A Note on Concentration Studies and Antitrust Policy

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INTRODUCTION

The current interest in industrial concentration studies almost rivals that which gave rise to the Temporary National Economic Committee's voluminous output on the subject two decades ago. Indeed, by almost any standard, 1957 was a banner year. The Federal Trade Commission opened the season with its 656-page report in January.[1] The National Industrial Conference Board devoted a session to the topic at its forty-first annual meeting in May.[2] In July the Bureau of the Census published its study performed at the request of the Senate Subcommittee on Antitrust and Monopoly.[3] In June the Chamber of Commerce of the United States issued its first in a projected series of reports on the measurement of concentration; the second followed in July;[4] others are still to come. Meanwhile, the output of economists in the professional journals has continued apace.

But the recent literature on concentration differs significantly from the earlier studies. Gardiner C. Means, who is often credited with having inaugurated the systematic study of concentration with his 1931 article,[5] set the tune for much that was to follow: "within 'the corporate system' there exists a centripetal attraction which draws wealth together into aggregations of constantly increasing size . . . the trend is apparent, and no limit is yet in sight."[6] The Federal Trade Commission was still echoing the same tune seventeen years later: "If nothing is done to check the growth in concentration either the giant corporations will ultimately take over the country, or the government will be impelled to step in . . . ."[7]

True, not all studies of this period reached such sweeping and impassioned conclusions. The more cautious report by Willard W.

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1. FTC, REPORT ON INDUSTRIAL CONCENTRATION AND PRODUCT DIVERSIFICATION IN THE 1000 LARGEST MANUFACTURING COMPANIES (1957).
2. The proceedings of the conference were published under the title ECONOMIC CONCENTRATION MEASURES: USES AND ABUSES, STUDIES IN BUSINESS ECONOMICS No. 57 (1957).
3. U. S. BUREAU OF THE CENSUS, DEP'T OF COMMERCE, REPORT ON THE STUDY OF THE PROPORTION OF SHIPMENTS (OR EMPLOYEES) OF EACH INDUSTRY, OR THE SHIPMENTS OF EACH GROUP OF PRODUCTS ACCOUNTED FOR BY THE LARGEST COMPANIES AS REPORTED IN THE 1954 CENSUS OF MANUFACTURERS, (1957).
4. U. S. CHAMBER OF COMMERCE, REPORTS ON THE MEASUREMENT OF ECONOMIC CONCENTRATION, No. 1, 2 (1957).
5. MEANS, *The Large Corporation in American Economic Life,* 21 AM. ECON. REV. 10 (1931).
6. BERLE & MEANS, THE MODERN CORPORATION AND PRIVATE PROPERTY 40 (1932).
7. FTC, REPORT ON THE MERGER MOVEMENT 28 (1948).

Thorp and Walter F. Crowder in 1941 pointed out that concentration in American manufacturing "showed no uniform dominating trend. Positions of dominance once achieved were not always maintained."[8] It is also true that the more foreboding estimates of concentration, and the inferences drawn from them, did not pass unchallenged. Some, notably Edwin B. George, called for more cautious interpretations.[9] Others, as had Thorp and Crowder earlier,[10] argued that the problem of monopoly must be distinguished from that of size. But the dominant tone of the day was clear: Concentration was high and on the increase. So was monopoly. These were the statistical facts which only pedants were likely to debate.

The debate was fruitful, and not confined to pedants. Subsequent studies by Morris A. Adelman and G. Warren Nutter not only challenged the statistical bases on which earlier conclusions rested, they offered data supporting different conclusions. Adelman concluded that concentration was indeed high, but had shown no tendency over the years to increase, and had possibly declined.[11] Nutter, using industry concentration data, concluded that monopoly may well have declined between 1899 and 1939.[12] Such studies are appropriately regarded as important landmarks in the broad sweep of the literature. They highlighted significant gaps and inadequacies in concentration data, served to caution researchers against extravagant policy-oriented conclusions, and provided a more useful analytical frame of reference for the study of industrial concentration generally. Few who disagreed with Adelman's and Nutter's own conclusions on trends in concentration and monopoly—and some did[13]—questioned the value of their works. They were methodical, factual studies in an area where surmise and conjecture had often been confused with fact.

8. THORP. & CROWDER, THE STRUCTURE OF INDUSTRY 8 (TNEC Monograph No. 27, 1941).

9. George, *How Big is Big Business*, Dun's Review, March 1939; George, *Is Big Business Getting Bigger, id.*, May 1939; George, *How Did Big Business Get Big, id.*, Sept., 1939.

10. See note 8 *supra*.

11. Adelman, *The Measurement of Industrial Concentration*, Review of Economics and Statistics, Nov. 1951, pp. 269-96.

12. NUTTER, THE EXTENT OF ENTERPRISE MONOPOLY IN THE UNITED STATES 1899-1939 (1951).

13. See Edwards, Stocking, George & Berle, *Four Comments in "Measurement of Industrial Concentration": with a Rejoinder by Professor Adelman*, Review of Economics and Statistics, May 1952, pp. 156-78. But commentors who differed with Adelman applauded his efforts: Professor Corwin D. Edwards welcomed the study as a "pioneering effort." *Id.* at 156. Professor George Stocking recognized Adelman's treatment of conceptual problems as "a thoughtful, discriminating analysis, important to any student of industrial concentration." *Id.* at 161. Edwin B. George found "his constructive presentation . . . in general excellent and . . . not open to serious criticism at vital points." *Id.* at 168. Professor A. A. Berle, Jr., found "Adelman's capable and thorough-going review . . . a major contribution." *Id.* at 172. Adelman had already characterized "Nutter's contribution [as] one of the most important in recent years." Adelman, *supra* note 11, at 290.

But to plead for more cautious calculation and interpretation of concentration measurements is one thing; to argue that such measurements are virtually useless is another. Some of the more recent assessments of concentration studies have come dangerously close to suggesting that concentration measures are so fraught with statistical and conceptual ambiguities that they are a worthless analytical device. Thus the Chamber of Commerce recently found little difficulty in gleaning from the current literature citations of no less than a score of prominent economists and statisticians in support of this view.[14] In brief, to use the words of the late Professor Schumpeter, it now appears that we are prepared "to throw the baby out with the bath water." It is the contention of this short essay that while the water may need purifying—perhaps a complete change—antitrust law administration can scarcely do without the baby.

THE MEASUREMENT AND MEANING OF ECONOMIC CONCENTRATION

Inquiry into economic concentration has developed two broad types of measures: aggregative indices of concentration purporting to show the extent to which control over corporate (or other) wealth is centralized; and partial, or particular, indices designed to show the degree of market control over a line of commerce possessed by a given number of firms. The first of these—made familiar by Berle and Means[15]—is generally expressed as the ratio of the assets (employment, sales, etc.) of the largest 50, 100, 200, 500, . . . , 1000 corporations to total assets (employment, sales, etc.); the second is the share of the output (employment, assets, sales, etc.) of a particular industry accounted for by the largest 4, 8, 12, . . . , 50 producers. For some purposes—the design of tax policy comes first to mind—aggregative indices of concentration may be quite useful, but they clearly have little to do with the monopoly problem and antitrust policy.[16] The economic theory of monopoly is confined to partial equilibrium analysis, and the antitrust laws, as will be emphasized below, to particular lines of commerce. Aggregative concentration indices no more indicate levels of concentration in particular markets—the degree of oligopoly—than indices of the net national product indicate its composition.[17] Because they are conceptually inapplicable to problems of

14. U. S. CHAMBER OF COMMERCE, *op. cit. supra* note 4.
15. Berle & Means, *op. cit. supra* note 6.
16. *Cf.* the author's comment in NATIONAL INDUSTRIAL CONFERENCE, ECONOMIC CONCENTRATION MEASURES: USES AND ABUSES, STUDIES IN BUSINESS ECONOMICS No. 57, at 19 (1957).
17. This all too obvious fact has sometimes been ignored, thereby creating considerable confusion. For a succinct statement designed to clarify the issue see Adelman, *supra* note 11, at 269.

antitrust a recounting of their technical deficiencies here serves no useful purpose.

Before turning to measures of concentration for particular markets certain aspects of the antitrust laws themselves merit brief review. In both legislative and judicial construction the antitrust statutes focus on particular lines of commerce. This is made most explicit in section 7 of the Clayton Act, which prohibits the acquisition by one corporation of the stock or assets of another corporation,

> Where in *any line of commerce* in any section of the country, the effect of such acquisition may be substantially to lessen *competition*, or to tend to create a *monopoly*.[18] (Emphasis added.)

What congress made explicit in section 7 with "any line of commerce" it made implicit there and in the Sherman Act with "competition," "monopoly," "restraint of trade" and "any part of trade."[19] The lessening of competition and the creation of monopoly occur in particular markets and relate to specific products.

But the antitrust laws not only focus on particular lines of commerce, their administration must necessarily contemplate the market position or commercial practices of particular business firms. The Department of Justice and the Federal Trade Commission do not initiate action against the "X industry" or the "Y sector of the economy;" they must name specific defendants and respondents. High or increasing concentration in an industry is not itself actionable under section 7 of the Clayton Act or the Sherman Act, the two statutes most directly involving industrial structure, but rather the actions of particular firms which may or may not affect concentration in their respective industries. But it is emphasized that firms generally are not guilty of any antitrust violation simply because the concentration ratios for their respective industries are rising, or innocent because they are declining. The connection between measures of industrial concentration and antitrust law administration is much less direct.

It is not to be inferred from this, however, that measures of industrial concentration, *e.g.*, the familiar concentration ratio,[20] are virtually irrelevant to the antitrust problem. The shortcomings of the existing data notwithstanding,[21] they are indispensible to the screening of possible antitrust law infractions. In spite of all that has been said about the need for thorough investigation of all the economic facts, for consideration of many factors other than the market shares involved, and for reasonable rather than per se rules, concentration

18. 38 STAT. 731 (1914), 15 U.S.C. § 18 (1952).
19. 20 STAT. 209 (1890), 15 U.S.C. §§ 1, 2 (1952).
20. The share of an industry, measured in terms of sales, assets, employment, capacity, etc., accounted for by the four largest producers.
21. See page 337 *infra*.

data permit the use of certain loosely defined labor-saving per se rules of conduct. Within antitrust agencies any merger in an industry having a concentration ratio as low as, say, .10 is likely to be dismissed out of hand as within the permissible limits of section 7; and whatever may be the business practices of a firm in such an industry they are not likely to be pursued under the Sherman Act. Let the events be the same but change the concentration index to 1.00 and the outcome will very likely be reversed. Most antitrust cases emerge from the "gray" area of the law—where the government and legal counsel for the firms involved hold different views concerning acts the law prohibits. But the history of antitrust policy suggests that the area of agreement between the government and private counsel is much greater than the area of doubt. While many factors contribute to this state of affairs, quantitative measurements, if for no other reason than that they are quantitative, have surely played a major role. It is not fortuitous that several hundred mergers involving the top half-dozen firms have occurred in the textile industry, where concentration is low, without precipitating a single section 7 case, or that no mergers have occurred between major automobile, petroleum refining, or aluminum companies—industries where concentration is high.[22] Mergers such as these lie outside the "gray" area, and largely because both government and private businesses know the probable outcome of cases involving very large and very small market shares.

We turn now to the more important use of concentration measures, their value as evidence in litigating antitrust cases. Concentration indices are essentially an arithmetical description of the share of a market occupied by the largest sellers. They take their values from two variables: the number and the relative size of the firms accounted for in the numerator. A complete set of concentration indices would proceed from the largest to the smallest firm in an arithmetical progression of one, and yield the share of the market occupied by the largest 1, 2, 3, . . . , n, sellers.[23] When a small number of firms yields a high index, concentration is said to be high; when they yield a low index concentration is low. A high concentration index shows that a few large firms account for a large share of the market, *i.e.*, it is a quantitative measure of oligopoly.

In economics the term oligopoly is not, as sometimes alleged, a word of art; it translates into a pattern of business behavior. The extent to which firms in a given industry engage in price competition is likely

22. The Bethlehem-Youngstown merger prevents the inclusion of the steel industry, where concentration is also high. But it is not irrelevant that nearly two years of consultation between the Department of Justice and Bethlehem preceded the agreement to disagree.

23. Those calculated from census data must start with at least four firms because data for a smaller number cannot be disclosed.

to be affected very much by how many firms there are. When many sellers offer goods in the same market, and no one of them accounts for much of the total sales volume, they are likely to try to increase sales by offering buyers price incentives. Each seller does this because any increase in his sales resulting from such a price incentive is spread over many rivals, no one of which is so seriously affected that it must immediately meet the price. Hence, when sellers are numerous, prices are likely to be competitive—they will approximate costs, including competitive profits. But when sellers are few in number, or when a few sellers account for most of the sales, they are likely to reason differently. A price reduction by one that leads to a significant reduction in the sales of another cannot be expected to go unnoticed, and each firm knows this and acts accordingly. Hence, the price prevailing in the market is not necessarily a competitive price, and it very likely will contain an element of monopoly reward.[24] Because high concentration indices generally reflect the market structure of oligopoly, they signal the probable oligopolistic market behavior. That is, the probability that prices will not be those competition would establish.

How useful then are concentration measures in the litigation of antitrust cases involving monopoly, or market power? Before even a tentative answer can be given to this question it obviously must be made clear what specific type and source of concentration data one has in mind. Much of the recent lamentation over the inadequacies of concentration data has not with sufficient clarity distinguished between the definitional and statistical short-comings of past concentration studies and the extent to which concentration measures *can* appropriately indicate market power. Thus the Chamber of Commerce of the United States, after citing nine prominent authorities on the subject, could without serious injustice to the main thrust of their composite argument conclude:

> The fact that concentration ratios are *conceptually* invalid as measures of industrial concentration or market power has been established with abundant clarity by the authorities that have been cited.[25] (Emphasis added.)

The Chamber then relies on Dean Edward S. Mason for the final word:

> That market power is an elusive quality requires no demonstration . . . it is not possible, nor will it ever be possible, by calculating market shares . . . or other hocus pocus, to present an unambiguous measure of the degree of monopoly.[26]

24. All this was set forth more than twenty-five years ago by E. H. Chamberlin. CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION, c. III (1933).
25. U. S. CHAMBER OF COMMERCE, REPORT ON THE MEASUREMENT OF ECONOMIC CONCENTRATION No. 1, at 8 (1957).
26. *Ibid.*, citing Mason, *Market Power and Business Conduct: Some Comments*, 46 AM. ECON. REV. 480 (1956).

Thus is the circle of reasoning closed: concentration data suffer from definitional and statistical ambiguities, hence *market shares* are ambiguous measures of the degree of monopoly power. But the Chamber overlooked the real import of Dean Mason's observation, which followed with:

> Nevertheless it should be equally obvious that judgments concerning the extent of market power are made in the enforcement of the antitrust laws and must be made unless we are willing to scrap this legislation in favor of an altogether different approach.[27]

How much error concentration data generally contain is therefore not the essential question, but rather what weight should reasonably be assigned market shares in deciding antitrust cases under statutes involving market power. Much of the recent critical appraisal of concentration studies is irrelevant to this issue, and has, I believe, inadvertently tended seriously to understate the extent to which market power can be inferred from market shares.

What some of the recent critics seem to have overlooked is that the world of antitrust law administration is not the world of general concentration studies, and hence that much which may be entirely valid criticism for one does not necessarily hold for the other. Students of concentration work with the tools they have. These tools are often highly imprecise instruments. The Bureau of the Census industry classifications often do not conform to those which are relevant for economic analysis; even for these classifications data on less than four firms cannot be disclosed; the data do not allow for important shifts among the top firms; the computed concentration ratios make no allowance for the dynamic forces at work in the industry, or for the various stages of the industry's development; and sales, output, and employment data for existing firms tell us nothing of market shares including potential producers.[28] Concentration data, or more specifically, the market shares of producers, *can* clearly be ambiguous and imprecise.

These, however, are not the data with which antitrust agencies deal. The Federal Trade Commission makes extensive use of letters of inquiry, the subpoena, and often conducts its own market surveys. The Department of Justice can avail itself of grand jury proceedings and interrogatories. Through these instruments the relevant market the case involves can be given considerable refinement, substitutes can

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27. *Ibid.*
28. For competent and scholarly discussions of these deficiencies in concentration data see comments by Kaysen, Scitovsky, Fellner, Miller, Rosenbluth, Herfindahl & Bain in NATIONAL BUREAU OF ECONOMIC RESEARCH, BUSINESS CONCENTRATION AND PRICE POLICIES 57-140 (1955). See also Edwards, *id.* at 334; Adelman, *supra* note 11, at 271-74; Mason, *supra* note 25, at 480.

be identified, the market shares of defendants ascertained, the dynamic forces at work in the industry assessed, and it is not unlikely that defendants will reveal sources of actual and potential competition and can be relied upon to present in evidence market shares of their own. All this may not produce market shares of watch-like precision, but those laid before the judge will have undergone considerable purification.

Conclusion

The course of antitrust has been erratic and unpredictable. But one of the discernible trends in recent years has been toward laying considerable stress on the relevant market and the defendant's market share. These issues loomed large in the *Aluminum*,[29] *American Tobacco*,[30] *DuPont Cellophane*,[31] *Dupont-General Motors*,[32] and *United Shoe Machinery*[33] cases, and are now highlighted in some thirty-three pending section 7 proceedings.[34] Factors other than these condition antitrust decisions, and no doubt will continue to do so. With this there should be no major quarrel. But economics relies heavily on the structural aspects of the market to differentiate among the various degrees of monopoly and competition. The Sherman Act and section 7 of the Clayton Act are cast in this economic language, and for decades both have stood in need of quantitative policy guides. It would therefore seem to follow that shares of the market in the hands of respondents are highly relevant to ascertaining monopoly and tendencies toward it. Calculations of such shares will always be affected by the judgment of those who calculate them, and hence will be subject to debate. But I seriously doubt that judgments on the dynamic aspects of the industry, the role of potential competitors, the state of business rivalry, and other such market facts will be any less so.

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29. United States v. Aluminum Co. of America, 148 F.2d 416 (2nd Cir. 1945).
30. American Tobacco Co. v. United States, 328 U.S. 781 (1946).
31. United States v. E. I. Du Pont de Nemours & Co., 351 U.S. 377 (1956).
32. United States v. E. I. Du Pont de Nemours & Co., 353 U.S. 586 (1957).
33. United States v. United Shoe Machinery Corp., 110 F. Supp. 295 (D. Mass. 1953), *aff'd per curium*, 347 U.S. 521 (1954).
34. Markham, *Merger Policy Under the New Section 7: A Six-Year Appraisal*, 43 Va. L. Rev. 489 (1957).