important tension in firms that still exists today. Of course, American economists recognized, as had their classical predecessors, that competition moved prices toward market-clearing levels and channeled capital into its most valuable employments.⁴⁴

⁴⁴Morgan, "Competing Notions of 'Competition' in Late Nineteenth-Century American Economics," 563-604; Leonard, "A Certain Rude Honesty," 539-40.

Concomitant with the change in production and competition theory was a change in the theory of distribution. American economists developed a conception of profit that differed substantially from that of the classical British writers. American economists separated the capitalist, who earned interest, from the entrepreneur, who earned profit. In the theory advanced by Clark, profit did not exist in equilibrium. When the market was perfectly adjusted, workers, landowners, and the owners of capital goods were paid the discounted value of their marginal product, and investors were paid interest income that reflected the discount rate in the economy. No one earned profits. The imaginary construction of a perfectly adjusted, static economy enabled American economists to identify profit as a residual income that resulted from change. Since change was inherent in the economy, so were profits. When the changes were large and productive, as they were during the rise of big business, profits were also large. The joint development of the static theory of marginal productivity combined with the dynamic theory of profit enabled American economists to integrate the modern theory of price with the large fortunes being accumulated by Rockefeller, Carnegie, and other business titans. Moreover, the separation of economics into statics and dynamics led to the insight that profits were temporary: the profits captured through the introduction of new goods, production techniques, and business organization would spur a competitive process that pushed up wage rates. While the new theory of distribution was not universally accepted by 1910, its main contours had been chiseled out by several of America's most prominent economists—John Bates Clark, Thomas Nixon Carver, Edwin R. A. Seligman, Frank W. Taussig, Frank Fetter, Herbert Davenport, and Irving Fisher. Of the dissenters, Thorstein Veblen was the most important. He formulated an alternative theory, in which a portion of profits resulted from exploitation by financiers. Although financial decisions as a rule increase output, there are times, Veblen argued, when such decisions enrich the financier without improving productivity.⁴⁵

Despite the considerable influence that the rise of big business exerted on economic theory, there was a large lacuna. American economists did not develop an explicit theory of the firm. Of the three main

⁴⁵Veblen denied the validity of marginal productivity theory, but he explicitly acknowledged that some activities of large businesses were productive; "It is not hereby intended to depreciate the services rendered to the community by the captain of industry in his management of business. Such services are no doubt rendered and are also no doubt of substantial value." Veblen implicitly relied on some theory of productivity, which is why we may look on his exploitation theory as complementary to the entrepreneurial theory developed by Walker, Clark, et al., even though Veblen himself was somewhat dismissive of those theories. Thorstein Veblen, "Industrial and Pecuniary Employments," *Publications of the American Economic Association*, 3rd ser., 2, no. 1. (Feb. 1901): 213n.

tasks of the theory—to explain (a) why firms exist, (b) the forces that determine their size, and (c) their internal organization—American economists made an explicit contribution only to (b): technological advance and the large markets created by the appearance of railroads made it economical to increase plant size, which required large organizations and finely tuned coordination. However, American economists also provided an implicit answer to question (a), Why do firms exist? From the writings of Walker onward, economists emphasized that some persons had superior abilities to organize resources and make correct decisions regarding their use in a complex environment. The ability of entrepreneurs to make better decisions than resource owners gave both parties an incentive to engage in exchange: in return for control over resources, entrepreneurs offered resource owners higher wages and rental rates than the owners could earn by themselves. Even with the higher payments, entrepreneurs could still earn profits from their augmented output. Exchange for control of land and capital took place through the credit market, while control of workers was obtained through labor markets. Once the entrepreneurs had gained control, they would “decide what shall be made, after what patterns, in what quantities, at what times; to whom the product shall be sold, at what prices, and on what terms of payment,” to use the words of Walker. In short, firms exist to exploit the higher output that can be achieved by turning control over to the abler entrepreneurs. This explanation for the existence of firms was made explicit by Frank Knight in *Risk, Uncertainty, and Profit* a decade after the end of our study. Knight’s theory of the firm is more detailed than that of his predecessors: he recognizes that business enterprise is a method for meeting uncertainty; and he explains not only general control by entrepreneurs but also, for example, the role of the salaried manager. While Knight certainly deserves credit for formulating a theory of the firm, it is still true that Walker, Newcomb, Hadley, Clark, Carver, Sherwood, and Davenport laid the groundwork.⁴⁶

The largest failure in American economists’ study of big business was the absence of any detailed study of the organization of large businesses. Alfred Chandler, Franco Amatori, and Takashi Hikino point to four main influences that the rise of big business had on the economy:

1. Large firms lowered costs of production by constructing large-scale plants.

⁴⁶ See Nicolai J. Foss, *The Austrian School and Modern Economics: Essays in Reassessment*, Copenhagen Studies in Economics and Management (Copenhagen, 1994), 149; Nicolai J. Foss, “The Theory of the Firm: An Introduction to Themes and Contributions,” in *The Theory of the Firm: Critical Perspectives on Business and Management*, ed. Nicolai J. Foss, vol. 1 (London, 2000). Frank H. Knight, *Risk, Uncertainty, and Profit* (Chicago, 1971; 1st ed. 1921).

2. Large firms secured their low costs of production by integrating forward into marketing (distribution, promotion, and pricing) and backward into sources of supply.
3. Firms created managerial organizations that administered the complex activities of the firms.
4. Large firms created learning organizations dedicated to improvements (including innovations) in products, services, and organization.

Only one of these influences—low costs of production due to large-scale plants—figured in a major way in the economics of the period. To be sure, economists emphasized the organizational skills of entrepreneurs, and they placed great weight on the superior organizational efficiency of large firms, but they did not study organizational structure. Only one economist, Edward Jones, identified vertical integration as an important aspect of big business.⁴⁷

Despite their failure to conduct close organizational studies of business firms and to formulate an explicit theory of the firm, the extent to which American economists integrated big business into economic theory is worthy of attention. As Frank Fetter noted in 1901, "It is likely that when the future chapter shall be written on the economic theory of this day, it will be said that industrial needs were stimulating to a development of the leading economic concepts in the same direction along which theoretical consistency was urging." The integration of big business into economic theory represents a clear exception to Stigler's principle that great events do not influence economic theory. Professional values certainly influenced economic theory, as Stigler argues, but so did the changes in production methods, in the size and scope of firms, in the creation of national markets, in the accumulation of great fortunes, and in labor unrest. The changes to economic theory brought about by big business were so profound that they could be called a "corporate reconstruction of American economics." Recognizing the achievements of these economists would enable modern economic theory to better understand an economy comprising large firms, entrepreneurs, and complex competitive strategies.⁴⁸

⁴⁷ Alfred D. Chandler Jr., Franco Amatori, and Takashi Hikino, *Big Business and the Wealth of Nations* (Cambridge, U.K., 1997), 26. As suggestive as Jones's analysis was, it did not earn him a mention in Joseph Dorfman's encyclopedic *Economic Mind in America*, the third volume of which covers from 1865 to 1918. Jones went on to consider economic organization in detail in Edward D. Jones, *The Administration of Industrial Enterprise* (New York, 1916).

⁴⁸ Frank A. Fetter, "The Next Decade of Economic Theory," *Publications of the American Economic Association*, 3rd ser., 2, no. 1 (Feb. 1901): 243. The quotation marks paraphrase Sklar's *The Corporate Reconstruction of American Capitalism*. Sklar's work is primarily about policy, but he clearly recognizes that big business brought about changes to economic theory. See pp. 57–78, 247–56.

. . .

JACK HIGH is professor of economics and public policy at George Mason University and coauthor (with Clayton Coppin) of *The Politics of Purity: Harvey Washington Wiley and the Origins of Federal Food Policy* (1999). He has edited several volumes, including *Humane Economics* (2006), and has published numerous articles in professional journals. His current research and teaching interests are international business and entrepreneurship.

Copyright of Business History Review is the property of President & Fellows of Harvard College and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.