

**The Market Concentration Doctrine: An Examination of Evidence and a Discussion of Policy** by Harold Demsetz reviews the evidence bearing on the belief that concentration of an industry's output in a few firms is a source of both monopoly power and inflation. New evidence challenges the validity of this doctrine, he finds. Further, his analysis of intra-industry profit rates indicates that the biggest firms in concentrated industries produce more efficiently than the smaller firms. The author suggests that these findings indicate a need for caution when considering change in present antitrust policy. He concludes that altering this policy by adopting industry structure as the determining factor in the initiation of divestiture proceedings, as is proposed in the report of President Johnson's Task Force on Antitrust Policy and in Senator Phillip A. Hart's industrial reorganization bill, cannot be justified by existing theory or evidence. Such a change would be likely to result in higher costs of production and higher prices.

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# THE MARKET CONCENTRATION DOCTRINE

An examination of evidence and a  
discussion of policy

Harold Demsetz



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# THE MARKET CONCENTRATION DOCTRINE

## Summary

This study examines empirical work bearing on the validity of the market concentration doctrine and discusses the implications of this work for public policy. The doctrine that is the focus of this study holds that the structure of a market gives a reliable index of monopoly power—more specifically, that monopoly power is associated with the degree to which the output of an industry is concentrated in a few firms. Market concentration has been linked through this doctrine to price inflexibility and inflation as well as to monopoly power. The doctrine underlies recent proposals, such as Senator Philip A. Hart's industrial reorganization bill, for altering the policy of this nation toward business.

A consistent pattern seems to emerge from the review of past studies and from new data presented in this study. Whereas older studies have found empirical support for the market concentration doctrine, newer studies have not. In the latter, correlations between market concentration and various measures of monopoly power turn out to be less persistent and considerably weaker or even nonexistent than in the earlier work. New data also indicate strongly that the productive efficiency of large firms relative to that of small firms is correlated with market concentration. This suggests that a policy of compulsory deconcentration of concentrated industries, a policy close to that proposed in the Hart bill, would be likely to reduce productive efficiency in those industries.

## 1. Introduction

The belief is widespread that a reliable index of monopoly power can be obtained by measuring the degree to which the output of an industry is produced by a few firms. This doctrine—the market concentration doctrine—seems to be gaining influence in both the courts and the Congress at a time when new studies are raising doubts about its validity. Such an anomaly suggests the need for a reexamination of this doctrine. Two general conclusions emerge from this study: (1) The balance of the evidence no longer clearly supports the market concentration doctrine. (2) Evidence suggests that an attempt to break up large firms in concentrated markets, solely because these markets are concentrated, is likely to reduce productive efficiency.

Little attention was given to the market concentration doctrine prior to the turn of the century except perhaps in the case of railroads. The Sherman Act, passed in 1890, was directed not toward *de facto* market concentration but toward *acts* of monopolization and restraint of trade. It was not until the thirties that the doctrine played a prominent role in public policy matters. During that decade, there were many in the Roosevelt administration who believed that market concentration of the degree that they thought they observed was incompatible with effective competition, and who considered monopoly power to be a significant factor in explaining the severity and length of the Great Depression.

This last notion fell victim to the Keynesian juggernaut, for Keynes's theory offered policy makers a different explanation of business fluctuations. Keynesianism was followed by a rebirth of monetarism during the forties and fifties, and the continuing debate between these two schools of thought diverted attention from the market concentration doctrine insofar as aggregative economic activity was the issue. Lately, however, some policy makers and investigators have resurrected the doctrine to explain the alleged inability of monetary and fiscal policies to control inflation.

The premise that an important link exists between market concentration and business fluctuations was clearly stated by Senator Philip A. Hart when he introduced his bill to create an Industrial Reorganization Commission charged with responsibility for restructuring industries.<sup>1</sup>

<sup>1</sup> S. 3832, 92nd Congress, 2nd session (July 24, 1972); reintroduced as S. 1167 in the 93rd Congress, 1st session (March 12, 1973).

The bill's preamble proclaims unquestioning acceptance of the relationship between monopoly power, market concentration, and business fluctuations.

The Congress finds and declares that (1) the United States of America is committed to a private enterprise system and a free market economy, in the belief that competition spurs innovation, promotes productivity, preserves a domestic society; and provides an opportunity for a more equitable distribution of wealth while avoiding the undue concentration of economic, social, and political power; (2) the decline of competition in industries with oligopoly or monopoly power has contributed to unemployment, inflation, inefficiency, and underutilization of economic capacity, and the decline of exports, thereby rendering monetary and fiscal policies inadequate and necessitating Government market controls subverting our basic commitment to a free market economy.

The appeal of the market concentration doctrine has been more consistent in the narrower field of antitrust law. President Johnson's task force on the antitrust laws called for a Concentrated Industries Act that, in effect, would have deconcentrated large industries in which four or fewer firms had an aggregate market share of 70 percent or more. This was needed, in the opinion of the task force, because market concentration reduces "the difficulty of maintaining collusive behavior" and tends to produce "effects equivalent to those of collusion . . . even in the absence of collusion."<sup>2</sup> These same considerations play an important role in the Hart bill which seeks to establish 50 percent as the measure of concentration that would trigger divestiture proceedings.

Such calls for stronger legislation reveal a dissatisfaction on the part of the petitioners with the role given to the market concentration doctrine in existing antitrust law. In general, the courts have refused to interpret the Sherman Act so as to make market concentration the dominating consideration in antitrust cases. Although some recent cases have tended to rely heavily on the doctrine, there has not yet been any successful attempt to harden such acceptance into firmly held legal precedent or into legislation. The growing strength of the doctrine is reflected in the jawboning about steel prices during the 1960s, the advent of peacetime wage and price controls, the Kefauver hearings

<sup>2</sup> U.S. Congress, Senate, Subcommittee on Monopoly of the Senate Select Committee on Small Business, *Role of the Giant Corporations* (Washington, D. C.: U.S. Government Printing Office, July 1969), p. 873.

during the decade of the fifties and now the Hart bill, which seems, in part, an outgrowth of those hearings.

These developments suggest a serious and growing attachment to the market concentration doctrine. Currently, part of this support probably stems from the desire to divert responsibility for failures in economic policies, especially with respect to using the doctrine to support the demand for price controls. But this type of support for the doctrine would not be politically viable in the absence of widespread acceptance for the notion that market concentration and monopoly power are linked. The major part of this monograph, section 2, examines the older empirical sources of this belief, reviews recent developments, and presents new evidence bearing on the validity of the doctrine. Policy problems are discussed briefly in section 3.

## 2. Empirical Examination of the Doctrine

The most important sources of the market concentration doctrine are in empirical work done by Gardiner Means and Joe Bain during the 1930s and 1950s, respectively. Means dealt with price flexibility, inflation, and concentration. Bain's studies were concerned with the basic linkage between concentration and monopoly power. Support for the market concentration doctrine became widespread only after these works confronted economists with empirical relationships between market concentration on the one hand and prices and profits on the other that seemed to challenge the notion, then prevalent, that there was little to fear from an industry in which control was dispersed among separate firms, even when very few firms competed in the industry. Prior to World War II, most economists shared a conviction that effective competitive forces would be unleashed by rivalry among even a small number of firms. Leading students of the problem, such as Eliot Jones, J. B. Clark, and A. S. Dewing, subscribed to this conviction, even though some economists of the time, such as Henry C. Simons, were somewhat less confident about the strength of competition in concentrated industries. But if there existed some concern about market concentration, it was not held with such certainty that it was included in standard classroom fare.

**Price Flexibility.** The doctrine associating market concentration with monopoly power began to gain strength after Gardiner Means published

his famous 1935 monograph, *Industrial Prices and Their Relative Inflexibility*.<sup>3</sup> Means tabulated the frequency of monthly price changes from 1926 through 1933 and found that price changes were very frequent for many products but very infrequent for many others. Some prices, apparently, did not change at all during the entire period covered. Means labeled the prices that changed infrequently "administered prices." He believed these prices were unresponsive to normal alterations in demand and cost, that they were not market determined but were administratively set by corporate managements. At this stage of evidence gathering there was no explicit attempt to measure the relationship between price flexibility and degree of concentration. In later work, Means guided an effort to establish such a relationship, but a great deal of subjectivity was inevitably involved, and the results, while influential, were not fully convincing.<sup>4</sup>

*Critical response.* These findings were quickly subjected to extensive criticism. At the conceptual level, no explanation for price rigidity could be found in the theory of monopoly. Monopoly theory implied that price changes would follow changes in demand or cost. Paul Sweezy attempted to fill this gap by offering a "kinked demand curve" theory which sought to explain price rigidity in oligopolistic industries by postulating that when competitors were few they would follow price cuts but not price increases, and that this reduced the incentive to firms to alter price.<sup>5</sup> The kinked demand theory was then subjected to convincing logical and empirical criticism by George J. Stigler.<sup>6</sup>

The theory of the kinked demand curve implies that prices will be less flexible in oligopolistic markets, where the interdependence in decision making is supposedly strongest, than in monopolistic or

<sup>3</sup> Senate Document 13 (January 17, 1935), 74th Congress, 1st session.

<sup>4</sup> National Resources Committee, *The Structure of the American Economy* (Washington, D. C.: U.S. Government Printing Office, 1939), Pt. 1. The kind of subjectivity involved is revealed by the four screening criteria used to exclude certain industries from the study. Excluded from the study were industries (1) not relatively homogeneous in product, (2) for which less than one-third of the value of the product was believed to come from manufacturing, (3) whose markets were not national or international in size, and (4) where reasonably reliable data on product price were not available. Approximately only 2 percent of the then available census manufacturing industries met all four screening criteria.

<sup>5</sup> P. Sweezy, "Demand Under Conditions of Oligopoly," *Journal of Political Economy*, August 1939, pp. 568-73.

<sup>6</sup> George J. Stigler, "The Kinky Oligopoly Demand Curve and Rigid Prices," *Journal of Political Economy*, October 1947.

atomistically structured industries where interdependence should be minimal. Stigler's data reveal that industries in which a few firms compete tend to exhibit more price flexibility than industries comprised of only one or two dominant firms, contrary to the implications of the kinked demand curve but not necessarily contrary to a general inverse relationship between market concentration and price flexibility.

Alfred C. Neal found that he could explain the varying *magnitude* of price fluctuations, a phenomenon that Means saw to be correlated with the frequency of price changes, by the differences in the magnitude of cost changes in flexible and inflexible price industries. Amplitude of price decline during recessions was highly correlated with amplitude of variable cost decline, and the amplitude of cost changes did not seem to be a phenomenon that could be influenced by market structure.<sup>7</sup>

In a staff paper written for the Price Statistics Review Committee, Professor Harry McAllister discovered that the prices collected by Bureau of Labor Statistics (BLS) which were utilized by Means, were based upon differing numbers of reporting companies.<sup>8</sup> McAllister's study showed that the number of such reporters was a major factor in explaining the frequency of price change. This was true for both concentrated and unconcentrated industries. But in the bureau's price statistics the number of reporters tended to be fewer for concentrated industries than for unconcentrated industries. Hence, the differing degree of price flexibility could be attributed to this fact and not to any difference in each firm's price behavior. However, the exact method used by Means in applying Bureau of Labor Statistics data was not clearly spelled out. It has been claimed that Means "had been granted access to the reports of the BLS and had taken either the average of the number of changes reported by each of the reporters or, where the number of reporters was more than three, the number of changes by a single reporter who appeared to be typical of the group."<sup>9</sup> With this procedure, the effect of varying the number of reporters is diminished, but the procedure is so subjective that it would be difficult to assess its impact on the calculation of price frequency.

<sup>7</sup> Alfred C. Neal, *Industrial Concentration and Price Inflexibility* (Washington, D. C.: American Council on Public Affairs, 1942).

<sup>8</sup> U.S. Congress, Joint Economic Committee, *Government Price Statistics*, Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, 87th Congress, 1st session, 1961.

<sup>9</sup> John M. Blair, *Economic Concentration* (New York: Harcourt Brace Jovanovich, 1972), p. 435.

Another puzzling aspect of the subjectivity of the selection procedure used by Means in his study of the relationship between concentration and price flexibility is his exclusion of industries where less than one-third of the value of the product is believed to come from manufacturing activity. Means attempted to exclude industries whose prices are influenced by fluctuations in the prices of raw materials: "Thus the price of beef is dominated by the price of cattle so that the depression sensitivity of the price of cattle is transferred in large part to the price of meat, and a comparison between the sensitivity of meat prices and concentration in the meat-packing industry is misleading."<sup>10</sup> Since the administered price thesis asserts that management in concentrated industries can stabilize price fluctuations in the face of cost fluctuations, a comparison between price behavior in the meat-packing industry, which is highly concentrated, and meat prices would not seem to be out of order. An examination of prices and concentration for all the 282 industries from which Means drew his 37 after applying his selection procedures reveals a much looser and less convincing relationship between price inflexibility and concentration.

In a recent study by Stigler and Kendahl, it was found that the prices used by the BLS underestimated the frequency of price change and overestimated the correlation of this frequency with market concentration. The bureau relied upon prices openly asked by sellers but Stigler and Kendahl collected prices actually paid. Their price series exhibited more flexibility than the prices collected by the bureau for comparable industries.<sup>11</sup>

Where Means found a loose relationship between concentration and the failure of prices to decline, others saw little relationship. The methodology and data used on both sides of the issue have been criticized, and the important conclusion to be drawn from all this is that the issue is far from resolution. There is as yet no reason to elevate the findings of either side to the status of a scientifically established result. Work in this area does not yet offer a solid base upon which to construct legislative programs.

<sup>10</sup> National Resources Committee, *Structure of the American Economy*.

<sup>11</sup> George J. Stigler and James K. Kendahl, *The Behavior of Industrial Prices*, National Bureau of Economic Research (New York: Columbia University Press, 1970).

*Inflation.* During the decade of the 1950s, the controversy about administered prices shifted from the issue of price flexibility to that of inflation. Means, in his appearance before the Senate Antitrust and Monopoly Subcommittee in 1958, offered evidence that administered price industries were responsible for inflationary price increases.<sup>12</sup> It is not quite clear just how closely the definition of administered price industries conformed with the degree of market concentration, and the arguments seeking to relate price behavior to market structure are so ad hoc that they frequently conflict. In the present instance, by implication, market concentration now stood accused, not of causing price changes to be too small or too infrequent, but of causing price changes to be too large (upward). Since the price inflexibility argument adopted earlier by Means alleged that prices were unresponsive to market conditions, it implied that prices in concentrated markets would fall less during deflations and rise less during inflations than would prices in unconcentrated markets. This pattern of price changes would exhibit no secular tendency for prices to increase faster in concentrated markets.

Galbraith attempted to fill the theoretical gap by suggesting that there existed an "unliquidated monopoly gain" in concentrated markets during periods of rapidly increasing demand. He argued that in concentrated industries where prices are administered, the "administrators" cannot administer them quickly enough to keep pace with changing market conditions. But, Galbraith's notion of unliquidated monopoly gains would seem incapable of yielding a more rapid *secular* increase of prices in concentrated markets because these markets would also lag in their adjustments to rapidly increasing demand. Prices would be more stable over a business cycle in concentrated markets, but from one cycle to another there would be no difference in the rate of price change between concentrated and unconcentrated markets. Explanations of even a more ad hoc nature have been offered. These invoke assumptions about the adjustment of target rates of return, weakness in the face of union demands for wage increases, and so forth, to explain the asserted relationship between market concentration and inflation.<sup>13</sup>

<sup>12</sup> U.S. Congress, Senate, *Hearings on Administered Prices Before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary*, 1958, Parts I, IX, and X.

<sup>13</sup> Cf. John M. Blair, "Administered Prices: A Phenomenon in Search of a Theory," *American Economic Review*, May 1959.

However, is there a statistical phenomenon that requires explanation?

The relationship between price flexibility (not market concentration) and secular price changes is far from clear. Work done by the Bureau of Labor Statistics indicates that commodities exhibiting moderate price flexibility had larger price increases after 1947 than did commodities with either less or more price flexibility.<sup>14</sup> The relationship between market concentration and price change has been studied by Horace J. DePodwin and Richard P. Seldon,<sup>15</sup> Leonard W. Weiss,<sup>16</sup> and Louis Philips.<sup>17</sup>

After examining a large sample of census industry and product classes for the years 1953-1959, DePodwin and Seldon concluded that, at most, only about 9 percent of price change can be explained by market concentration. They found the relationship between price change and concentration to be very weak for data derived from a sample of 322 five-digit Standard Industrial Classification (SIC) product classes. Their study examined various permutations of the sample and estimated both linear and nonlinear forms of regression equations.

Weiss modified the DePodwin-Seldon study by including variables measuring cost and demand for 81 four-digit industries. His intent was to discover whether a price change-concentration correlation was obscured by shifts in demand and cost. He found that concentration and price changes were positively related for the years 1953-59, but that they were unrelated for 1959-63. Weiss explained the correlation during 1953-59 as a delayed reaction to the great inflations of the decade of the 1940s and the lack of correlation in 1959-63 by the fact that the industries with important market power were quite fully exploiting their market positions by the end of the 1950s. Such an explanation seems to support the view that no long-run secular relation exists between concentration and price change.

<sup>14</sup> U.S. Department of Labor, Bureau of Labor Statistics, Report No. 142.

<sup>15</sup> "Business Pricing Policies and Inflation," *Journal of Political Economy*, April 1963, pp. 116-127.

<sup>16</sup> "Business Pricing Policies and Inflation Reconsidered," *Journal of Political Economy*, April 1966, pp. 177-187. A more recent study of this problem by Weiss can be found in the Appendix to the statement of Richard W. McLaren before the Joint Economic Committee, July 10, 1970.

<sup>17</sup> "Business Pricing Policies and Inflation—Some Evidence from E.E.C.," *Journal of Industrial Economics*, November 1969, pp. 1-14.



An explanation of the difference in price behavior during these two time periods can be based on the attempt to control prices during the Korean War. In general, it is easier to police price controls for industries in which output is concentrated in a few firms and for industries, many of which are concentrated, that produce homogeneous basic raw materials. The period 1953-1959 would then reflect a more rapid rise in the prices of products produced in concentrated industries only because these industries, relative to less concentrated industries, experienced a release from tighter price controls during the war. The period 1959-1963 would be unaffected by this phenomenon, and it is for this period that Weiss found no correlation between price change and concentration in his first study. His more recent study of this problem tends to confirm the absence of any general or persistent relationship between inflation and market concentration.

Philips tested for such a correlation using data for countries belonging to the European Economic Community. He discovered that the relationship between price change and market concentration was either negative or insignificant.

*Summary.* There does not exist any broad statistical support for the assertion that inflation and market concentration are linked. And, as with the analysis of price flexibility, no generally accepted theoretical link between inflation and market concentration has been offered.

The discussions attempting to link either price inflexibility or inflation to market concentration have been largely concerned with the relationship between price behavior and monopoly power. The implicit presumption is that market concentration *is* a measure of monopoly power. Largely lost in this literature is the question of whether monopoly power and market concentration can be equated—for, even if price in concentrated industries *should* prove to be less flexible or *should* experience more rapid secular increases, there exist potential theoretical explanations for these phenomena that have little to do with monopoly power. Such explanations could be based on the differential behavior of costs in concentrated and nonconcentrated markets (as Alfred C. Neal's work seems to suggest), on the differing degree to which cost minimizing production requires the extensive use of inventories, or on the reasonable supposition that a firm's unit and marginal costs are less dependent on rates of output in concentrated markets than they are in unconcentrated ones. The fact that a market is unconcentrated strongly suggests that

the unit and marginal costs of firms increase rapidly with output. Similarly, the very fact of concentration suggests that wide variations in output are unlikely to yield marked changes in marginal cost. The relationship between market concentration and monopoly power is, therefore, an important unsettled theoretical issue.

**Concentration and Profits.** The premise that there is a link between concentration and monopoly rests largely on quantitative studies published during the fifties and early sixties. The empirical basis for this premise, together with a more recent statistical work that challenges this premise, is examined next.

*Older work.* The link between market concentration and monopoly power, which to this day has not been forged theoretically,<sup>18</sup> began to take shape in 1951 when Joe S. Bain published his study of the relationship between profit rates and market concentration during 1936-1940 for manufacturing industries in the United States.<sup>19</sup> Bain hypothesized that profit rates would tend to be correlated with the degree of market concentration because concentration of output is likely to facilitate collusion. Somewhat cautiously, with reservation, Bain found this hypothesis confirmed in his analysis of 42 selected industries. The basic relationship between the variables that Bain uncovered is exhibited in Table 1. (This table incorporates corrections made by Bain subsequent to the publication of his article.)

Bain found that for the group of "highly concentrated" industries—those industries in which the eight largest firms accounted for 70 percent or more of value added—the mean profit rate was 11.8 percent. For the other industries, the low concentration group, the mean profit rate was only 7.5 percent. This large a difference was not thought to be very likely as a chance occurrence. However, a glance at the table reveals a

<sup>18</sup> George J. Stigler, in his article "A Theory of Oligopoly," *Journal of Political Economy*, February 1964, relates the ease with which firms can successfully police a collusive arrangement to the degree to which the market is concentrated. He deduces that it takes relatively few firms to substantially increase the probability that the collusive arrangement will tend to break down. Stigler's theory gives no attention to the problem for collusion created by the threat of entry. The potential competitor should be an important force for weakening any relationship between market concentration and collusion that might otherwise exist.

<sup>19</sup> Joe S. Bain, "Relation of Profit-Rate to Industry Concentration: American Manufacturing, 1936-1940," *Quarterly Journal of Economics*, August 1951, pp. 293-324.

**Table 1**  
 AVERAGE OF INDUSTRY AVERAGE-PROFIT RATES  
 WITHIN CONCENTRATION DECILES,  
 42 SELECTED INDUSTRIES, 1936-1940

% of Value Added Supplied by 8 Largest Firms	Average of Industry Average-Profit Rates	Number of Industries
90—100.0%	12.7%	8
80— 89.9	9.8	11
70— 79.9	16.3	3
60— 69.9	5.8	5
50— 59.9	5.8	4
40— 49.9	8.6	2
30— 39.9	6.3	5
20— 29.9	10.4	2
10— 19.9	17.0	1
0— 9.9	9.1	1

Source: Joe S. Bain, "Relation of Profit-Rate to Industry Concentration: American Manufacturing, 1936-1940," *Quarterly Journal of Economics*, August 1951.

relationship that does not consistently match higher profit rates to higher concentration ratios. Industries with moderate concentration tend to exhibit lower profit rates than industries with little concentration. Bain could not, and did not, draw very firm conclusions from his investigation. As he explained, the time period might have been too short to detect "equilibrium" values, the sample of industries might have been too small to be representative, the use of accounting measures of profits might have biased the results, and the calculation of rates of return based on the data of larger firms only might have given unrepresentative results. There was good reason for this cautiousness. All four of these weaknesses have played a role in more recent examinations of the relationship between market concentration and profit rates. In addition to these problems there is the difficulty of measuring concentration correctly. Virtually all studies are based on very rough approximations of market concentration because publicly available data do not allow the researcher to take adequate account of the variety of industries in which many firms operate.<sup>20</sup> The available data are collected for

<sup>20</sup> The impact of increasing the accuracy with which concentration is measured is examined by the Federal Trade Commission in its economic report on *The Quality of Data As a Factor in Analyses of Structure-Performance Relationships* (Washington, D. C.: U.S. Government Printing Office, 1971). Using data unavail-

many purposes, and, as a result, market boundaries often do not coincide with economic reality. Several measures of concentration can be used—four-firm concentration ratios, eight-firm concentration ratios, the Herfindahl index—and all of these can be measured in terms of sales, value added, assets, or employment. While recognizing many of these data and conceptual problems, Bain nevertheless did claim that: "The positive conclusion that does emerge is that there is a rather distinct break in average profit rate showing at the 70 percent concentration line and that there is a significant difference in the average of industry average profit rates above and below this line."<sup>21</sup> This conclusion stimulated much study of the relationship between concentration and profits and provided fertile ground for nurturing the belief that concentration and monopoly power are significantly linked.

The empirical relationship between market concentration and rates of return was examined again by Stigler in 1963.<sup>22</sup> He defined concentrated industries as those in which more than 60 percent of output was produced by the four leading firms. If less than 50 percent of output was produced by the four largest firms—or less than 20 percent (nationally), in the case of regional markets—he identified the industry as unconcentrated. The data, shown in Table 2, exhibited no clear pattern, and Stigler could not conclude that these data confirmed a relationship between concentration and profit rates.

Stigler tried to correct for the possibility that profits in small firms were understated because they might be partially impounded in managerial salaries. Kilpatrick, using a somewhat different time period, attempted to correct Stigler's analysis for what Kilpatrick thought was a bias in the way the salary withdrawal problem had been handled.<sup>23</sup>

able to the public, the FTC was able to construct weighted concentration measures, where the weights were based on the sales of firms in various markets. The study was limited to the food industry for the year 1950. Using these data, the FTC compared statistical results with those obtained from the use of publicly available data. Significant differences emerged. With respect to the correlation between rate of return and concentration, the private data, uncorrected for heteroscedasticity, indicated a much stronger correlation than publicly available data, but, after correcting for heteroscedasticity, the FTC found this correlation considerably weakened.

<sup>21</sup> Bain, "Relation of Profit-Rate to Industry Concentration," p. 314.

<sup>22</sup> *Capital and Rates of Return in Manufacturing* (Princeton, N.J.: Princeton University Press, 1963).

<sup>23</sup> R. W. Kilpatrick, "Stigler on the Relationship Between Industry Profit Rates and Market Concentration," *Journal of Political Economy*, May/June 1968, pp. 479-88.

**Table 2**  
**CONCENTRATION AND PROFITS:**  
**STIGLER'S ESTIMATES FOR 1938-57**

Time Interval	Profit Rate	
	14 concentrated industries	54 unconcentrated industries
1938-1941	6.51%	5.25%
1942-1944	6.23	7.68
1945-1947	7.30	10.01
1948-1950	9.11	8.02
1951-1954	6.33	5.05
1955-1957	7.05	5.44

Source: George J. Stigler, *Capital and Rates of Return in Manufacturing* (Princeton, N.J.: Princeton University Press, 1963).

Kilpatrick's study showed greater evidence of a correlation between concentration and profit rates for two of the three years that he studied. He also studied the relationship between concentration and the profit rates of larger firms in the industry, thereby eliminating the small firm problem by ignoring the small firms. With this method, a much stronger correlation seemed evident. But here Kilpatrick may have introduced a bias of his own since the rate of return to small firms is appropriately included in an accurate estimate of industry profit rates. (The impact of small firms on industry profit rates is examined below.) In a more recent and much more limited examination of 17 industries for which four-firm concentration ratios were above 60 percent, Stigler found some relationship between profit rates and four-firm concentration ratios in excess of 80 percent but not below 80 percent.<sup>24</sup>

Several additional studies of the concentration/profit relationship have been made.<sup>25</sup> Until recently, the majority of these seem to reveal

<sup>24</sup> Stigler, "Theory of Oligopoly."

<sup>25</sup> See, especially, H. Michael Mann, "Seller Concentration, Barriers to Entry, and Rates of Return in Thirty Industries, 1950-1960," *Review of Economics and Statistics*, August 1966; Norman R. Collins and Lee E. Preston, "Concentration and Price-Cost Margins in Food Manufacturing Industries," *Journal of Industrial Economics*, July 1966. Mann, a student of Bain's, segregates firms according to the height of "barriers to entry." These barriers are evaluated in a fairly subjective way, and they seem to be correlated with concentration. Moreover, it is never quite clear just why the selected measures should constitute entry barriers. But when high concentration and high "barriers" are found together, profit rates tend to be high. Collins and Preston find a positive correlation between market concentration and profit margins.

a weak, but nonetheless positive, relationship between these two variables. However three studies have appeared recently that cast doubt on the empirical relationship between concentration and profit rates.

*Recent work.* The question of the persistence over time of the empirical relationship between concentration and profit rates was not explicitly addressed until Yale Brozen attempted to find evidence to substantiate the basis on which President Johnson's Task Force on Antitrust Policy called for a Concentrated Industries Act for the purpose of reducing market concentration.<sup>26</sup> As Brozen indicated, the task force premised its recommendation on the existence of evidence showing a persistent relationship between concentration and high rates of return:

The adverse effects of persistent concentration on output and price find some confirmation in various studies that have been made of return on capital in major industries. These studies have found a close association between high levels of concentration and persistently high rates of return on capital. . . . It is the persistence of high profits over extended time periods and over whole industries rather than in individual firms that suggest artificial restraints on output and the absence of fully effective competition. The correlation of evidence of this kind with very high levels of concentration appears to be significant.<sup>27</sup>

Brozen could not find support for this claim of persistence in prior work, and he proceeded to examine the issue of persistence directly. To do this, he carried forward in time the studies by Bain,<sup>28</sup> Stigler,<sup>29</sup> and Mann.<sup>30</sup>

The reader will recall that Bain correlated concentration ratios for 1935 with rates of return averaged over the years 1936-1940. Brozen recalculated average rates of return for Bain's 42-industry sample, but used the years 1953-1957. If the 1953-1957 average rate of return is used as a benchmark, it turns out that those industries that earned relatively high rates of return in 1935 experienced a relative decline in profitability and those industries that earned relatively low rates of return

<sup>26</sup> Yale Brozen, "The Antitrust Task Force Deconcentration Recommendation," *Journal of Law and Economics*, October 1970, pp. 279-292; reprinted as AEI Reprint no. 14 (American Enterprise Institute), April 1973.

<sup>27</sup> Quoted from White House Task Force on Antitrust Policy, Report I, in *Role of the Giant Corporations*, p. 883.

<sup>28</sup> Bain, "Relation of Profit-Rate to Industry Concentration."

<sup>29</sup> Stigler, "Theory of Oligopoly."

<sup>30</sup> Mann, "Seller Concentration, Barriers to Entry, and Rates of Return."

enjoyed a relative improvement in profitability. Thus, with the passage of time there was a clear tendency for rates of return to converge to the 1953-1957 benchmark, and also for the correlation between rates of return and concentration to weaken.

Brozen also presented concentration rate of return correlations for Bain's sample for three different periods. The matrix for these correlations is shown in Table 3. Each column holds constant the year in which concentration is measured and each row holds constant the period over which rates of return are calculated. Thus, the diagonal matches the years in which concentration is calculated to the nearest contemporaneous period in which rates of return are measured. The statistical significance of the correlations is low for most combinations of the data, is somewhat higher yet not very significant for the data shown in the first cell (which reports Bain's study), and reaches significance for the last cell (which relates 1963 concentration to 1962-1966 rates of return). Two aspects of this table should be noted: (1) the overall pattern of correlation is weak, yet positive and (2) the last row indicates that the 1962-1966 rates of return were unusual in their higher correlation with concentration ratios calculated for each of the three years. This atypical characteristic of 1962-1966 plays a role in work to be presented below.

The economists who advised the Task Force on Antitrust Policy replied to Brozen's criticism of the premise underlying the task force's

**Table 3**  
COEFFICIENT OF DETERMINATION FOR  
BAIN'S 42 INDUSTRIES

Period Used for Rate of Return	Year Used for Concentration Ratio		
	1935	1954	1963
1936-1940	0.08(1.86)		
1953-1957	0.01(0.69)	0.03(1.02)	
1962-1966	0.05(1.39)	0.07(1.77)	0.14(2.54)

Note: t-values in parentheses.

Source: Adapted from Brozen, "The Antitrust Task Force Deconcentration Recommendation," p. 287.

recommendations.<sup>31</sup> They did not point to previously published work in support of the premise that the correlation between market concentration and rates of return is persistent, but suggested that Brozen should have examined industries for which market concentration was persistently high. They appended a sample of such industries and pointed out that the rate of return earned by these industries had not fallen significantly with the passage of time. When Brozen examined the industries that they offered for study, he found that the rates of return were neither significantly above average nor persistently high, for, although the rates of return for these industries did not decline absolutely with the passage of time, the average return or benchmark increased.<sup>32</sup> This again indicated a significant convergence toward the mean.

If Brozen's findings proved somewhat embarrassing to the authors of Johnson's task force report, they also proved puzzling for economics. Why did Bain's original study show a significant difference between the rates of return in very concentrated industries and those in other industries? Brozen demonstrated that this difference was not persistent. Yet, why should the 1936-1940 period that was used by Bain exhibit such a marked difference when compared to subsequent time periods?

Brozen was to answer this puzzle in his second major paper on the subject.<sup>33</sup> Bain had used only 42 out of 340 industries for which Census of Manufacturing data were available. The particular data in which Bain was interested, concentration and profit data, were available for only 149 of these because he limited his source of profit data to firms reported by the Securities and Exchange Commission (SEC). On other grounds, such as poorly defined markets, another group of industries was deleted. Finally, since SEC profit data were available for more than two firms in only some of the remaining industries, the sample was reduced to 42 industries. Brozen was able to enlarge the sample size on the basis of information not available when Bain did his study. The new sample included more than 80 industries and, in some industries, it also included more firms. The new sample failed to reveal the correlation between concentration and profits found by Bain for the

<sup>31</sup> P. W. MacAvoy, J. W. McKie, and L. Preston, "High and Stable Concentration Levels, Profitability, and Public Policy: A Response," *Journal of Law and Economics*, October 1971, pp. 493-500.

<sup>32</sup> Yale Brozen, "The Persistence of 'High Rates of Return' in High Stable Concentration Industries," *Journal of Law and Economics*, October 1971, pp. 501-512.

<sup>33</sup> Yale Brozen, "Bain's Concentration and Rates of Return Revisited," *Journal of Law and Economics*, October 1971, pp. 351-369.

**Table 4**  
CONCENTRATION AND RATES OF RETURN <sup>a</sup>

Four-Firm Sales Concentration Ratios (1963 or 1970) <sup>b</sup>	Rates of Return		
	1963	1969	Average of 1963 and 1969
10—20%	9.2%	9.7%	9.4%
20—30	8.4	8.3	8.4
30—40	8.7	8.4	8.5
40—50	8.3	7.9	8.1
50—60	10.1	9.2	9.6
Over 60	12.5	7.4	9.9

<sup>a</sup> Profit before taxes and interest ÷ total assets.

<sup>b</sup> 1963 concentration ratios are matched to 1963 rates of return; 1970 concentration ratios are matched to 1969 rates of return.

period of time he examined. Apparently, the estimate of industry rates of return made by Bain were not typical of the population from which he drew his sample. Brozen resolved the puzzle by discovering that there was no correlation that needed explaining.

Brozen's work has found confirmation in a recent article by Stanley Ornstein which uses multiple regression analysis to uncover the relationship between firm profit rates (measured partly by stock market data) and a set of other variables including market concentration.<sup>34</sup> Ornstein's work shows profit rates to be related significantly to industry and firm growth rates and to the minimum efficient scale of production, but *not* related significantly to market concentration. The two studies—Brozen's, which uses methods similar to those used in the studies of Bain, Stigler, and Mann, and Ornstein's, which relies on multiple regression analysis—constitute a fundamental challenge to the earlier empirical work that seemed to have established a relationship between concentration and profit rates. The degree of correlation between these variables seems very much a matter of the sample size and the time period studied.

Table 4 illustrates the sensitivity of the correlation to choice of time period. As we have already seen from Table 3, the year 1963 tends to yield an atypically high correlation. Table 4 sets forth a tabula-

<sup>34</sup> Stanley I. Ornstein, "Concentration and Profits," *Journal of Business*, October 1972, pp. 519-541.

tion of rates of return for 95 industries in 1963 and 69 comparable industries in 1969 (using 1970 Bureau of Census industry definitions and concentration ratios),<sup>35</sup> plus simple averages of the two periods. In constructing this table, four-firm concentration ratios were compared with Internal Revenue Service rate of return data at the three-digit level. Concentration is measured in terms of sales, and profit rates are measured before taxes. There seems to be a positive relationship between rate of return and concentration for 1963, but a negative relationship for 1969-70. The last column indicates no relationship. The lack of persistence in the correlation between these variables is also documented by G. Gambeles in his Ph.D. thesis.<sup>36</sup> Using Federal Trade Commission-SEC data on an annual basis for two-digit industries, Gambeles found that correlations between these variables ranged from positive to negative during the period 1947-1967. That profit rates are consistently above average in concentrated industries seems very doubtful; that they are above average more frequently in concentrated industries than in unconcentrated industries remains an open question.

*Collusion in concentrated industries.* The earlier empirical studies provided a base upon which many students of the problem constructed a rationale for linking monopoly power and concentration. This rationale asserts that fewness in the number of firms in the industry facilitates explicit or implicit collusion to restrict industry output and raise price. Recent studies, as we have seen, weaken the empirical support for this rationale. It is important to note, however, that there are reasons other than *undesirable* market power for expecting a positive correlation between profit rates and concentration. Some market concentration and some correlation of concentration with rates of return should be expected from a workable incentive system that rewards superior performance. Patents, copyrights, et cetera, are likely to produce such a correlation

<sup>35</sup> Since the official 1967 *Link* between data of the two periods was not available at the time these computations were made, employment weights from the 1963 *Link* were used to compute weighted average concentration ratios on a 1963 IRS industry basis. These concentration ratios were then weighted by business receipts for the 1963 IRS industry basis in order to estimate concentration ratios on a 1969 IRS industry basis, since the 117 IRS industries for 1963 were aggregated into 76 industries for 1969. When 1963 and 1969 data are combined or compared, the comparison is made for only 69 of the 76 IRS industries in order to maintain comparability of industries.

<sup>36</sup> G. Gambeles, "Structural Determinants of Profit Performance in United States Manufacturing Industries, 1947-1967" (Ph.D. diss., University of Maryland, 1969).

as a result of socially desirable superior performance. Superior abilities in lowering cost or in improving products, even when unpatented, are also likely to yield such correlation for nontrivial periods of time.

These sources of profit and of market share are specific to the firms that perform well, since other firms in the same industry will not share in the higher returns earned from such sources as patents and superior efficiency. But if the only source of higher profits is collusion, then higher profits should be enjoyed by all firms occupying the colluding industry; even those firms that do not participate in efforts to restrict entry and raise price should benefit from the activities of those firms that do collude.

It is possible to gain some insight into whether collusion unaccompanied by superior performance is facilitated by market concentration. This can be done by examining the correlation between concentration and rates of return for those firms that have not been successful enough to grow relatively large in their industries. High rates of return to relatively large, successful firms might be due to superior performance, but if concentration is positively correlated with the rates of return of smaller firms, then the evidence favoring the concentration/collusion hypothesis is stronger and much less ambiguous. An examination of the relationship between concentration and the rates of return of smaller firms thus reduces the likelihood of confusing collusion and superior performance.

The author has published elsewhere such correlations for 1963,<sup>37</sup> the year of atypically high correlation between industry rate of return and industry concentration. Since then, data for 1969-70 have become available, so that it is now possible to examine the evidence averaged over both periods. The data base is identical to that used in preparing Table 4 shown above. Only two entries in Table 5 hint at a positive correlation between rate of return and concentration, those for firms with assets above \$50,000,000 that operate in industries with four-firm concentration ratios in excess of 50 percent. No positive correlation between rates of return and concentration seems evident for firms under \$50,000,000 in asset size, and the smallest asset size classification, under \$500,000, shows evidence of a negative correlation. (Henceforth,  $R_1, R_2, R_3,$  and  $R_4$  signify rates of return, respectively, for the smallest

<sup>37</sup> Harold Demsetz, "Industry Structure, Market Rivalry, and Public Policy," *Journal of Law and Economics*, April 1963.

**Table 5**  
RATES OF RETURN<sup>a</sup> BY SIZE OF FIRM AND INDUSTRY CONCENTRATION

Four-Firm Concentration Ratios (1963 or 1970)	Average of 1963 and 1969 Rates of Return by Asset Size			
	Under \$500,000	\$500,000 to \$5,000,000	\$5,000,000 to \$50,000,000	Over \$50,000,000
10—20%	6.9%	9.7%	10.9%	10.2%
20—30	5.3	8.9	9.6	9.7
30—40	5.1	8.7	9.9	10.4
40—50	4.6	9.1	10.0	8.8
50—60	4.8	10.3	10.2	13.2
Over 60 <sup>b</sup>	-1.3	10.0	10.9	20.3

<sup>a</sup> Profit before taxes and interest ÷ total assets.

<sup>b</sup> Three industries.

to largest of these asset sizes.) These data thus fail to provide evidence that collusion in the absence of superior performance is easier or more successful in concentrated industries than in unconcentrated industries, for if it were, the rates of return for the three smaller asset sizes would have increased with concentration.

The 1963 and 1969-70 data can be used to make an intertemporal comparison of changes in the small-firm rate of return relative to changes in industry concentration. If concentration and successful collusion are correlated, then an increase in concentration should raise small-firm rates of return, unless there is a continuing improvement in the relative superiority of larger firms in concentrated industries. Equations (1) and (2) provide some evidence that this is not what happens. Equation (1) regresses the change in the small-firm profit rate from 1963 to 1969,  $R_{1,69} - R_{1,63}$ , on the change in the four-firm concentration ratio from 1963 to 1970,  $C_{70} - C_{63}$ , and on the change in business receipts,  $BR_{69} - BR_{63}$ . The change in business receipts is included to help take account of any effect on profit rates that might accompany a change in the value of business done by an industry. The intertemporal comparison is made for 69 comparable industries.

$$R_{1,69} - R_{1,63} = -.0246 - .00067(C_{70} - C_{63}) + .00442(BR_{69} - BR_{63}) \quad (1)$$

(.00184)                      (.001)

$r^2 = .24$ ; standard error shown in parentheses

The coefficient of the change in concentration variable indicates that the rate of return to small firms does not increase when concentration increases, contrary to what the concentration/collusion hypothesis would imply.

Equation (2) attempts to standardize on the change in industry profitability by measuring the small firm rate of return *relative* to the industry rate of return. The difference between this measure of relative profitability between 1969 and 1963 is regressed on the change in concentration over the same period.

$$\left(\frac{R_1}{R}\right)_{69} - \left(\frac{R_1}{R}\right)_{63} = .28 - .0445 (C_{70} - C_{63}) \quad (2)$$

(.0296)

$r^2 = .032$ ; standard error shown in parentheses

An increase in concentration does not seem to bring with it an increase in the small-firm profit rate. There is more than a hint that increased concentration reduces the small-firm profit rate, a result that is consistent with the notion that continued improvement in the competitive superiority of large firms is what causes concentration to increase.

*The danger from deconcentration.* The data strongly suggest that the relatively large firms in concentrated industries produce at lower cost than their smaller rivals. It is difficult to explain how large firms in concentrated industries earn rates of return significantly higher than small firms in the same industries without attributing superior performance to the larger firms (whether or not collusion becomes easier in more concentrated markets). The evidence revealing such superior performance is presented in a more systematic manner in Tables 6 and 7.

Table 6 shows the regression equations relating the *difference* between profit rates of the largest firms and profit rates of the smaller firms. The rate of return for firms in the largest size class shown in Table 1 is labeled  $R_4$ . The rate of return for the next largest size by  $R_3$ , and, so on down to  $R_1$ , the rate of return for the smallest size class. These equations show how the relative profitability of large firms increases with concentration. The behavior of the data revealed by these equations is so systematic that it is difficult to dismiss the notion that large firms in concentrated industries operate more efficiently than small firms.

Table 7 shows the correlations between rate of return and concentration for 116 IRS industries at the three-digit level. The data

**Table 6**  
EQUATIONS RELATING DIFFERENCE BETWEEN LARGE- AND  
SMALLER-FIRM PROFITABILITY TO FOUR-FIRM  
CONCENTRATION RATIOS, 1963

$$R_4 - R_1 = -1.4 + .21^*C_{63} \quad (.07)$$

$$R_4 - R_2 = -2.6 + .12^{**}C_{63} \quad (.06)$$

$$R_4 - R_3 = -3.1 + .10^{**}C_{63} \quad (.05)$$

Note: \*, \*\* significant at the 1 percent and 5 percent levels respectively. Standard errors shown in parentheses.

**Table 7**  
CORRELATIONS BETWEEN RATE OF RETURN <sup>a</sup> AND  
CONCENTRATION BY ASSET SIZE OF FIRMS,  
1963 IRS DATA

Asset Size (\$ thousands)	Correlation Coefficient
50 or less	-.12
50—100	-.24
100—500	-.05
500—1,000	+.20
1,000—2,500	-.03
2,500—5,000	-.10
5,000—10,000	+.06
10,000—25,000	+.11
25,000—50,000	+.09
50,000—100,000	+.03
100,000—250,000	+.21
250,000 and up	+.21

<sup>a</sup> Profit before taxes and interest ÷ total assets.

are for 1963. Except for the larger sample size, these data are essentially those shown in Tables 4 and 5, but exhibited in a different way. Table 7 again reveals the positive correlation between rate of return and concentration *for the larger firms*. The table also shows a negative correlation between rate of return and concentration *for the smaller*

firms, the opposite relationship from that which is implied by the hypothesis that collusion, in the absence of superior performance, is more successful in concentrated industries.

Data for 1969-70, which have just become available through the Research Program in Competition and Business Policy of the University of California at Los Angeles, confirm these results. For example, regression equation (3) below relates the difference between large and small firm rates of return to the level of concentration. The number of industries is 69, given the new IRS industry definitions. (Not all industries could be used because a few had no firms in one of the two asset-size classes used.)  $R_4$  and  $R_1$ , respectively, again represent the rate of return for firms above \$50,000,000 and below \$500,000 in asset size.

$$(R_4 - R_1)_{69} = -0.048 + 0.0031 C_{70} \quad (3)$$

(.0007)

The coefficient of  $C_{70}$ , the four-firm 1970 concentration ratio, is even more significantly positive than is the coefficient found earlier for 1963 data. This stronger result may stem from the new aggregation procedures and industry definitions used by the IRS in 1969, or it may be caused by the fact that concentration is measured for 1970 and profit rates for 1969.

Similarly Table 8, reporting 1969-70 data, confirms the 1963 pattern. The only positive correlation between profit rates and concentration is for larger firms, and there is a suggestion of a negative correlation for smaller firms.

Given these data, it seems likely that an attempt to deconcentrate industries will redistribute output away from the more efficient firms to the less efficient firms.

*Summary.* Quantitative work on the market concentration/collusion hypothesis can be summarized as follows. Earlier studies found a small but significant correlation between market concentration and selected measures of "industry" profit rates, but more recent work fails to confirm these results. If there is a relation between these variables, it would seem to be weaker and less stable than older studies seemed to suggest. When some *subset* of industries does exhibit a correlation between concentration and profits, the relation does not persist for more than a few years.

**Table 8**  
CORRELATIONS BETWEEN RATE OF RETURN<sup>a</sup> AND  
CONCENTRATION BY ASSET SIZE OF FIRMS,  
1969 AND 1970 DATA

Asset Size (\$ thousands)	Correlation Coefficients
Under 10	-.09
10—25	-.10
25—50	-.40
50—100	.00
100—250	-.14
250—500	-.23
500—1,000	-.09
1,000—2,500	-.07
2,500—5,000	-.27
5,000—10,000	.00
10,000—25,000	-.06
25,000—35,000	-.05
35,000—50,000	+.20
50,000—100,000	+.05
Over 100,000	+.24

<sup>a</sup> Profit before taxes and interest ÷ total assets.

The concentration/collusion hypothesis implies that higher profit rates should be earned by those smaller firms that operate in the more concentrated industries than by those that operate in the less concentrated industries. No positive correlation between market concentration and the profit rates of smaller firms can be found, whether looked for in a cross-section or a time series analysis.

The data show a negative correlation between small-firm profit rates and concentration, but a positive correlation between these variables for large firms. This might be part of the source of the positive relationship between "industry" profits and concentration thought to be found by earlier studies. These older studies mainly selected only large-firm profit rates as a measure of industry profit rates. When smaller firms are included in this reckoning, the positive relationship loses significance or disappears.

The divergence between large- and small-firm profit rates, since it increases as concentration increases, indicates that the relative competi-



tive superiority of large firms grows more significant as concentration increases. This suggests that there is considerable danger that productive efficiency will be undermined if public policy should veer toward greater reliance on the market concentration doctrine.

### 3. Policy

The conclusions that seem to emerge from recent studies are that (1) the cost advantage of large firms relative to small firms increases as market concentration increases and (2) if there is a tendency for collusion to be more effective as market concentration increases, it cannot be detected either in the profit rates of small- or middle-size firms or in the *persistence* of any significant positive relationship between industry profit rates and market concentration. These findings do not augur well for adoption of the market concentration doctrine as a guide for reformulating antitrust law. An attempt to deconcentrate industries by tying divestiture to an index of market concentration seems more likely to reduce industrial efficiency than to improve the accuracy with which monopoly power is attacked. The findings of the recent studies described above make it difficult to rationalize on empirical grounds the adoption of the concentration/collusion hypothesis as the guiding doctrine of antitrust policy.

Nor can an appeal to theory easily support such a policy. The structural assumptions of the monopoly and competition models have been grasped as approximations of actual market structures because economic theory provides no general explanation of how monopoly power is acquired or how competition is avoided. What is called the theory of monopoly is an explanation of how market power will be exercised *once* obtained. In the absence of a theory of how monopoly power is acquired, there has been an irresistible inclination among economists to identify real world monopoly power with the structural postulate of the monopoly model—the one-firm industry. It is but a short step from this to the conviction that market concentration is an index of monopoly power.

The monopoly model assumes a one-firm industry, and the competitive model a many-firm industry. But these assumptions are properly treated as thought-facilitating devices and not as *descriptions* of real monopoly and competition. The single firm in monopoly theory

is not to be understood as a description of the structure of a real monopoly but as a proxy for the statement that “for the purpose of the problem at hand, competitive behavior can be ignored.” Competitive behavior can be unimportant even though there are many firms, such as in a smoothly working cartel or labor union. Similarly, the many-firm assumption of the competition model is to be thought of as a proxy for the statement that “for the purposes at hand, monopoly power can be ignored,” rather than as a description of the structure of a competitive industry. The structure of the industry tells us more about cost conditions and the distribution of talent in an industry than it does about monopoly power.

The distinction between superior ability and undesirable monopoly power, both of which may be associated with market concentration, has been maintained throughout much of antitrust history. Often the distinction has been articulated poorly. Sometimes reasonable behavior has been equated with noncompetitive, gentlemanly behavior. But through the noise there filters a basic and more correct attempt to distinguish between the superior ability that may lead to profits and the collusion that may do likewise.

The common law precedents upon which the Sherman Act is based maintain a distinction between the fixing of price through explicit collusive activity and the *possible* control of price through market concentration. This distinction has been maintained, albeit without great consistency, in our antitrust laws and the interpretation of these laws in the courts. The market concentration doctrine, however, has made some headway. The Alcoa and Tobacco decisions (1945 and 1946 respectively)<sup>38</sup> ran contrary to common law tradition, but objectionable conduct seems to have influenced these decisions considerably. There have also been recent cases, such as the Philadelphia Bank case (1963)<sup>39</sup> and the Von's Shopping Bag case (1966),<sup>40</sup> that have been influenced by the doctrine. However, most of the legal decisions involving the Sherman Act have been guided by the Rule of Reason articulated by the Supreme Court in 1911:

Thus not specifying but indubitably contemplating and requiring a standard, it follows that it was intended that the standard

<sup>38</sup> United States v. Aluminum Co. of America, 148 F. 2d. 416 (2d Cir., 1945) and American Tobacco Co. v. United States, 325 U.S. 781 (1946).

<sup>39</sup> United States v. Philadelphia National Bank, 374 U.S. 321 (1963).

<sup>40</sup> United States v. Von's Grocery Co., 384 U.S. 270 (1966).

of reason which had been applied at the common law and in this country in dealing with subjects of the character embraced by the statute, was intended to be the measure used for the determining whether in a given case a particular act had or had not brought about the wrong against which the statute provided.<sup>41</sup>

Since the growth and prosperity of firms is in general held to be a desirable development and since the fact of concentration is not an *act* taken by firms, the courts have generally held that market concentration is not in and of itself a violation of this nation's antitrust laws. On the other hand, price fixing—even the attempt by firms to collude in the setting of price—is an *activity* that is regarded as illegal *per se*.

The distinction is not difficult to rationalize. Arguments that society would benefit from a general tolerance of price agreements between rival firms are not persuasive. Such arguments have been made, based mainly on the desirability of ending "chaotic" conditions in certain markets. On some occasions these arguments have carried weight in rationalizing a governmental role in the pricing of commodities and services, particularly where the prices of agricultural commodities or labor services have been the central concern. Nonetheless, the basic legal position applicable to the operation of *business in general*, to which exceptions in *particular lines of activity* might be made through special legislation, has been that collusive price fixing is socially undesirable while large firm size is not necessarily undesirable even though such size may confer to the firm some power over price.

This difference in treatment can be made to rest squarely on both the belief that there are important social benefits to be secured from encouraging firms to seek prosperity and growth and the implicit faith that competition will work its way in the absence of collusive practices. Relatively large firms may enjoy lower cost because of their scale, or they may have become and remained dominant in the face of competition precisely because they do a better job than rivals in serving their customers. Divestiture *because of size or concentration* runs the risk of incurring social costs that exceed the possible gains from reducing any control over price that *might* be enjoyed by large firms.

Although attempts to harden the market concentration doctrine into firmly held legal precedent or legislation have not yet succeeded, the Hart bill represents a serious move to make this doctrine the law

<sup>41</sup> Standard Oil Co. v. United States, 221 U.S. 1 (1911).

of the land. The bill's preamble proposes that the Congress endorse the market concentration doctrine. The bill seeks to implement policies that go far beyond present law and even beyond the policies sought by President Johnson's Task Force on Antitrust Policy. That task force called for enabling legislation to deconcentrate large industries in which four or fewer firms have an aggregate market share of 70 percent or more for a specified time period. The Hart bill would establish a rebuttable presumption that monopoly power was possessed and that reorganization of the industry was called for when four or fewer firms accounted for 50 percent (or more) of sales in any line of commerce in any section of the country in any year of the most recent three years preceding the filing of the complaint. Other conditions creating rebuttable presumptions of monopoly power would be an average rate of return above 15 percent on equity after taxes for any corporation over a period of five consecutive years out of the most recent seven years preceding the filing of the complaint, or the absence of substantial price competition among two or more corporations in any line of commerce for a period of three consecutive years out of the most recent five years preceding the filing of a complaint.

Many objections can be raised to these presumptions. If they prevail, how will markets be defined for measuring concentration? The definitions underlying the empirical studies discussed above are associated closely with Census Bureau and Internal Revenue Service classifications. This is almost a necessity if the student of industrial organization wishes to work with large masses of data, but it would hardly be a desirable system of classifying markets for the purpose of divestiture proceedings. The attention given to the definition of markets in many antitrust cases and the arguments about these definitions are ample refutation of the notion that concentration ratios are simple objective measures. When profit rates are measured, should research and advertising expenditures be treated as depreciable assets or current expenses? Should adjustments be made for risk? For the newness of the product? How is the degree to which prices are competitive to be determined in the absence of evidence of collusion? Does identicalness of price mean the same thing when products are highly substitutable as it does when products are not? How is substitutability to be determined other than by the identicalness of prices? Will a firm raise price so as to reduce its sales when it confronts the possibility of pushing the industry beyond a 50 percent concentration ratio, or when its profit rate is likely to

exceed 15 percent? Will this tend to increase efficiency or will it lead to greater shares of output being produced by less efficient firms?

These are difficult questions to answer, and they make the rebuttable burden that the Hart bill would place upon firms in concentrated industries or firms with high profit rates an onerous one. These ambiguities and complexities underscore the primary objection to legislation of the sort proposed by that bill. At present, there simply is no substantial or convincing support—empirical or theoretical—for the market concentration doctrine.

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