CORPORATE BIGNESS AND DIVERSIFICATION IN MANUFACTURING

CHARLES H. BERRY*

The author raises questions regarding the relevance of corporate growth in analyzing economic performance in manufacturing, and reasons that the implications of corporate concentration depend on changes in degree of market power associated with individual manufacturing industries, and not simply size structure. His vehicle of analysis focuses on interaction among large firms, and he simultaneously attempts to develop tentative measures of industrial stability not heretofore given precise consideration.

There is little doubt that the largest American manufacturing corporations have increased their relative share of domestic manufacturing activity during the past fifteen years. That conclusion holds, to a greater or lesser degree, regardless of the measure of corporate size on which the comparison is based. The most dramatic evidence is provided by recent tabulations of the Bureau of Census: the share of total value added in manufacturing accounted for by the largest 200 manufacturing corporations rose from 30 percent in 1947 to 41 percent in 1963.[1] This is an increase of more than 35 percent. Other sources show a smaller increase, and some comparisons are provided below.

The purpose of this paper, however, is not to discuss alternative measures of big business growth, but to raise questions regarding the relevance of big business growth to the analysis of economic performance in manufacturing, and to suggest aspects of that growth which are deserving of attention. Some highly tentative empirical findings are included to illustrate the argument and indicate the nature of the work that needs to be done.

An increasing concentration of business power, typically defined in

---

1 Subcomm. on Antitrust and Monopoly, Senate Comm. on the Judiciary, Concentration Ratios in Manufacturing Industry, 1963, 89th Cong., 2d Sess., pt. 1, Table 1A, at 2 (1966).

terms of the degree of concentration of corporate assets, is believed by some spokesmen to be a development against which policy instruments should be brought to bear.[2] But it happens not to be an aspect of economic structure central either to the interpretation of existant antitrust statutes, or, for that matter, to the traditional analysis of economic behavior. Both in antitrust law, and in economic analysis, "mere size" is not at issue. In the case of the former, the statutes are worded in terms either of monopoly or of a lessening of competiton; in economic analysis the relevant factor is *market* power. These are horizontal concepts. They are applicable to industries, or to inter-related industries, but not to the size distribution of firms as such. The increase in corporate concentration shown by the census tabulations are for the entire manufacturing sector. They bear no necessary relation to change in the relative position of firms within the individual industries comprising the manufacturing sector.

This is not to say that the structure of individual markets has not changed correspondingly during this period. Neither is it to say that a case cannot be made that the size structure of manufacturing firms, in addition to the structure of manufacturing industries, ought to be relevant to antitrust interpretation. Bigness *per se*, however, has not been relevant, or has only been peripherally relevant, to antitrust determination as it exists at the present time. If the criteria of pure size is to be introduced, it must be through direct demonstration of an economic effect, or through modification of the statutes under which antitrust now proceeds.

It is interesting that the authors of the most recent economic appraisal of antitrust tentatively include the limitation of big business, the "creation of a desirable distribution of social power among business units by changing the relative positions of 'large' and 'small' firms in the economy . . ." as one of four aims of antitrust considered.[3] It is more interesting, however, that this goal is rejected:

> We would discard the general limiting of big business power as an independent goal of antitrust policy. Some change in the size distribution of firms will be a by-product of the limitation of *market* power. To the extent that general business power rests on market power, the limitations of one will correspondingly limit the other. Any antitrust policy, if vigorously prosecuted, that goes beyond the regulation of conduct represents (or reflects) some limitation on the general social and political power of big business. An attempt to press the restraint of big business beyond these results . . . *would*

---

2 Hearings on S. Res. 40 Before the Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, 88th Cong., 2d Sess., pt. 2, at 817-30 (1965).

3 C. Kaysen & D. Turner, Antitrust Policy 17 (1959).

be so costly in terms of other goals that we rule it out as a desirable policy. (Italics added.)[4]

The argument leading to this conclusion is that an arbitrary and effective limit on firm size, without regard for the structure, conduct, and performance of individual markets, could run counter to the goals of efficiency and competition within those markets. In the absence of considerations relating to market power, proscribing actions of firms purely on the basis of size could lead in the direction of poorer economic performance within the market(s) involved.[5]

The argument is frequently made that the desirability of an improved (*i.e.,* more equal) distribution of business power more than outweighs any disadvantage in terms of economic performance in particular markets.[6] Proponents of the "new" competition argue the opposite.[7] The point remains, however, that the behavior of firms within markets is related to market power, which is an ability to behave persistently in a significantly non-competitive fashion, and not to firm size as such.[8] If the argument is to be made that large firm size necessarily implies market power, not only is that argument yet to be established, but the bare bones of the argument remain to be discovered. To be sure, a sizable part of the economic literature of antitrust focuses, frequently incorrectly, on the concept of leverage.[9] But even granting leverage, it is not that firm *size* conveys market power, but that market

---

[4] *Id.* at 49.

[5] For an interesting and related discussion of policy goals, see J. Bain, Industrial Organization 458-76 (1959).

[6] It has also been made in antitrust proceedings. Justice Douglas, for example, has argued:

Industrial power should be decentralized. It should be scattered into many hands so that the fortunes of the people will not be dependent on the whim or caprice, the political prejudices, the emotional stability of a few self-appointed men . . . . That is the philosophy and the command of the Sherman Act. It is founded on a theory of hostility to the concentration in private hands of power so great that only a government of the people should have it.

United States v. Columbia Steel Co., 334 U. S. 495, 536 (1948) (dissenting opinion).

[7] *See* A. Kaplan, Big Enterprise in a Competitive System (1964); D. Lilienthal, Big Business, A New Era (1953); and, of course, the classic, J. Schumpeter, Capitalism, Socialism, and Democracy (1942). For a general survey, now somewhat dated, *see* E. Mason, Economic Concentration and the Monopoly Problem 371-81 (1957).

[8] The definition of market power employed throughout this paper is from C. Kaysen & D. Turner, *supra* note 3, at 75.

[9] For a good illustration of the limitations of the leverage argument, *see* Bork, "Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception," 22 U. Chi. L. Rev. 157 (1954). *See also* M. Adelman, A & P: A Study in Price-Cost Behavior and Public Policy, 360 (1959) and Burstein, "The Economics of Tie-in Sales," 42 Rev. Econ. Stat. 68 (1960).

power is transferable among related markets. Firm size is not a measure of market position or power within particular markets. The leverage of size alone is, if anything, the leverage of public familarity or acceptance. That kind of leverage is difficult to distinguish from revealed public preference.

I. MARKET POWER AND BIG BUSINESS GROWTH

Be this as it may, there is still the question of what has happened to market power as big business has increased its relative share of manufacturing activity. Although corporate size is not a direct proxy for market power, the increased share of value added in manufacturing accounted for by the largest manufacturing firms in 1963 in comparison with 15 years earlier is sufficient to suggest that the structures of the manufacturing markets themselves may have undergone substantial change as a result of this increase. The direction of that change is uncertain. The problem is one of establishing the source of increased corporate concentration, and there are several possibilities.

A. *Increased Market Shares*

Increasing concentration at the level of the manufacturing firm could, on the one hand, simply reflect more rapid than average expansion by large firms within their respective industries. If this were so, relative growth by large firms *would* imply a corresponding increase in the relative shares of those firms within the industries or markets where they have previously been active. This might occur only in those industries where the large firms have been small sellers, but generally growth of large firms through expansion of their existing market positions would suggest, if anything, an increased concentration of the individual manufacturing industries, and hence a development in an undesirable direction even for those who view antitrust in this "narrow" or behavioral context.[10] This is a frequent interpretation of big business growth.

B. *Industry Growth*

Alternatively, however, large manufacturing firms could show relative growth as firms without any increase in the concentration of

---

[10] This assumes that large firms tend also to be among the largest sellers within their respective industries. This is not entirely correct because the large firms are sufficiently diversified to make industrial affiliations difficult to summarize, but it is certainly true for a large number. *See* Subcomm. on Antitrust and Monopoly, Senate Comm. on the Judiciary, Concentration Ratios in Manufacturing Industry, 1958, 87th Cong., 2d Sess., pt. 2, Table 29, at 478-9 (1962). In 54 percent of 1,014 5-digit product classes in manufacturing, at least one of the 4 largest producers is shown as one of the 100 largest manufacturing companies.

individual manufacturing industries, or with precisely the opposite effect. In the simplest case, large manufacturing firms could grow relative to total manufacturing with no change in market structure if the activities of large firms were distributed proportionately more heavily among the rapidly growing industries. Furthermore, the relative size of the largest firms could increase for this reason even with some decline in their respective market positions. The relative rates of growth of those industries including the large firms could be sufficient to over-compensate for a declining market share of the large firms within those industries.

The market power implications of increasing *firm* size derived from this source would depend largely on the changing characteristics of the "rapidly" and the "less rapidly" growing industries. For example, if the rapidly growing industries were also the more concentrated, the "average" industry would be more highly concentrated. Insofar as industry concentration serves as an indicator of potential market power, those industries where market power may be present would have become a relatively larger part of the sector as a whole. This could, however, carry with it some decline in the concentration of individual markets or industries. The important point is that differential rates of industry growth within manufacturing can affect the size distribution of manufacturing firms quite independently of change in the concentration of the manufacturing industries.

C. *Industrial Diversification*

Relative growth by the largest manufacturing firms could also stem from increased diversification or from the abandonment of some products and the addition of others. In either case, entry would be involved. If relative growth of big firms has largely stemmed from new entry, either accompanied or unaccompanied by exit, at least one feature of that growth has been the introduction of new, or different, competitors in the industries or markets invaded. More generally, the argument might be made that the appearance of increasingly conglomerate firms would be consistent with a decline in the significance of barriers to entry, a comparative advantage of the large firm as an entrant, and the development of the conglomerate firm as an institution compensating for past imperfections in the capital market. In this sense, the firm which grows not by expansion within its industry(ies), and not merely by keeping pace with its industry (ies), but by responding to the market incentives for entry and exit among industries demonstrates, not the exercise of market power, but aggressive, competitive behavior. Changing product or industrial diversification is one index of that behavior.

Diversification, however, can readily be more apparent than real. In the most obvious case, diversification can occur merely through merger, without new entry. In addition, the 4-digit industries of manufacturing are not equally independent of one another;[11] interdependence, both horizontal and vertical, is present. Entry or diversification need not be purely "conglomerate." From simple tabulations of "new 4-digit industries entered," no conclusions with respect to the impact on entry barriers can be drawn.

Suppose, for example, that "diversification" is primarily vertical; although in terms of sales the large firms control no more of their original markets, entry and expansion has extended that control forward or backward from those original markets. Without raising any question of the resulting change in monopoly power, entry barriers would, if anything, have been increased.[12] As the importance of independent markets for intermediate goods decreases, effective entry is more likely to require the form of a vertically integrated operation with correspondingly higher capital requirements. Insofar as barriers to entry arise from imperfect capital markets, vertical integration can be expected to make entry more difficult.

---

[11] The products of manufacturing are classified by the Bureau of the Census according to the Standard Industrial Classification prepared by the Office of Statistical Standards. The Bureau of the Census describes the SIC as follows:

The system operates in such a manner that the definitions become progressively narrower with the successive addition of numerical digits. Thus at one extreme are the 20 very broad 2-digit major industry groups and at the other 7,500 individual 7-digit products. In between are approximately 430 4-digit industries and 4-digit product groups and about 1,000 5-digit product classes. An example of the increasing particularity achieved with the addition of digits is provided by the meat products field, which is part of the 2-digit major industry group, "Food and Kindred Products":

Standard Industrial Classification Code	Designation	Name
20	Major industry group	Food and Kindred Products
201	Industry group	Meat Products
2011	Industry	Meat packing (slaughtering) plants
20111	Product Class	Fresh beef
20111-12	Product	Whole carcass beef

See Subcomm. on Antitrust and Monopoly, Senate Comm. on the Judiciary, Concentration Ratios in Manufacturing Industry, 1963, 89th Cong., 2d Sess., pt. 1, xii (1966). For a complete listing of the SIC, *see* U. S. Bureau of the Budget, Standard Industrial Classification Manual (1957).

[12] Monopoly power is a horizontal concept, unaffected by vertical integration. *See* Bork, *supra* note 9.

The same argument can also be made with respect to entry to or diversification among horizontally related industries. If diversification has achieved significant representation in related industries for large firms, successful entry by outside independents is likely to be more difficult, increasing the likelihood that market power in particular industries can be exercised with a greater degree of impunity.

D. *Market Power and Entry Barriers*

The emphasis here on barriers to entry is intended. No attack on market power will be so pervasive as one tending to alleviate the significance of barriers to entry. Alternatively, no development is apt to be more conducive to the exercise of market power than structural change tending to increase the significance of barriers to entry among the industries of manufacturing.[13]

To the extent that big business growth reflects increasing size within particular markets, or a growing relative importance of the industries characterized by bigness, no evidence can be generated from this source that entry barriers have been lessened. The opposite would be more likely. Similarly, to the extent that big business growth stems from entry into industries closely related, the resulting diversification is only apparent; such an appearance is a product of an industrial classification system, and not true diversification.

But if the relative growth of big firms in the past fifteen years reflects widespread new entry, if the "new" big business is increasingly conglomerate, and if that conglomerateness is characterized by an increased instability in the industry affiliation of these large firms, that evidence would not be consistent with the argument that this growth in bigness has tended to rigidify structure. It would suggest rather that the effect may well have been to reduce the significance of barriers to entry and to limit the potential of such market power as does exist within the manufacturing sector.

II.   CORPORATE CONCENTRATION AND DIVERSIFICATION

What follows are some preliminary results from an examination of two aspects of recent large scale corporate growth in manufacturing. The analysis is confined in the first instance to an assessment of the longer range implications of changes in the relative positions of the largest manufacturing firms between 1948 and 1962-64. This is followed by some findings about entry, exit, and changing diversification by the largest industrial corporations during the last five years. In each

---

13 *See* J. Bain, Barriers to New Competition 182-204 (1956) ; Turner, "Conglomerate Mergers and Section 7 of The Clayton Act," 78 Harv. L. Rev. 1313, 1321-22 (1965).

case, the emphasis is on the interaction among the largest corporations active in manufacturing. The central question throughout relates to the kind of inter-corporate shifts which have developed with large scale corporate growth, not simply a measurement of that growth. By any standard, that growth has been appreciable. But there are differences in the structure of growth shown by different sources.

A. *Changing Corporate Concentration*

The census data on value added in manufacture reported at the outset of this paper show an increase of roughly 38 percent in the relative size of the 200 largest manufacturing firms between 1947 and 1963. Most of that growth is attributed to the 50 largest manufacturing firms. These census tabulations are reproduced in Table I. The share of the

TABLE I

SHARE OF TOTAL VALUE ADDED BY MANUFACTURE ACCOUNTED FOR
BY THE LARGEST MANUFACTURING COMPANIES,
1947, 1954, 1958 AND 1963[14]

Company Group	Percent of Total Value Added in Manufacture*			
	1947	1954	1958	1963
Largest 50	17	23	23	25
Largest 100	23	30	30	33
Largest 150	27	34	35	37
Largest 200	30	37	38	41

* Value added in manufacture is the value of shipments less the cost of materials purchased. It can be approximated by net income before tax plus payroll.

TABLE II

TOTAL ASSETS OF THE 500 LARGEST MANUFACTURING COMPANIES AS
PERCENT OF TOTAL ASSETS OF MANUFACTURING CORPORATIONS,
1948, 1954, 1958, 1962 AND 1964[15]

Company Group	Percent of Total Manufacturing Assets				
	1948	1954	1958	1962	1964
Largest 50	34.7	36.6	37.8	38.2	37.3
Largest 100	43.7	46.3	48.3	48.7	47.6
Largest 200	51.5	54.5	57.2	58.0	57.2
Largest 500	58.4	62.1	66.1	68.0	67.2

[14] Subcommittee on Antitrust and Monopoly, Senate Comm. on the Judiciary, Concentration Ratios in Manufacturing Industry, 1963, 89th Cong., 2d Sess., pt. 1, Table 1A at 2 (1966).

[15] Totals for large companies are from Standard Statistics Company, *Compustat* Industrial Tape; manufacturing totals from FTC-SEC, Quarterly Financial Reports, for years shown. The *Compustat* tape excludes firms from the earlier years which no longer existed as independent firms in 1948. *See* note 17 *infra*.

50 largest companies increased by almost one-half, from 17 percent in 1947 to 25 percent in 1963. In contrast the share of the next largest 150 companies increased by only three percentage points, from 13 to 16 percent.

The pattern is different if the definition of corporate growth is based on more generally available measures of corporate size.[16] Table II shows growth rates of the largest manufacturing corporations which result when assets are employed as a measure of corporate size.[17] The observed rate of growth by large companies is reduced. For the 200 largest the increase is from 51.5 percent of all corporate assets in manufacturing in 1948 to 58.0 percent in 1962. This is an increase of only 13 percent in contrast with the Census Bureau's 38 percent, and a decline is shown between 1962 and 1964. In addition, the growth in Table II is more evenly distributed among the large corporations. The largest 50 firms appear to have grown less, not more, than the following 150 largest.

There is little reason, however, for the two comparisons to even closely parallel one another. The *Compustat* data of Table II are less complete than the census tabulations. Furthermore, value added and total assets are not equivalent concepts. It is not surprising that there are differences between Tables I and II. Neither is it surprising that the level of corporate concentration is higher in Table II. The largest firms are the more capital-intensive manufacturing firms. On the other

---

[16] There are well-known technical, if not conceptual, problems both in estimating firm size and, given corporate interlocks, in defining an independent firm. *Cf.* Hearings on S. Res. 262 Before the Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, 88th Cong., 2d Sess., pt. 1, at 8-19, 231-83 (1964). *See also* Adelman, "The Measurement of Industrial Concentration," 33 Rev. Econ. Stat. 269 (1951).

[17] Except for the manufacturing totals, Table II is based on the Standard Statistics Company's *Compustat* Industrial Tape, which, at this processing, contained data for 900 industrial corporations. These were all corporations whose securities were included in 1965 in either the Dow Jones industrial index or the Standard and Poor's industrial index, plus, in general, the larger companies with stocks listed on the major exchanges. However, companies which would have qualified for inclusion in an earlier year but which did not exist as independent corporations in 1965 were excluded. The percentages shown in Table II have, therefore, a bias towards growth. For example, companies which disappeared by merger or liquidation are not included in the 1948 totals. This bias further emphasizes the disparity between the census value added data and those available from public sources. Totals for all manufacturing, against which the percentages of Table II were calculated, are from the FTC-SEC Quarterly Financial Reports. The FTC-SEC totals exclude assets of newspaper publishers, and of noncorporate manufacturers. Total assets of newspaper publishers account for less than 3.5 percent of total manufacturing assets. Unincorporated manufacturers account for about 5 percent of total manufacturing assets. *See* Subcomm. on Antitrust and Monopoly, Senate Comm. on the Judiciary, Economic Concentration, 88th Cong., 2d Sess., pt. 1, at 348 (1964).

hand, it is not obvious that the growth patterns which emerge should be as different as they are. Under census disclosure rules, it is not possible to reconcile the two. The data of Table I are not available on an individual corporate basis. Any further analysis must necessarily be based on the publicly available asset or income records of manufacturing corporations. Value added cannot generally be obtained from published corporate accounts. Table II illustrates the structure of the data on which the remainder of this section is based.

Table III provides both greater detail and some projections. The 514 largest *Compustat* manufacturing companies, defined to include any

TABLE III

DISTRIBUTION OF 514 MANUFACTURING CORPORATIONS, BY ASSET SIZE
CLASS BASED ON THE TOTAL ASSETS OF THE 500 LARGEST
MANUFACTURING CORPORATIONS, 1948, 1962, AND
PROJECTED STEADY-STATE[18]

Asset Size Class: Percent of Total Assets of 500 Largest	Number and Percent of Corporations				Steady-State Percent
	1948		1962		
	Number	Percent	Number	Percent	Percent
Over .781	28	5.45	16	3.11	.25
.391 to .781	31	6.03	36	7.00	2.31
.195 to .391	49	9.53	47	9.14	5.72
.098 to .195	80	15.56	80	15.56	15.36
.049 to .098	104	20.23	113	21.98	25.21
.024 to .049	110	21.40	123	23.93	29.14
Less Than .024	112	21.79	99	19.26	22.01
TOTAL	514*	100.00	514	100.00	100.00

* This total would be significantly larger if firms disappearing from the 500 largest by merger were included. The steady-state distribution, however, would be unaffected. See note 17 *supra.*

surviving company among the 500 largest in 1948 or in 1962, are arrayed by asset size class in 1948 and in 1962. The size classes employed for this purpose are based on the total assets of the 500 largest firms in each year. For example, the 28 firms classified in the first upper left hand cell of Table III each had assets totalling more than .781 percent of the total assets of the 500 largest *Compustat* manufacturing companies in 1948. Except for the open-ended bottom and top classes, the upper limit of each class is double its lower limit. The interval 1948 to 1962 is selected because the large firms showed greater relative growth during this period than between 1948 and 1964.

The actual transition of the 514 firms among these size classes is shown by Table IV. Were this pattern of transition to continue, the

18 Standard Statistics Company, *Compustat* Industrial Tape.

distribution of the largest 500 firms would ultimately take the form of the steady-state distribution shown in Table III. This is the distribution of firms which would be attained and maintained if the movement of the individual firms among relative size classes exhibited during the 1948-1962 interval were to continue indefinitely.[19] The underlying Markov technique provides a method for projecting a pattern of firm growth, such as that displayed by Table IV, to its ultimate implication in terms of the size distribution of firms. It is a device for summarizing this aspect of corporate turnover.

Tables III and IV describe, however, the distribution of only the largest firms. They say nothing about the implied growth of this group of large firms relative to the total sector. Within that group, the projected steady-state of Table III suggests that should large corporations continue growing as they did between 1948 and 1962 the largest among them would ultimately tend to lose ground to the smaller firms in the group. Indeed, in the second largest size class, an observed increase in the number of firms within that class between 1948 and 1962 is consistent with a longer range decline in that same category.[20]

A similar pattern is displayed when the analysis is repeated for shorter intervals within the 1948-1962 period. Table V contains the steady-state distributions projected when estimates of inter-size class

---

[19] The derivation of this steady-state distribution entails the application of a Markov probabilistic method to the observed movement of firms among size classes during the time period considered. For a good discussion of the technique *see* Adelman, "A Stochastic Analysis of the Size Distribution of Firms," 53 Am. Stat. Ass'n J. 893 (1958). *See also* Collins & Preston, "The Size Structure of the Largest Industrial Firms, 1909-1958," 51 Am. Econ. Rev. 986, 992-96 (1961).

[20] Steady-state solutions will be influenced by the way in which size classes are defined. They are here defined so that to move from one size class to another a firm must double its asset size relative to the average size of the 500 largest firms. This classification is arbitrary, but has the desirable feature of distributing large firms relatively evenly among size classes, and of imposing a consistent standard of relative growth for mobility among classes regardless of initial firm size. The top and bottom size classes have been collapsed to avoid the distortion at either extreme that would be introduced by inferring a probability of interclass mobility on the basis of the experience of very few firms. This is also the reason for desiring the relatively even distribution of firms among the size classes that was noted above. Different procedures in this regard could produce different solutions.

Two other consequences of collapsing largest size classes should be noted. First, firms which may differ significantly in size are treated as homogeneous, and there is the danger of inferring the possible exit from this size class of the very largest firms on the basis of the observed exit of some of the smaller firms included within the same collapsed size class. Secondly, as the size of the firms in the open-ended size class is unbounded, there is the possibility that the steady-state distribution may contain a very small proportion of the total number of firms in the largest class, but these firms may account for an increased share of the total assets of all firms. These are necessary shortcomings of the technique.

TABLE IV

DISTRIBUTION OF THE 514 LARGEST FIRMS BY PERCENT OF TOTAL ASSETS OF THE 500 LARGEST MANUFACTURING CORPORATIONS, 1948 AND 1962[21]

Size Class,* 1962		Size Class, 1948							
		Over .781	.391- .781	.195- .391	.098- .195	.049- .098	.024- .049	Less Than .024	Total
		(Number of Firms)							
Over	.781	15	0	1	0	0	0	0	16
.391 to	.781	12	19	3	1	1	0	0	36
.195 to	.391	1	12	25	6	2	1	0	47
.098 to	.195	0	0	18	36	15	8	3	80
.049 to	.098	0	0	2	34	41	21	15	113
.024 to	.049	0	0	0	3	40	46	34	123
Less Than .024		0	0	0	0	5	34	60	99
TOTAL		28	31	49	80	104	110	112	514

* Size classes are defined in terms of the total assets of the 500 largest manufacturing corporations. For example, the fifteen firms in the largest size class in both years each had the assets totalling more than .781 percent of the total assets of the 500 largest manufacturing corporations in both years.

TABLE V

PROJECTED STEADY-STATE DISTRIBUTIONS, BY PERCENT OF TOTAL ASSETS OF THE 500 LARGEST MANUFACTURING CORPORATIONS, 1948-1954; 1954-1958; 1958-1962, AND 1948-1964[22]

Asset Size Class: Percent of Total Assets of 500 Largest		Steady-State Distribution of Large Firms, as Percent of Total Number of Firms, Based on Inter-Class Mobility of Firms During:			
		1948-1954	1954-1958	1958-1962	1948-1964
		(Percent of Firms)			
Over	.781	.40	1.07	0	.36
.391 to	.781	2.67	3.16	0	2.60
.195 to	.391	3.81	5.53	23.00	7.63
.098 to	.195	10.35	21.30	24.85	18.78
.049 to	.098	22.89	23.15	29.41	25.77
.024 to	.049	36.97	28.14	18.75	26.16
Less Than .024		22.90	17.66	3.99	18.69
Total		100.00	100.00	100.00	100.00

mobility of firms are based on the periods 1948-1954, 1954-1958, and 1958-1962. The steady-state solution implied by the relative growth of firms between 1948 and 1964 is also included. In each of the periods shown, relative growth by the smaller large firms is projected.

[21] Standard Statistics Company, *Compustat* Industrial Tape.
[22] *Id.*

This conclusion is supported by the growth rates of the total assets of these same firms in Table VI. Although the largest firms show growth rates averaging more than the medium sized giants, in every period their growth rates are less than those of the smallest corporations among the 500 largest. If the top 25 companies had been grouped together, rather than the top 10, this effect would be even more pronounced.

TABLE VI
GROWTH RATES OF THE TOTAL ASSETS OF THE 500 LARGEST
MANUFACTURING CORPORATIONS, SELECTED YEARS, 1948-1964[23]

Manufacturing Companies	Average Growth Rate*				
	1948-1954	1954-1958	1958-1962	1948-1962	1948-1964
10 Largest	.670	.385	.276	1.852	2.115
11 - 25 Largest	.463	.326	.216	1.198	1.489
26 - 50 Largest	.603	.334	.222	1.477	1.846
51 - 100 Largest	.618	.395	.242	1.928	2.383
101 - 200 Largest	.622	.409	.305	1.926	2.307
201 - 500 Largest	.794	.477	.388	2.749	3.383

* The growth rate is defined as the increase in total assets divided by total assets in the initial year. In each time interval, the growth rate shown is based on the performance of the corporations falling in the indicated size class in the initial year of the comparison. These growth rates are based on the performance of firms present in both years, classified by size in the initial year.

This relative movement of firms within the group of 500 tends to reinforce the likelihood that growth by these corporations has been accompanied by substantial change in the position of these firms within their individual industries. At least according to this source, the smaller of the largest manufacturing corporations have contributed a major component of the total relative growth by the group as a whole. Within the largest corporations, there is evidence of a leveling-out of corporate size in terms of assets. The impact of this change on the structure of the individual manufacturing industries is not clear.

B. *Shifts in Market Structure*

The remainder of this article concerns one aspect of that market structure. The approach will be to report some preliminary indications of the degree of stability large manufacturing corporations have shown in terms of the 2, 3 and 4-digit industries in which their manufacturing plants have been active.[24] Largely ignored is the question of changes

---

[23] *Id.*
[24] *See* note 11 *supra.*

in 4-digit concentration ratios. This does not mean that significant change in the concentration of the individual manufacturing industries has not occurred. The analysis of that change, however, is a task unto itself, and is not attempted here.[25] What follows is an assessment of the inter-industry, rather than the intra-industry, activities of large manufacturing firms. The analysis is partial; the results should be interpreted with this in mind.

There are also data problems in this kind of investigation. Ideally, census establishment records, aggregated by companies over a period of time, could be used to obtain a comprehensive picture contrasting the behavior of large manufacturing firms with firms of other sizes, not only with respect to growth and diversification but also in terms of relative position within the individual industries of manufacturing. The data exist to permit this kind of analysis; census disclosure rules prevent their availability to non-census analysts.

As the next best alternative, data from the *Fortune Plant and Product Directory* for 1961 and 1966 were employed. Each *Directory* contains, respectively, the 5-digit products of each plant of the 500 largest industrial corporations in 1960, and the 5-digit products of each plant of the 1,000 largest industrial corporations in 1965.[26] In these data, individual plants are identified in each year by address and ownership. To provide a record of the 5-digit products produced by each plant in both 1960 and 1965, individual plant records in each year were matched by address.

All told, plant records were assembled for 10,050 plants owned by 494 companies in 1960, and 16,157 plants owned by 995 companies in 1965.[27] Of the 494 largest corporations in 1960, 461 existed in 1965.

---

[25] The most recent measures of 4-digit concentration in manufacturing—those based on the 1963 Census of Manufactures—became available August 1966. No major analysis of those data has yet appeared. Superficially, between 1947 and 1963, concentration at the 4-digit level rose in 96 industries, fell in 91 industries, and remained unchanged in 10. The comparison is restricted by a lack of comparability among industries because of changes in the Standard Industrial Classification. A more complete comparison is available between 1958 and 1963, where 127 4-digit industries show increases in concentration, 83 show declines, and 30 show no change. Eighty of those showing increases had 1958 concentration ratios of less than 40 percent. Where 1958 concentration was 40 percent or more, 47 industries showed increases, 48 showed decreases, and eleven remained unchanged. The picture is mixed. *See* Subcomm. on Antitrust and Monopoly, Senate Comm. on the Judiciary, Concentration Ratios in Manufacturing Industry, 1963, 89th Cong., 2d Sess., pt. 1, Table 2, at 6-37 (1966).

[26] An industrial corporation is defined by Fortune as a corporation classified either in mining or in manufacturing. The vast majority of the 500 largest industrial corporations are manufacturing corporations. 64 Fortune, July, 1961, at 167-86.

[27] These are the companies included in Fortune's List of the 500 largest industrials in 1961, and the 1,000 largest in 1966, excluding those companies which had no manu-

Thirty companies disappeared by merger; two ceased manufacturing activity, and one was liquidated. The remaining 461 had 11,590 plants in 1965. These companies are referred to as the successor companies to the 494 largest in 1960. The analysis reported below is largely confined to the plant and product behavior of these 494 largest industrial corporations in 1960, and their 461 successor corporations in 1965.[28]

Of 10,050 plants belonging to the 494 largest industrial corporations in 1960, 7,750 were also present in the data for 1965. The number of 1961 plants not present in 1965—or, if the matching of plant records was entirely accurate, the number of plants disappearing between 1960 and 1965—was 2,611. Correspondingly, 4,151 plants appeared for the first time in 1965.

Of the 7,750 plants identified in both years, 7,439 were operated by the same companies in each year, and 311 changed ownership. The 311 "sales" were chiefly, though not entirely, the result of mergers. In the case of a merger, only the plants of the smaller of two merging companies were included in the sold category.[29]

1. Plant Turnover

This turnover of plant facilities is surprisingly high. The mortality of 1960 plants was about 25 percent over the five-year period, and the birth rate over 40 percent.[30] These numbers are high, and the accuracy of the matching of these plants cannot be guaranteed. This point is further developed below. Casual examination of the plant data suggests, however, that much of the turnover is the result of growth in some geographic areas and decline in others. Both disappearing plants and new 1965 plants seem to be highly concentrated by region, although the regions are of course different.[31]

---

facturing facilities in the continental United States. *See* Fortune Plant and Product Directory, for the years 1961 and 1966, which has been selectively reduced to magnetic tapes for this study.

[28] In the case of a merger, the new corporation formed was considered to be the .successor to the larger, in terms of assets, of the two combining corporations.

[29] Fifty plants owned by the 494 companies in 1960 were reported owned by companies among the 995 largest in 1965 other than the 461 successor companies. These plants were evidently outright sales of plant facilities to independent firms.

[30] Note that even if all plant "deaths" were the result of errors of omission in the matching of plant addresses, the net birth rate of plants would still be over 15 percent. And all plant deaths were not errors. Plant records in 1960 and 1965 were compared within counties. Matching was difficult in some counties, such as Los Angeles, but in the vast majority the number of plants was small, and the death of a plant, when it occurred, was definitive. The plant was there in 1960; no possible matching plant was present in the county in 1965.

[31] At a later stage in this work an estimate will be made of the proportion of plant turnover which can be explained by regional factors.

With respect to mergers, the number of plants that could be identified as having changed owners as a consequence of merger is low in comparison with the overall turnover of plants. This finding is consistent with other recent work on the quantitative impact of mergers on corporate growth.[32] Some further work presently in the planning stage will attempt to tabulate more accurately the fate of the 1960 plants owned by companies disappearing from the 494 largest as a result of mergers. There will still remain the difficulty that the available plant data permit no analysis of the origin of new 1965 plants. To what degree these new plants reflect the acquisition or partial acquisition of corporations outside the 494 largest, rather than the construction of totally new plants, is unknown.

2.   Diversification at the Plant Level

The data are more specific regarding plant diversification. In 1960, of 10,050 plants, 5,182 (52 percent) reported only one 4-digit product; 2,300 (23 percent) reported two; and 1,183 (12 percent) reported three 4-digit products. The distribution of the 16,157 plants operated by the 995 largest companies in 1965 was similar: 8,685 (54 percent) with one 4-digit product; 3,674 (23 percent) with two; and 1,641 (10 percent) with three 4-digit products. The maximum number of 4-digit products produced by a single plant was 21 in 1960 (two plants reporting this total) and 29 in 1965 (again, two plants). This widespread presence of single-product plants within diversified corporations is consistent with the interpretation that economies of scale in production are important for the products in question. An examination of the degree of plant specialization for particular products might, therefore, be useful in testing for scale economies with respect to those products, and similarly the appearance of particular pairs of products or groups of products would provide evidence of either joint economies or of a high elasticity of substitution in production, suggesting in turn a basis for aggregating 4-digit product classes for purposes of economic analysis. The only conclusion here is that the plants of these large industrial corporations are highly specialized.

3.   Plant Product Stability

Table VII arrays these plants of the 494 largest companies in 1960, and of their 461 successor companies in 1965, by a two-digit classification of the products of those plants in each year. A plant is

---

[32] *See,* for example, McGowan, The Effect of Alternative Anti-merger Policies on the Size Distribution of Firms, unpublished Ph.D. dissertation, Yale University (1965).

TABLE VII
MANUFACTURING PLANTS OF THE LARGEST 494 INDUSTRIAL
CORPORATIONS, BY 2-DIGIT INDUSTRY GROUPS, 1960 AND 1965[33]

Industry Group	SIC Code	Plants Present, 1960 *AND* 1965, with Products in this Industry Group			Plants Present 1960 *OR* 1965, with Products in this Industry Group	
		(1) 1960 and 1965	(2) 1960 Only	(3) 1965 Only	(4) 1960	(5) 1965
Name						
Ordnance	(19)	50	17	16	38	49
Food & Kindred	(20)	1483	133	15	641	581
Tobacco	(21)	22	0	0	2	4
Textile Mill	(22)	321	52	15	72	96
Apparel, Etc.	(23)	70	5	28	17	60
Lumber & Wood	(24)	164	7	22	100	125
Furniture, Etc.	(25)	42	5	8	20	43
Paper & Allied	(26)	655	72	30	162	323
Printing, Etc.	(27)	83	7	5	43	81
Chemical, Etc.	(28)	1156	85	63	469	839
Petroleum Refining	(29)	224	25	14	60	141
Rubber Products	(30)	189	33	62	64	208
Leather Products	(31)	120	16	4	37	19
Stone, Clay, Etc.	(32)	508	25	34	207	175
Primary Metals	(33)	508	34	27	132	201
Fabricated Metals	(34)	577	44	76	210	317
Machinery	(35)	556	60	83	249	399
Electrical Mach.	(36)	499	45	69	251	441
Transportation	(37)	375	40	64	141	214
Scientific	(38)	120	33	32	63	139
Misc. Manufacturing	(39)	57	13	10	34	47

counted once in each two-digit industry in which it was represented by one or more products. Plants which were present in the data in both years are tabulated separately from those plants which appeared in only one or other of the two years considered.

The first three columns relate to plants present in both years. The first three entries of the first row of the table indicate, respectively, that

---

[33] Fortune Plant and Product Directory, for the years 1961 and 1966. For definitions, *see* U.S. Bureau of the Budget, Standard Industrial Classification Manual (Washington, U.S. Government Printing Office, 1957), and 1963 Supplement. *See also* U.S. Bureau of the Census, Numerical List of Manufactures Products, 1963 Census of Manufactures (Washington, U.S. Government Printing Office, 1964).

fifty of these plants had ordnance products in both 1960 and 1965, that seventeen reported ordnance products only in 1960, and that sixteen, producing in other 2-digit industries in 1960, added or substituted ordnance products between 1960 and 1965.

The last two columns relate to plants present in 1960 or in 1965, but not in both years. The fourth entry therefore indicates that 38 plants with ordnance products in 1960 were no longer present in the *Fortune* data in 1965. Those plants either closed, the *Fortune* data are in error, or the processing of the *Fortune* data failed to identify matching plants in 1965. The fifth entry shows that forty-nine plants with ordnance products in 1965 were totally new; corresponding plants could not be found in 1960.

The last two columns of Table VII are the most susceptible to processing error. The matching of plant records to produce the first three columns was conservative. It is far more likely that actually matching plant records in 1960 and 1965 were not identified. For this reason the entry and exit shown in the fourth and fifth columns are likely to be overstated. The net entry or exit shown by the difference between the two columns[34] must, however, have occurred.

Table VIII contains a similar tabulation of plants at the 4-digit level. The relatively few 4-digit industries selected are illustrative, and have not been chosen in any way other than to avoid 4-digit categories which have particular problems.

The Tables show that the plants of the 494 largest corporations are by no means tied to particular products even over as short a period as five years. The reader will have to draw his own conclusions; there is no established standard of comparison. But an hypothesis that companies add and drop products chiefly by closing old plants and acquiring new ones must be judged as incorrect. The most striking, and also the most reliable, feature of these tables is the evidence in the second and third columns that substantial entry and exit among industries occurs without shutting down or adding separate plant facilities. This conclusion appears even stronger in light of the earlier finding that these plants are highly specialized in terms of products, and that no significant change in the degree of plant specialization occurred over the five year period. The capital represented by plant facilities is evidently more mobile than the theory underlying some recent investment

---

34 Note that high turnover among 2-digit categories which is displayed by plants that were identified in both years (columns (2) and (3)) suggests that these measures of exit and entry (columns (4) and (5)) are less suspect than might otherwise be thought.

TABLE VIII
MANUFACTURING PLANTS OF THE LARGEST 494 INDUSTRIAL
CORPORATIONS, BY SELECTED 4-DIGIT INDUSTRIES, 1960 AND 1965[35]

4-digit Industry		Plants Present, 1960 *AND* 1965, with Products in this Industry Group			Plants Present, 1960 *OR* 1965, with Products in this Industry Group	
		(1) 1960	(2)	(3)	(4)	(5)
Name	SIC Code	and 1965	1960 Only	1965 Only	1960	1965
Meat Packing	(2011)	34	70	1	22	17
Malt Liquors	(2082)	16	0	0	1	1
Cigarettes	(2111)	11	0	0	1	1
Broad Woven Cotton	(2211)	112	38	6	14	31
Men's . . . suits, coats, overcoats	(2311)	16	0	4	1	6
Veneer & Plywood	(2432)	33	7	4	16	39
Wood Furniture	(2512)	10	1	0	1	6
Paper Mills	(2621)	90	13	6	17	44
Book Publishing	(2731)	5	1	0	3	7
Biological Drugs	(2831)	19	5	6	5	17
Gum and Wood Chemicals	(2861)	8	2	10	2	11
Oils and Grease	(2992)	8	2	6	4	6
Tires and Tubes	(3011)	33	2	1	3	15
Industrial Leather Belting	(3121)	2	2	0	0	0
Flat Glass	(3211)	20	1	1	0	4
Steel Pipes, Etc.	(3317)	16	8	4	8	9
Metal Cans	(3411)	126	3	4	23	43
Elevators, Etc.	(3534)	3	1	3	1	2
Electrical Instruments	(3611)	22	11	10	16	35
Aircraft Engines and Parts	(3722)	49	10	13	16	31
Laboratory Instruments	(3811)	22	12	9	25	51

models has assumed.[36] At least part of the fixed capital of modern manufacturing can be reallocated among industries.

It is tempting to infer from these tables something about the relative stability of the industries in question. For example, cigarettes (or indeed the entire tobacco industry)—a known oligopoly—shows little plant turnover. In contrast, gum and wood chemicals show entry both by matched plants and by totally new plants. In each category, the number of entering plants equals or exceeds the number of plants originally present in 1960. It would be erroneous, however, to infer

---

35 Fortune Plant and Product Directory, for the years 1961 and 1966.

36 *See* Solow, Tobin, von Weizsäcker & Yaari, "Neoclassical Growth with Fixed Factor Proportions," 33 Rev. Econ. Stud. 79, 80 (1966).

that this difference is consistent with what is generally known about the structure of the two industries. These tables do not describe industries. They reflect the activity of the plants of only a few large firms in these industries. The expansion of plants in wood and gum chemicals, for example, tells nothing about the entry of firms to this industry or about change in the full plant structure of that industry. The evidence in Table VIII is consistent with either the entry of new and independent competitors, or the simple expansion and modernization of facilities by an already dominant firm.

4. Entry and Exit at the Corporate Level

The more relevant measure in the context of market structure is entry and exit at the corporate, not the plant, level. Tables VII and VIII indicate that there is potential flexibility of corporate behavior with respect to the product-mobility of plants. Technical considerations

TABLE IX

MANUFACTURING ACTIVITY OF THE 494 LARGEST INDUSTRIAL CORPORATIONS, BY 2-DIGIT INDUSTRY GROUPS, 1960 AND 1965[37]

Industry Group Name	SIC Code	Number of Largest 494 Corporations				
		(1) 1960 and 1965	(2) 1960 Only	(3) 1965 Only	(4) Total in 1960	(5) Total in 1965
Ordnance	(19)	41	12	9	53	50
Food & Kindred	(20)	84	8	14	92	98
Tobacco	(21)	6	0	0	6	6
Textile Mill	(22)	43	6	13	49	56
Apparel, Etc.	(23)	15	4	13	19	28
Lumber & Wood	(24)	34	11	19	45	53
Furniture, Etc.	(25)	19	12	19	31	38
Paper & Allied	(26)	78	11	19	89	97
Printing, Etc.	(27)	34	6	10	40	44
Chemical, Etc.	(28)	165	27	21	192	186
Petroleum Refining	(29)	60	12	6	72	66
Rubber Products	(30)	72	27	42	99	114
Leather Products	(31)	15	6	2	21	17
Stone, Clay, Etc.	(32)	81	10	21	91	102
Primary Metals	(33)	117	16	18	133	135
Fabricated Metals	(34)	145	19	34	164	179
Machinery	(35)	170	25	36	195	206
Electrical Mach.	(36)	127	17	28	144	155
Transportation	(37)	97	14	27	111	124
Scientific	(38)	68	26	25	94	93
Misc. Manufacturing	(39)	43	15	17	58	60

[37] Fortune Plant and Product Directory, for the years 1961 and 1966.

apparently allow plant facilities to be converted or replaced more fre-
quently than might have been expected. The degree to which this plant
mobility among product lines has reflected corporate mobility is not
clear. It is to this question that Tables IX and X are addressed.

Table IX shows, by 2-digit industry groups, the number of the 494
largest corporations which had products in the industry group in 1960

TABLE X
MANUFACTURING ACTIVITY OF THE 494 LARGEST INDUSTRIAL
CORPORATIONS, BY SELECTED 4-DIGIT INDUSTRIES, 1960 AND 1965[38]

4-digit Industry Name	SIC Code	Number of Largest 494 Corporations				
		(1) 1960 and 1965	(2) 1960 Only	(3) 1965 Only	(4) Total in 1960	(5) Total in 1965
Meat Packing	(2011)	10	2	0	12	10
Malt Liquors	(2082)	3	0	0	3	3
Cigarettes	(2111)	5	0	0	5	5
Broad Woven Cotton	(2211)	18	1	4	19	22
Men's . . . suits, coats, overcoats	(2311)	3	0	3	3	6
Veneer and Plywood	(2432)	8	3	6	11	14
Wood Furniture	(2512)	2	0	2	2	4
Paper Mills	(2621)	30	5	7	35	37
Book Publishing	(2731)	5	0	0	5	5
Biological Drugs	(2831)	12	2	5	14	17
Gum and Wood Chemicals	(2861)	8	1	3	9	11
Oils and Grease	(2992)	11	3	4	14	15
Tires and Tubes	(3011)	8	1	0	9	8
Industrial Leather Belting	(3121)	1	1	0	2	1
Flat Glass	(3211)	4	0	1	4	5
Steel Pipes, Etc.	(3317)	14	4	3	18	17
Metal Cans	(3411)	11	1	5	12	16
Elevators, Etc.	(3534)	4	0	1	4	5
Electrical Instruments	(3611)	18	10	15	28	33
Aircraft Engines and Parts	(3722)	21	9	15	30	36
Laboratory Instruments	(3811)	19	13	20	32	39

and in 1965, *only* in 1960, or *only* in 1965. The final two columns of
the table show the total number of companies with products in the
industry group in 1960 and in 1965. Table X is identical except that
the tabulation is for the selected 4-digit industries. In Tables IX and
X, a company is counted only once in any industry category in which
it was represented by more than one product.

Both tables show that the plant mobility of Tables VII and VIII is

[38] *Id.*

not restricted to the intra-company turnover of plant facilities. At the 2-digit level, in every industry group except tobacco, there was both exit and entry by corporations within the group of the 494 largest industrials. In some industries, furniture and fixtures, for example, the number of corporations entering and leaving the industry group (columns (2) and (3)) almost equals the average number of large corporations present in the industry group (columns (4) or (5)). Even in the most heavily populated industry group the total number of corporations either entering or leaving exceeds 20 percent of the total number of large firms present. In the chemical group, the number of entrants alone is over 10 percent.

No quantitative statement can be made about the impact of this exit and entry in terms of output within these industry groups. For example, counting companies is not an adequate means for judging the full significance of this turnover in terms of sales. In addition, the 2-digit industry groups are so broad in terms of the various products included in each that the large companies present need not compete in common markets.

On the other hand, this turnover is not eliminated when the analysis is repeated at the 4-digit level. If anything, Table X suggests that corporate entry and exit at the 4-digit level exceeds, in relative terms, that at the 2-digit level.[39] Furthermore, since it is more likely that the companies included in each industry at the 4-digit level do compete in common markets, confidence that this turnover reflects economically meaningful entry and exit is increased.

The entry device itself, however, is unspecified. It is not clear, even where major mergers are not involved, that minor acquisitions are absent. Where entry results from the acquisition of a previously independent firm already active in the industry in question, the number of competitors in that industry will not have changed. The argument that entry of this sort is beneficial would require the assumption that the acquiring firm is likely to be more aggressive than the acquired firm. There is no general presumption that this should be the case. But in view of the entry and exit at the *plant* level, it seems likely that much of this corporate entry and exit does not stem from acquisiton, and that the effect is to add to the number of competitors within the entered industries. Nevertheless, it is important to note that these data

---

39 Totals, over all 4-digit industries, are not yet available. At the 3-digit level, summing over all industries—which counts companies once for each different 3-digit product—there were 2,802 instances where a company remained in the industry group in both years, 1,174 entries, and 734 exits. This compares at the 2-digit level with 1,567, 419 and 297, respectively. The entry and exit totals are relatively larger at the 3-digit level.

in no sense reflect entry which is entirely devoid of the acquisition by the large companies of formerly independent corporations.

5. Diversification at the Corporate Level

Table XI arrays the 494 companies in 1960, and their 461 successor companies in 1965, by the number of products produced at the 2, 3, 4 and 5-digit levels. Increased diversification is indicated at all levels of product aggregation. Had these corporations tended to diversify in areas horizontally related to their original products, diversification would have had to increase chiefly at the 4 or 5-digit levels. This is not the case. The products of the largest industrial firms have been spread not just within particular areas of manufacturing, but across what appear to be broadly unrelated industries within manufacturing.[40]

TABLE XI

THE 494 LARGEST INDUSTRIAL CORPORATIONS BY NUMBER OF 2, 3, 4, AND 5-DIGIT PRODUCTS, 1960 AND 1965[41]*

Number of Products	Number of Companies by Indicated Year and Product Class							
	5-Digit		4-Digit		3-Digit		2-Digit	
	1960	1965	1960	1965	1960	1965	1960	1965
1 - 5	85	65	179	134	234	183	384	310
6 - 10	113	85	146	114	158	127	97	128
11 - 15	105	77	85	81	57	92	13	22
16 - 20	73	65	43	65	29	27	—	1
21 - 25	45	44	17	26	9	18	—	—
26 - 30	28	42	11	14	3	5	—	—
31 - 35	11	27	4	10	1	5	—	—
36 - 40	14	20	2	4	3	1	—	—
41 - 45	6	10	2	5	—	2	—	—
46 - 50	3	3	2	3	—	1	—	—
51 - 75	6	16	3	4	—	—	—	—
76 -								
Total	494	461	494	461	494	461	494	461

* Several products in the same product class are counted as a single product in this tabulation. The 461 corporations in 1965 are the successor companies to the 494 in 1960.

---

[40] This finding is also of interest in the analysis of corporate research and development. Richard Nelson, and others, have argued that the incentives for private investments in basic research may be significantly related to diversification: "It is for this reason that firms which support research toward the basic-science end of the spectrum are firms that have their fingers in many pies." Those firms showing rapid increases in diversification might be expected, therefore, also to be those firms displaying the greater R & D commitment. *See* Nelson, "The Simple Economics of Basic Scientific Research," 67 J. Polit. Econ. 297, 302 (1959).

[41] Fortune Plant and Product Directory, for the years 1961 and 1966.

Part of this increased diversification may be spurious. First, thirty companies among the 494 were absorbed by others within that group. This merger activity would produce increased average diversification within the remaining 461 firms. At present, a correction for this factor is not possible. Secondly, if the 1965 *Fortune* survey was the more accurate, by taking into account products in 1965 which were missed in 1960, the effect would also be to increase the measures of diversification reported here for 1965. Again no correction is possible. Nevertheless, one by-product of recent large scale corporate growth appears to have been an increase, by whatever means, in the competitive overlap among the largest manufacturing corporations.

III. CONCLUSION

The introduction to this paper outlined alternative sources of increasing corporate concentration. Briefly, relative growth by the largest manufacturing firms could reflect either growth by those firms within their respective industries, or some form of shift in the composition of the manufacturing activities of those firms. Alternatively, patterns of differential growth by the industries of manufacturing could produce the same effect with no necessary change in either the market structure of the manufacturing industries or the product mix of the major manufacturing firms.

The argument of this paper is that the economic implications of increasing corporate concentration depend not on the size structure of firms, but on the resultant change in the degree of market power associated with the individual manufacturing industries. The major empirical focus has been on the interaction among large firms which has accompanied large scale corporate growth, and on the development of some tentative measures of the industrial or product stability of the largest corporations active in manufacturing in recent years.

This is by no means a complete look at all aspects of increasing corporate concentration. The impact of large scale corporate growth on the concentration of individual manufacturing markets was necessarily ignored, and no estimate of the impact of differential industry growth within manufacturing is provided. Moreover, even with respect to large scale corporate diversification, the data and analysis here included will far from convince the skeptic, and far from satisfy the questions of even those whose intuition is not contradicted.

The findings reported here, however, argue that the hypothesis that one feature of recent large scale corporate growth has been a rise in the potential competition of large firms, and a decline in the effectiveness of barriers to entry, is not necessarily false. The trend toward big-

ness, especially in view of the turnover in relative firm size which has accompanied it, may well have carried with it at least some structural implications which are quite opposite from those generally associated with bigness.

This certainly is not the only feature of that trend, and this paper is at best only a preliminary look at one aspect of corporate diversification. But this preliminary look does suggest that the inter-industry structure of the largest manufacturing firms may be more flexible than has previously been recognized, and that an increase in this flexibility may have been an important by-product of recent large scale corporate growth.