

differential represents a 50 percent increase in profit rates. It is likely, moreover, that much of this profit rate differential is accounted for by the entry barriers created by advertising expenditures and by the resulting achievement of market power.

We note also the significant joint impact on profit rates of concentration and the entry barriers created by scale economies and high capital requirements. Although the composite effect of these factors is clearly important, a more precise indication of the distinct effect of any of these variables is hazardous because of the high degree of collinearity. As would be expected, the rate of growth of demand has an important positive impact on profits. Models which incorporate these variables fit the underlying data reasonably well, accounting for approximately 50 per cent of the variation in industry profit rates.

These empirical results suggest that factors which promote product differentiation may be as important as those which influence the size distribution of firms in terms of their effect upon the achievement of market power. Current policies which tend to emphasize the role played by concentration may need to be supplemented by those concerned directly with the nature and extent of product differentiation. Policies dealing with these matters would be an important component in a general policy designed to promote competition.

APPENDIX

DATA SOURCES AND TECHNICAL ADJUSTMENTS

The industry data used are reported at or aggregated to the level of I.R.S. "minor industries," which are roughly comparable to S.I.C. three-digit industry groups. The source for each variable is listed in table A1.

The sample was chosen originally to gain complete coverage of all consumer goods industries. All "miscellaneous" industries were eliminated, however, because of the obvious conceptual problems. In addition, three other industries were dropped from the sample: newspapers, while technically a manufacturing industry was considered to have sufficient "service" elements to make its inclusion inappropriate; petroleum refining, because of the unusual statistical problems which result from the tax treatment of mineral depletion; and motor vehicle parts, because of the lack of comparable Census data. Average profit rates and advertising-sales ratios for the remaining 41 industries are presented in table A2.

The variables are defined and explained in the text. The calculation of the technical entry barrier variables and the rate of growth of demand involved using both Census and I.R.S. data. The various specific adjustments made to reconcile data drawn from these two sources and reported at different levels of aggregation are described in the next two sections.

Technical Barriers to Entry

These variables are based on data from the 1954 *Census of Manufactures*. To carry out these computations, it is necessary to relate industries as defined by the Census Bureau to those of the Internal Revenue Service. This is done on the basis suggested by the Census Link Project.⁴¹

Within S.I.C. four-digit industries, average plant size among the largest plants which account for 50 per cent of industry output is used as the estimate of minimum efficient plant scale (MES). Data on shipments are used in all cases where available. In the few remaining cases, the calculations are based on value added. When the ratios of MES to industry output are obtained, the average percentage among component four-digit industries within the relevant I.R.S. industry is calculated, using shipments as weights where available and value added as weights elsewhere.

In determining the capital requirements variable, the scale of an efficient plant is measured in most instances by the value of the shipments but in a few by value added. In the latter cases, these figures are multiplied by the ratio of shipments to value added for the same four-digit industry but in a later year.

⁴¹ Bureau of the Census, *Enterprise Statistics* (1958), Part 3.