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Thirteen Editions of *The Structure of American Industry*: An I.O. Perspective

Kenneth G. Elzinga[1] · **F. M. Scherer**[2]

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Abstract This article examines the content and longevity of *The Structure of American Industry,* edited first by Walter Adams and later by James Brock, through its 13 editions. The changing composition of industry case studies and their contributors are chronicled. The application of the Structure–Conduct–Performance paradigm for the study of industries is also assessed. As representatives of the approach and themes of the book, the chapters on Steel and on Public Policy are explored as they evolve through the multiple editions. The impact of the 13 editions is assessed in light of other books that contain industry case studies [L1, L22, L6].

Keywords Industry studies · James Brock · Structure–Conduct–Performance · Walter Adams

1 Introduction

In 1950, as an assistant professor at Michigan State College, Walter Adams brought out the first edition of *The Structure of American Industry* (hereafter, Structure). In the years that followed, Adams was promoted to associate professor, professor, distinguished university professor, and even acting president of what, in 1955, became Michigan State University. Structure progressed through eight subsequent editions under Adams' editorship until his death in 1998. In 1995, James Brock

✉ Kenneth G. Elzinga
kge8z@virginia.edu; elzinga@virginia.edu

F. M. Scherer
mike_scherer@hks.harvard.edu

[1] Department of Economics, University of Virginia, PO Box 400182, McCormick Road, Charlottesville, VA 22904, USA

[2] John F. Kennedy School of Government, Harvard University, 53 Standish Street, Unit 2, Cambridge, MA 02138, USA

joined his former teacher as co-editor; and in 2015, Structure, now edited by Brock alone, appeared in its 13th edition.

Best-selling novels go through multiple printings during their day in the sun. Very few textbooks in any field are sustained through 13 editions. Although many of its sales have been for classroom use, Structure is more than a textbook. Consistent with Adams' original intent, the book serves as a source of information and analysis for individuals inside and outside the academy. Journalists, consultants, and even

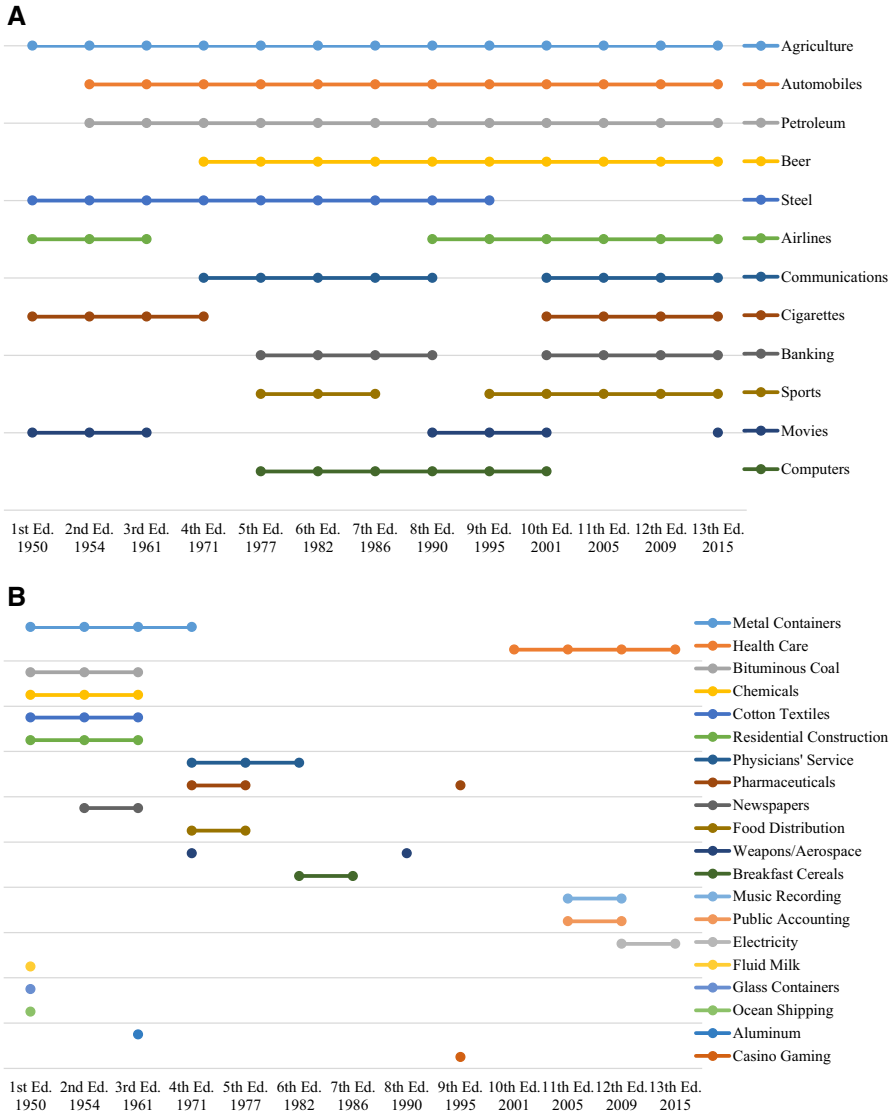

Fig. 1 Industries through the editions **a** Pt. 1, **b** Pt. 2

Supreme Court justices have turned to it for help in understanding specific industries.

Over and beyond the data and analysis of industry case studies, Structure provides a gateway into the field of Industrial Organization. By comparing the industries included for study, one observes the changing composition of the U.S. economy. By following one industry over multiple editions, one discerns how that industry has evolved. Reviewing all the editions opens a window on how industry case studies have been executed. It also provides background on how other analytical paradigms in Industrial Organization have shifted away from the case study approach that was taken in the scholarly project that Adams began in 1950.

In this article's first section, we trace the ebb and flow of particular industries that appear over various editions of Structure and their authors. In Appendix A (http://kenelzinga.com/), we identify other books that, like Structure, consist of multiple industry case studies. Section one also explores more deeply why the choice of industries in Structure metamorphosed over time, reflecting both evolving patterns in the U.S. economy and the appearance of major independent studies, often of book length, by authors who later contributed to Structure.

The second section examines in more detail the common paradigm on which the case studies were organized, evolving by the 4th edition into a Structure–Conduct–Performance-policy (SCP) framework. We trace the SCP paradigm's roots and evaluate contemporary criticisms.

The third and fourth sections focus on two topics that are found in either all or a majority of the editions. One is the steel industry, on which editor Adams had published independent analyses in the American Economic Review (1964) and Quarterly Journal of Economics (1966). The first nine editions all have steel industry chapters that were written or co-authored by Adams. Section four focuses on a chapter that appears in all 13 editions under the title, "Public Policy in a Free Enterprise Economy."

The fifth section assesses external indicators of the book's success, aside from the market test of being published 13 times that spanned six decades. The sixth section offers our concluding retrospective on this long-lived work.

2 Industry Composition and Their Authors

Over the 13 editions, a total of 32 different industries have appeared in Structure.[1] Because a typical edition of Structure contains a dozen industries, this means there has been considerable entry and exit in the book's lifespan to date.

As Fig. 1 indicates, the most durable industries are Agriculture (the only industry covered across all editions); Automobiles and Petroleum (every edition but one); Beer (10), Airlines (9), Steel (9), Cigarettes (8), and Banking (8). Industries in the first edition that fell out of favor include Metal Containers (after four editions); and

[1] This number excludes Charles Killingsworth's three Epilogues on Organized Labor and Willard Mueller's four chapters on "Conglomerates: a non-industry."

Bituminous Coal, Chemicals, Cotton Textiles and Residential Construction (after three editions).

A handful of industries made two appearances and then disappeared: Aerospace/Weapons, Pharmaceuticals, Newspapers, Food Distribution, Breakfast Cereals, and Public Accounting. Some industries appeared only once: Fluid Milk, Glass Containers, Ocean Shipping, Aluminum, and Casino Gaming. New entrants that have continued into the 13th edition are Health Care and Electricity. Sports (either collegiate or professional) has had a durable presence, starting in the 5th edition, absent in the 8th, but present from the 9th to the current edition. The only industries that appeared in more than five editions but are not present in the last three are Steel and Computers.

Over the 13 editions, 67 authors have contributed to Structure. Both of the book's editors remark on the tension between the theoretical cohesion of the chapters and the diversity of viewpoints that are necessary for such a work to be successful. Adams writes in the Preface to the first edition that while editorial micromanagement was carefully avoided, all authors adhere to "the essential characteristics of a free enterprise economy and the free political and social institutions concomitant therewith." Brock also stressed that no heavy hand was used with regard to the contributors' material. This cohesion is due in part to the single Structure–Conduct–Performance paradigm applied in most chapters. It is also due to the composition of industry case studies overall. For instance, the Public Policy chapter, initially authored by Corwin D. Edwards, persists throughout the 13 editions. After Edwards' first edition contribution, the chapter is authored by the general editor and serves as a thematic summary for the entire book.

Table 1 lists all of the authors that appeared in the Structure book over all editions and the chapters they authored (or co-authored).

Structure analyzes 32 unique industries through 67 authors over more than 60 years. The large number of authors itself signals Adams' acquaintance with multiple scholars in the field of Industrial Organization and his ability to call on their talents. Brock has continued in this vein. I.O. cognoscenti will find some surprises, such as A.E. Kahn writing on the chemical industry (and not airlines). But many of the authors were selected because of books or survey articles that they had written about the industries that appear in Structure. These would include Gerald Brock on Computers, William Comanor on Pharmaceuticals, Bruce Marion on Agriculture, Roger Noll on Sports, F.M. Scherer on Aerospace/Weapons, Richard Tennant on Cigarettes, and Lawrence White on Automobiles.

Most of the 67 authors were full-time academics. But 11 of the contributors came from government agencies such as the Federal Communications Commission, the Board of Governors of the Federal Reserve System, and the U.S. Department of Agriculture. Several of Structure's authors at one time held prominent positions at the Federal Trade Commission (William Comanor, Corwin Edwards, Willard Mueller, F. M. Scherer) and the Antitrust Division of the U.S. Department of Justice (William Comanor, Kenneth Elzinga, George Hay, William G. Shepherd, and Lawrence White).

Table 1 Structure's contributing authors

Author	Appears on	Industry studies
Abrams, Charles	Editions 1–2	Residential construction
Adams, Walter	Editions 1–9	Steel, public policy and automobiles (w/Brock)
Alexander, Peter J.	Edition 11–12	Music recording
Bar, Talia	Edition 13	Cigarettes (w/Hay)
Bennett, Randall W.	Edition 10–13	College sports (w/Fizel)
Bishop, Robert L.	Edition 1	Glass containers
Brehm, Carl	Edition 3	Residential construction
Brock, Gerald W.	Editions 7–8	Computers
Brock, James W.	Editions 7–13	Public policy, automobiles (w/Adams), airlines (w/Shepherd) and electricity (w/Schriber)
Burnett, William B.	Edition 8	Weapons (w/Scherer)
Comanor, William S.	Edition 9	Pharmaceuticals (w/Schweitzer)
Cottell, Phillip G., Jr.	Edition 11–12	Public accounting
Dirlam, Joel B.	Editions 1–5	Fluid milk, petroleum, food distribution
Edwards, Corwin D.	Edition 1	Public policy
Elzinga, Kenneth G.	Editions 4–13	Beer
Fizel, John L.	Edition 10–13	College sports (w/Bennett)
Goddeeris, John	Editions 10–13	Health care
Goldberg, Rafi	Edition 13	Telecommunications (w/McConnaughey)
Gray, Horace M.	Editions 2–3	Airlines
Hay, George A.	Edition 11–13	Cigarettes
Heggestad, Arnold A.	Editions 6–8	Banking (w/Shepherd)
Hellman, Richard	Edition 1	Airlines
Hellmuth, William F.	Editions 1–3	Movies
Hendry, James B.	Edition 3	Bituminous coal
Hession, Charles H.	Editions 1–4	Metal containers
Irwin, Manley R.	Editions 4–10	Telecommunications and computers (w/Niman)
Jaffe, Adam B.	Edition 10	Cigarettes
Kahn, Alfred E.	Editions 1–3	Chemicals
Killingsworth, Charles C.	Editions 1–3	Epilogue: organized labor in a free enterprise economy
Knight, Willys R.	Editions 1–4	Agriculture
Koch, James V.	Edition 7	College sports
Kreps, Theodore J.	Editions 2–3	Newspapers
Lanzillotti, Robert F.	Editions 3–4	Aluminum and automobiles
Leonard, Norman H.	Edition 1	Bituminous coal
Litman, Barry R.	Editions 8–10	Movies
MacDonald, James M.	Edition 12–13	Agriculture (w/Marion)
Mackey, Cecil	Edition 9	College sports
Marfels, Christian	Edition 9	Casino gaming
Marion, Bruce W.	Edition 12–13	Agriculture (w/MacDonald)
Martin, David M.	Edition 5	Computers

Table 1 continued

Author	Appears on	Industry studies
Martin, Stephen	Edition 7–13	Petroleum
Mason, Edward S.	Edition 2	Introduction
McAdams, Alan K.	Edition 6	Computers
McConnaughey, James	Edition 10–13	Telecommunications
McIsaac, Archibald M.	Editions 1–2	Cotton textile
Measday, Walter S.	Edition 4–7	Pharmaceuticals and petroleum
Millikan, Max F.	Edition 1	Ocean shipping
Moore, Donald A.	Edition 2	Automobiles
Moore, Thomas G.	Edition 4	Petroleum
Moss, Diana L.	Edition 13	Electricity
Moul, Charles C.	Edition 13	Movies
Mueller, Hans	Edition 6–8	Steel (w/Adams)
Mueller, Willard F.	Editions 5–8	Conglomerates: a non-industry
Niman, Neil B.	Edition 9	Computers (w/Irwin)
Noll, Roger G.	Editions 5–6	Major league sports
Pilloff, Steven J.	Edition 10–12	Banking
Rayack, Elton	Editions 4–6	Physicians' service
Scherer, F. M.	Edition 4, 6–8, 13	Aerospace/weapons, breakfast cereals and banking
Schmookler, Jacob	Edition 2	Bituminous coal
Schriber, Alan R.	Edition 12	Electricity (w/Brock)
Schweitzer, Stuart O.	Edition 9	Pharmaceuticals (w/Comanor)
Shepherd, William G.	Editions 5–13	Banking (w/Heggestad) and airlines (w/Brock)
Stelzer, Irwin M.	Edition 3	Cotton textiles
Suits, Daniel B.	Editions 5–11	Agriculture
Tennant, Richard B.	Editions 1–4	Cigarettes
Waldman, Don E.	Edition 10	Computers
White, Lawrence J.	Editions 5–6	Automobiles

Nearly 20 % of the contributors to Structure came from Adams' home university: Michigan State University. Several were at one time colleagues of Adams. These include Joel Dirlam, Charles Killingsworth, Robert Lanzillotti, Cecil Mackey, Stephen Martin, and Thomas Moore. A few authors did their graduate work at Michigan State University: James Brock, Kenneth Elzinga, Arnold Heggestad, and Manley Irwin. While Adams himself pursued graduate studies at the University of Chicago, only one of the authors in Structure could be considered to have impeccable Chicago School credentials: Thomas Moore (Ph.D. from Chicago, who spent most of his career at The Hoover Institution). But the vast majority of the contributors sent in work from multiple institutions, including Harvard, Yale, New York University, and Cornell.

3 Case Study Paradigm

All 13 editions of Structure follow a common organizational pattern. However, the pattern has differed over time in notable ways. Nearly every essay in the first three editions was organized under three main headings:

1. "Introduction," with discussion of the industry's history, demand characteristics, technology, and other features.
2. "Market Structure and Price Policy," with emphasis on how seller concentration and formal and informal concerted conduct affected the level and stability of prices.
3. "Public Policy," evaluating how public policies such as antitrust, regulation, subsidies, import restraints, and the like have influenced, or could influence, industry performance.

Editor Adams is silent on why this organizational pattern was established for the industry study authors. Although there are several possible historical antecedents, the most plausible inference is that the schema followed the guidance of a seminal essay by Harvard economist Edward S. Mason, which built upon the theories of oligopoly and monopolistic competition to examine how "various elements of the market structure of the individual firm" affected the "price and production policies of this firm" (Mason 1939, p. 63).[2] Mason's essay dealt with further ramifications for the allocation of economic resources and—a key concern during the 1930s—the attainment of full employment.

That Mason's views were seminal is implied, *inter alia*, by the fact that Mason was invited to write the "Introduction" to the second (1954) edition, stating that "it is to the structure of the industry, as a set of observable facts external to particular firms but taken into account by firms, that we have to turn for explanation and prediction of business behavior" (Introduction, p. xv).[3]

The organizational pattern changed markedly in the fourth (1971) edition. Editor Adams provides only minimal explanation (Preface, p. i):

> No apology is required for presenting a series of essays centering on industry structure, conduct, and performance, with an emphasis on policy alternatives and recommendations. The corporal's guard of 1950 has become almost respectable in the 1970's. And this is a tribute to our profession's receptivity to change - with a proper allowance for lag, of course.

All but two case studies in the 4th edition are organized under the schema:

1. Introduction, similar to the first three editions.
2. Market structure (separated, unlike the first three editions).
3. Conduct (subsuming *inter alia* price policy).
4. Public Policy, similar to the first three editions.

[2] For an elaboration, see Mason (1949).

[3] William J. Adams, Walter Adams' son, reports that his father spent a year at Harvard Law School around 1953–1954, during which time he became acquainted with Mason.

The two exceptions (harmonized in later editions) are pharmaceuticals and beer, in which the structure and conduct sections are combined.

The probable but unspoken explanation for the general paradigm change was the publication in 1959 of Joe S. Bain's landmark textbook, Industrial Organization, which dominated teaching and research in industrial organization for at least the next decade. In it, Bain firmly establishes the SCP paradigm, offering chapters focusing on market structure (with supplementary chapters on market concentration, scale economies, and product differentiation), market conduct (one chapter), market performance (including profit margins, selling costs, productive efficiency, and technological progressiveness), the relationship of performance to market structure, and various dimensions of public policy.

It is perplexing that this widely-adopted SCP paradigm—the backbone of Structure—is singled out for criticism by Jean Tirole in his December 2014 Nobel Prize lecture.[4] Tirole (2015, p. 1665) asserts that the "descriptive" SCP paradigm, which he correctly attributes to the "Harvard school," was evolved to "comfort and refine" U.S. antitrust enforcement, but was subjected to skepticism by the Chicago school. The Chicago school, he said, "correctly pointed out the lack of underlying theoretical doctrine" and went on to cast doubt "on the whole edifice." "By the late 1970s and early 1980s," he continues, "the antitrust regulation and doctrine was in shambles and had to be rebuilt." He is unclear what is meant by these remarks.

In his textbook (1988, p. 2), Tirole applauds case studies and antitrust analysis as supporting "the subsequent theoretical wave." SCP clearly provided a plausible framework for organizing case studies, including those in the Adams-Brock volumes. Tirole's textbook singles out for criticism regression analyses in the SCP tradition that relate performance measures such as profit to indices of market concentration. But he fails to acknowledge that statistical work (not originating at Chicago) in the 1970s and 1980s using data collected by the Strategic Planning Institute and the Federal Trade Commission yielded better, theoretically-grounded, insights into structure–performance relationships.[5] Tirole's claim that SCP analyses lacked underlying theoretical support is patently wrong, and his assertion that work in the Chicago tradition remedied matters has been challenged in an uncited compendium (Pitofsky 2008).[6]

Under diverse organizational paradigms, there have been numerous precedents for the case study collections presented in the Adams-Brock volumes. An important early precedent was a book by Jenks (1900, 1903), embodying in a more sweeping analytic schema case studies of pricing policies in the sugar, whiskey, petroleum, and three steel-related industries. Jenks was a key advisor to Theodore Roosevelt on "trust" policy during this period. Ripley (1905) combined diverse authors' case

[4] Published with revisions in Tirole (2015).

[5] For a review, see Scherer and Ross (1990, ch. 11).

[6] The volume includes an article by one of Tirole's acknowledged mentors, Richard Schmalensee, who concedes (Pitofsky 2008, p. 22) that improvements in antitrust policy "were the work of many hands, some of which had never been to Hyde Park," and does not attempt the unsupportable claim that advances in industrial organization theory largely originated in Chicago.

studies of conduct issues in 12 specific industries with broader analyses of corporate financing and other legal questions. Jones (1921) offered detailed case studies of six prominent "trusts" (including Standard Oil and United States Steel) along with more general chapters on cartels, the modern trust movement, and related legislation. Self-contained and more detailed case studies of dominant firms such as Standard Oil, American Tobacco, and International Harvester and problematic industries such as steel, the cotton trade, and beef were published beginning in 1904 by the U.S. Bureau of Corporations, whose successor, the Federal Trade Commission, continued the tradition; see Scherer (1990). Beginning in the 1930s and continuing in the decades following World War II, thesis requirements for the Ph.D. in industrial organization economics were often met through industry case studies by such authors as Donald Wallace, Carl Kaysen, Morris Adelman, Jesse Markham, Merton J. Peck, Erwin Blackstone and Lawrence J. White.

With the Adams series (beginning in 1950) as the apparent precursor, many collections of industry case studies have been published in both the United States and Europe, some combining multiple industry studies written by a single editor-author and others, like the Adams-Brock series, bringing together the work of numerous authors. Table 2 summarizes the principal known examples.

A complementary approach to these industry studies is The Antitrust Revolution, edited by John E. Kwoka and Lawrence J. White, now in its sixth edition (2014). Following the model of Whitney (1958), this book examines markets through the

Table 2 Other industry case studies

Author/Editor	Title	Edition (year)
Burn, Duncan	The structure of British industry	Vol. 1 and 2, (1958)
de Jong, H. W.	The structure of European industry	1st ed., (1981) and 2nd ed., (1988)
Duetsch, Larry	Industry studies	1st ed., (1993), 2nd ed., (1998), and 3rd ed., (2002)
Johnson, Peter	The structure of British industry	1st ed., (1980) and 2nd ed., (1988)
Johnson, Peter	European industries: structure, conduct and performance	Only edition, (1993)
Johnson, Peter	Industries in Europe: competition, trends and policy issues	Only edition, (2003)
Scherer, F. M.	Industry structure, strategy and public policy	Only edition, (1996)
Shaw, R. W. and Sutton, C. J.	Industry and competition: Industrial case studies	Only edition, (1976)
Tremblay, Victor and Tremblay, Carol	Industry and firm studies	4th ed., (2007)
Weiss, Leonard	Economics and American industry	Only edition, (1961)
Weiss, Leonard	Case studies in American industry	1st ed. (1967), 2nd ed., (1971), and 3rd ed., (1980)
Whitney, Simon	Antitrust policies: American experience in twenty industries	Vol. 1 and 2, (1958)

lens of prominent contemporary antitrust cases. See the Elzinga-Webber Industry Case Study Summary at http://kenelzinga.com/ for a survey of these books and the industries covered in each.

4 Steel: Structure's Representative Industry

Just as Alfred Marshall had his "representative firm," Structure has its representative industry: steel. Adams saw steel as "the basic durable good of our economy" and predicted that "our economy for many years to come will undoubtedly be founded upon steel and will, consequently, be affected immediately and directly by the policies and practices of the steel industry." This view undoubtedly led Adams to be an author of steel chapters in nine successive editions of *Structure*, extending into 1995.

In the 1st edition, Adams characterizes the industry as a "tight oligopoly." He is skeptical whether steel firms needed to be as large as the leaders were and argues that the advantages of operating multiple efficient-scale vertically integrated plants were particularly weak. He observes that the U.S. Steel Corporation's market share in pig iron and raw steel production declined fairly steadily from the time of the company's consolidation in 1901—from roughly 65 % in 1903 to 33 % in 1948. Adams attributes this decline to mergers by independent steel-makers, shifts in demand toward lighter products, U.S. Steel's sluggishness in adopting important new technologies, and occasional market-share-enhancing price-cutting by some rivals. Neither in the 1st edition nor in later versions does Adams consider the theory of dominant firm pricing, under which the price leader sets prices encouraging rival expansion and restrains its own expansion to preserve its price umbrella and short-run profits.[7]

More than a third of the original chapter's pages are devoted to analyzing in detail the rationale, pros, and cons of the industry's basing point pricing system, implemented first in the famous single basing point "Pittsburgh plus" system and then with several basing points from which freight rates that were publicized by U.S. Steel were added to calculate delivered prices. This emphasis is curious, since the Pittsburgh plus system was abandoned after antitrust challenges in 1924, and the multiple basing point system gave way in 1948. Adams' rationale for the disproportion was undoubtedly his belief that widespread adherence to basing point pricing strengthened U.S. Steel's price leadership, cementing a tradition of price rigidity (viewed by Adams as macroeconomically destabilizing) that persisted even after the system's demise. Price leadership *per se* is seen as a secondary, though important, contributor to the industry's tacit oligopolistic collusion.

In the fourth (1971) edition, the organizational scheme in steel, as for other industries, metamorphoses to a structure–conduct–performance-public policy paradigm. Adams continues as an author through nine editions, but in the 6th through 8th editions, he is joined by Hans Mueller, who had co-authored a book-length Federal Trade Commission study of the steel industry in its international

[7] See Worcester (1957), and the earlier sources referenced by Worcester.

context (Duke et al. 1977). The focus shifts accordingly from the U.S. industry alone to the steel industries of major steel-exporting nations, with extensive comparative data.

A probable explanation for this departure, and an agenda-setter for subsequent editions, was a dramatic change in the trend of U.S. steel industry output and an equally dramatic decline in the American industry's presence in world steel production. U.S. raw steel output rose to a peak of 151 million short tons in 1973 and then declined markedly to 107 million tons in 1995.[8] One reason for the output decrease was a sharp rise in imports as a percentage of domestic demand, from 1 % in 1950 to a peak of 26.5 % in 1984 (ebbing to 21.4 % in 1995). The U.S. industry's share of world production fell from 47 % in 1950 to 13 % in 1995 (hitting 5.3 % in 2014). Meanwhile, the market share of the U.S. Steel Corporation continued to erode from 33 % in 1948 to 16.5 % in 1994.

By the 7th edition (1986), Adams and Mueller criticize conventional textbooks which argue (as Adams asserted earlier) that the steel industry is an oligopoly. Rather, the proliferation of distinct products, the inroads of mini-mills, and the ability of coastal steel consumers to draw their steel at low transportation costs from foreign sources imply a less-than-clear oligopoly. In the 9th edition (1995, p. 113), written solely by Adams, "the stable oligopoly… has disintegrated."

U.S. Steel Corporation was created in 1901 through one of the most massive mergers in American history, instigated by financier J. P. Morgan. Additional mergers followed. After passage of the Celler-Kefauver anti-merger act in 1950, new mergers were sparse and receive little attention in intermediate editions. But more lenient government policies were then adopted, permitting mergers between Wheeling Steel and Pittsburgh Steel (1968), fourth-ranked National Steel and Granite City Steel (1971), Jones & Laughlin Steel (J&L) (by then owned by conglomerate LTV) with Youngstown Sheet and Tube (1978), J&L-Youngstown with Republic Steel (1983), and joint ventures in the 1980s between Japanese and U.S. steel makers. Mergers began again to capture the authors' interest.[9]

Adams and later co-author Mueller are sensitive to an important determinant of market structure: technological innovation. The steel producers and especially U.S. Steel Corporation are criticized repeatedly for their modest research and development expenditures and their tardy implementation, especially in their period of rapid capacity expansion during the 1950s and 1960s, of such important technologies as the continuous rolling mill, continuous casting, scrap-using furnaces (later recognized as electric arc furnace-based mini-mills), and the basic oxygen furnace. Foreign rivals and smaller firms, Adams wrote, were the leading technological innovators. By 1995, when the 9th edition appeared, mini-mills accounted for 40 % of the American steel industry's output, which radically changed both structure and pricing behavior.

Even earlier, in the 8th edition, Adams and Mueller observe that, pressured by growing price competition from mini-mill firms and imports, the traditional U.S. industry leaders had made progress in closing inefficient plants and modernizing the

[8] The data are extended from Scherer (1996, pp. 170–173).

[9] For a chronology, see the 7th edition (1986, p. 80).

plants that they continued to operate. During the 1980s, the 9th edition reports (p. 97), 450 outdated facilities had been closed. They note too that in 1983, the industry negotiated new contracts with the United Steel Workers union that reduced the rate of wage increases and weakened, even though it did not eliminate, automatic cost of living increases that were linked to general inflation.

On the conduct side, as noted earlier, the emphasis on basing point pricing recedes, at first slowly, in editions following the 1st. In its place, the focus shifts to the tradition of price leadership instigated with the merger creating U.S. Steel Corp. which was supplemented by the so-called Gary dinners (in the late 1900s), and reinforced initially by the steel oligopolists' acceptance of basing point pricing. U.S. Steel chose a policy of price rigidity, rejecting downward adjustment during recessions and market-clearing upward moves in booms. In the 2nd edition Adams is apparently a pioneer, if not the first mover, in calling the industry's pricing behavior "administered pricing"—an epithet taken over by Senator Estes Kefauver for an investigation of the steel industry during the late 1950s. But steel prices were stable only in the short run. Over the longer run, they were raised at rates that far exceeded economy-wide inflation tendencies, in part to ensure that the steel makers maintained their profitability after striking unusually favorable wage bargains with the United Steel Workers' union. After a "jawboning" confrontation with President John F. Kennedy in 1962 and sharp criticism of its inflationary effects by members of his Council of Economic Advisers—government actions that Adams characterized in the 3rd edition as "creeping admonitionism"—U.S. Steel became more reluctant to exercise price leadership.[10] Other major firms took the lead in what, in the 6th edition (p. 97), Adams and Mueller call "barometric price leadership," and non-compliance with the leader's moves became more frequent.

The other main disruptive phenomenon was the rapid growth of steel imports. Imports were stimulated by supra-normal rates of increase for domestic steel prices and inhibited by occasional devaluations of the U.S. dollar; the latter during the early 1970s and late 1980s. The devaluations contributed to making the U.S. a low-cost producer on the world scene, but because of its pricing policies, Adams argues in the 5th edition (1977), not a low-price producer.

Surges in imports led to repeated pleas by the industry for government protection. The first success came under President Richard Nixon in 1969, when the U.S. negotiated with Japan and the European Community a "Voluntary Restraint Agreement," which specified tonnage quotas for exports into the U.S. It was allowed to expire in 1974, as a world steel boom ebbed. Following the closure of a major steel mill in 1977, general import restraints were resurrected through a so-called "Trigger Price Mechanism," under which the U.S. government specified individual product prices based upon full Japanese costs (reported by the Japanese government) plus freight to Chicago. Any imports priced below the trigger prices were subjected to an accelerated anti-dumping action. After diverse changes, the system was ended in January 1982. In 1984, the Reagan Administration returned to

[10] An earlier presidential confrontation occurred in 1952, when a decree by President Harry S. Truman nationalized the industry to end (temporarily) a strike jeopardizing Korean war steel supplies. The decree was overturned by the Supreme Court.

negotiated physical import quotas, but countries outside the quota nations increased their imports. The quotas were extended to additional nations and continued to 1992. Imports were also curbed through occasional successes when U.S. producers' launched anti-dumping and countervailing duty complaints. During the 1980s, "iron and steel" producers filed 46 % of all the dumping and countervailing duty petitions that were received by U.S. international trade regulators (Boltuck and Litan 1991, p. 3).

The combination of continuing import competition and list price undercutting by mini-mills eroded the profitability of many inefficient steel plants, causing unprecedented levels of plant closure beginning in 1977 and continuing into the 1990s. Indeed, the 9th edition (1995) (written by Walter Adams alone) reports that 11 of the 17 integrated steel companies that were operating during the 1980s had entered into Chapter 11 bankruptcy (p. 97). The least efficient plants were shut down, productivity (output per worker) rose sharply, and tougher labor contracts were written. Employment in the industry dropped from a peak of 600,000 in the 1960s to 230,000 in 1995.[11] By then (1995, p. 113), Adams is able to conclude his analysis with an assertion, *mirabile dictu*, that "Today, the steel industry is the scene of intense competition." With this radical change in conduct and the reduction of U.S. raw steel production to 13 % of world output, the 45-year string of steel chapters in Structure ends.[12]

5 Capstone Policy Chapter

All 13 editions of Structure include a final or, in some editions, penultimate chapter uniformly entitled "Public Policy in a Free Enterprise Economy." These too evolved over time with changes in authors and events.

In the 1st (1950) edition, the author is Corwin Edwards: a leading scholar on international competition policy who, at the time, was chief economist of the Federal Trade Commission. He begins with an extended historical and philosophical survey of diverse alternatives: feudalism (once dominant in Europe, but abandoned); mercantilism; laissez faire capitalism; government regulation and control of private firm actions; and state-owned enterprise (commended by Edwards only where private markets fail).

Edwards then contrasts tendencies in Europe, where nationalized enterprise and cartels were often preferred at the time to the competitive free enterprise alternative, found in the United States (where government controls served mainly to check private monopoly and collusion). Edwards laments what he perceived as the growth of monopoly power through the persistence of industry-dominating enterprises and their creation through massive mergers and argues (p. 528) that "where cartels and

[11] Our estimate, from American Iron and Steel Association statistical yearbooks.

[12] By 2015, the largest steel-producing companies within the U.S. were, in descending order of domestic output capacity, U.S. Steel Corporation, Mittal, and multiple mini-mill operator Nucor (founded in 1965). Thus, the ghost of J.P. Morgan survives!

monopolies are well established there is also need to destroy existing monopoly controls."

He argues that the United States (p. 529) ought also to create new institutions, making it easier for small businesses to raise equity capital in small amounts—proposals that later gained traction with the emergence of thriving venture capital providers and the dispensation of government-backed loans to small businesses. Edwards generalizes (pp. 535, 537) that "competition should be the rule and public control the exception" and "if the presumption is in favor of the private enterprise system, we can afford to undertake cheerfully as many collective projects as prove to be suitable exceptions."

In the 2nd (1954) edition, Adams replaces Edwards as author of the policy chapter and continues in this role through the 8th (1990) edition. All seven of his chapters follow essentially the same outline, with changes mainly reflecting new economic developments. Adams' policy chapters begin with a brief introduction to the Sherman Antitrust Act, some judicial interpretations thereof, and later legislative extensions. There follows a lengthy section, including some real-world examples from U.S. history, on the "Charges Against Monopoly," including high prices, resource misallocation, the restriction of economic opportunity, increased income inequality, the retardation of technological innovation, and jeopardy to free political institutions (including an excursus on the links between German cartels and Adolf Hitler's rise to power).

Adams then reviews the extent of seller concentration in American industry, with more elaborate statistics supplied in later (but not the last) editions, along with data on the growth of aggregate concentration associated with the largest enterprises (and in intermediate Adams' editions, on merger trends). Then follows a lengthy review of policy alternatives to the exercise of monopoly power, including (but rejecting) the status quo with reliance on "workable competition," Schumpeterian creative destruction, and (in later versions) the countervailing power hypothesis advanced by John Kenneth Galbraith, of which Adams (1953) was a severe critic. Active pro-competition alternatives included public ownership, publicity (a solution favored by Theodore Roosevelt), public regulation (but recognizing the problem of "capture" by regulated entities), differential taxation, government finance of small businesses, limitations on the power derived from patents, the reduction or repeal of tariffs that protect monopolistic industries, and a progressive tax on advertising.

Each of the policy chapters from the 2nd edition through the 13th ends with a cartoon, drawn from a 1945 monograph by former U.S. antitrust head Thurman Arnold, which shows a citizen choosing among three personalized alternatives: free enterprise, security through government control, and security through monopoly. Needless to say, Adams (and his successor James Brock) favor free enterprise (Fig. 2).

Beginning with the 6th (1982) edition, new themes are introduced within the previous organizational framework. Adams criticizes the "new Darwinism," which is said to argue that companies operating efficiently and serving consumers well will sooner or later displace inefficient monopolies. He notes with alarm cries for more active governmental involvement through industrial policies aimed at counteracting the penetration of U.S. markets by Japanese enterprises. Also criticized are the

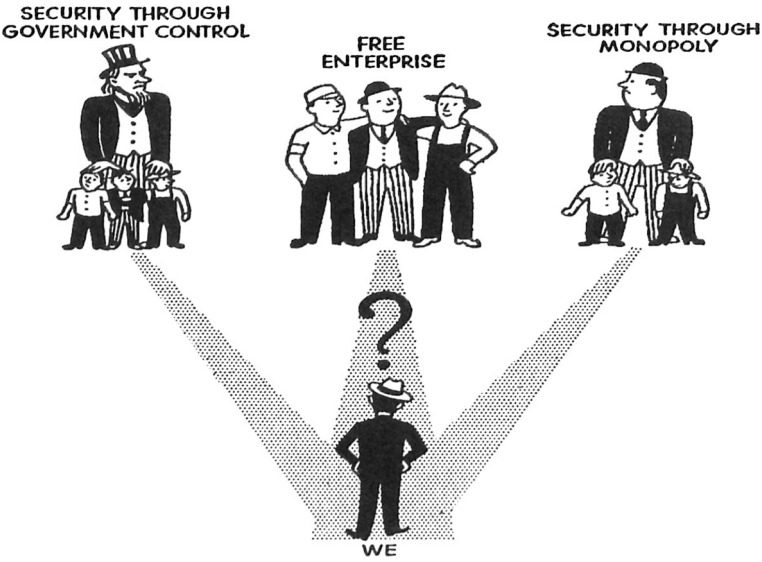

Fig. 2 Structure cartoon (*Source*: Thurman W. Arnold, *Cartels or Free Enterprise*? Public Affairs pamphlet 103, 1945. Reproduced courtesy of the Public Affairs Commission, Inc.)

import barriers that were erected to inhibit Japanese exports—notably, quantity restraints and protective tariffs imposed to protect the still-monopolistic steel and automobile industries. Adams criticizes as well the 1.5 billion-dollar 1980 U.S. government loan guarantee that "bailed out" the otherwise-failing Chrysler Corporation.

Giant conglomerate mergers are targeted as managerial ego trips in the 7th (1986) edition, and in the 8th edition (1990) Adams cites other scholars' evidence that the conglomerate merger wave of the 1960s and 1970s failed to yield net economic efficiencies. Also in the 8th edition, the Reagan Administration is linked to a "new laissez faire in action" and criticized (p. 362) for its "active policy of non-enforcement" under the existing merger antitrust laws.

In the 9th (1995) edition, the public policy chapter exhibits a major organizational change, implying, even though Adams and new co-editor James Brock are listed as co-authors, that Brock has taken the lead. It begins with a philosophical excursus that stresses the role that "controlling power" played in the writings of the United States' founding fathers. Citations are made to Thomas Jefferson ("it is not by the consolidation or concentration of powers, but by their distribution, that good government is effected"), Constitutional Convention member Thomas Burke, and James Madison.[13] The American antitrust tradition rooted in these sentiments is then briefly summarized, after which the chapter embarks upon an extended dialectic, contrasting and criticizing neoliberal and then neoconservative challenges to U.S. antitrust policies.

[13] Madison's views in Federalist paper 10 would have provided stronger support than the cited Federalist 51.

On the neoliberal side, the analysis focuses on advocates of a formal industrial policy striving for consensus among industry, labor, and government, plus mergers to create a strong "Number Two" in industries with a dominant firm, to counter the mounting challenges from "Japan Inc." Adams and Brock contest these views, stressing the tendency for strong organized groups to serve their own rather than the public interest. They cite the failure of such policies under the National Recovery Administration during the 1930s; point to the failure of firms in tightly oligopolistic industries such as automobiles, steel, and television to inhibit Japanese inroads; and argue that Japanese producers in fact competed vigorously with one another, thanks in part to the Zaibatsu dissolution program under the U.S. occupation of Japan following World War II.

Robert Bork is named as a leading advocate in the neoconservative challenge, applying a natural selection analogy to insist that dominant firms will survive only when they are efficient and serve consumers well. The authors again nominate the competitiveness failures of General Motors and U.S. Steel as well as IBM (in the 1980s) and Ling-Temco-Vought's merger-based steel operations to bolster their counter-argument that (p. 313) "A decentralized economic power structure—the root principle of antitrust policy—does not have to be sacrificed in order to obtain efficiency in production or innovation in technology."

Later editions with Brock as sole author pursue essentially the same format and argumentation, but China emerges as a new industrial challenge, the U.S. military-industrial complex is cited as an example of the failures of cooperation between industry and government, and (in a new twist on the natural selection argument) diversity is said to encourage the emergence of strong enterprises. None of the policy chapters from the 9th edition on includes, as did some earlier versions written by Walter Adams, quantitative evidence on the concentration of individual industries, merger trends, and aggregate concentration.

6 Indicators of Influence

Structure is primarily a textbook, not a treatise, but by the metric of citations the book has had its influence outside the classroom. George Hay's chapter on the cigarette industry was cited by a state Circuit Court of Appeals[14]; Kenneth Elzinga's chapter on the beer industry was cited by a District Court[15] and by the U.S. Supreme Court.[16] Over its several editions, Structure has also been cited more than 50 times by various law reviews and journals, including multiple citations in the *Yale Journal on Regulation*, the *American Journal of Law & Medicine*, and the Harvard, Stanford, and New York University Law Reviews.

A "Web of Science" citation search reveals that across all editions of Structure, there have been over 270 citations to particular industry studies in the book. The citation count for Structure exceeds other industry study books such as *Structure of*

[14] Romero v. Philip Morris Inc., 145 N.M. 658 (N.M., 2008).

[15] The Package Shop Inc. v. Anheuser-Busch Inc., 675 F. Supp. 894 (D.N.J., 1987).

[16] United States v. Falstaff Brewing Corp. et al., 410 U.S. 526 (1973).

European Industry, edited by H.W. de Jong; *Industry Studies,* edited by Larry Duetsch and, later, *Industry and Firm Studies*, edited by Victor and Carol Tremblay; *The Structure of British Industry,* edited by Duncan Burn; *Economics and American Industry* and *Case Studies in American Industry* by Leonard Weiss, and Peter Johnson's *European Industries, Industries in Europe* and *Structure of British Industry*.[17] A "Google Scholar" citation search reveals similar results for the aforementioned works of Burn, Duetsch, Johnson, Weiss, and de Jong. By these metrics, Structure enjoys an academic spotlight rarely matched by other volumes of industry studies.

7 Conclusion

Apart from its impressive longevity, the breadth of industries studied and the authors who have been engaged in Structure is remarkable. Adams' (and later Brock's) hope for the book was that through the study of particular industries, one could gain an appreciation of the evolution of the American economy. Stepping back to look at the whole project reveals that their aspirations have been met.

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[17] Structure's 5th (1977) and 6th editions (1982) have higher citation counts than any other edition.

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