Similarly, industries were classified into three groups on the basis of the two advertising variables. Dummy variables identifying industries with high and moderate advertising expenditures were also used as an alternative measure of advertising intensity in some equations.[32]

Local Market Dummy Variable

In some of the regression equations, a dummy variable was introduced to identify the three local market industries.

THE SAMPLE OF INDUSTRIES

For the reasons presented above, the empirical analysis is confined to consumer goods industries.[33] Of the 41 industries included in the analysis, 29 produced non-durable consumer goods, and the remaining 12 produced consumer durables. In size, the industries ranged from motor vehicles with average sales of over $20 billion per year to hats with average sales of only $122 million per year. Spurious size effects are absent, however, since the dependent variable is expressed in ratio form. The core of the analysis is based upon unweighted interindustry regressions. However, as subsequent tests indicate that heteroscedasticity is present, weighted regressions are also estimated.

Three of the industries—soft drinks, bakery products, and dairy products—sell in local markets, and this factor influences the appropriate measures of both concentration and scale economies. Two techniques are used to handle this problem:

a) Economies of scale are estimated in relation to the typical local market, and the Kaysen and Turner concentration classifications which take into account the local market character of these industries, are used.

b) In some equations, national concentration ratios are introduced along with a dummy variable which identifies the local market character of these three industries.

One interesting characteristic of the underlying data is that the distribution of advertising-sales ratios across the 41 industries is highly skewed. Twenty-five of the industries have ratios below three per cent while eight have ratios between three and six per cent and only six have ratios which exceed six per cent. In the latter group, perfumes have an advertising-sales ratio of 15 per cent, cereals and drugs ten per cent each, soap nine per cent, malt liquor seven per cent, and soft drinks slightly over six per cent. Notable industries in the intermediate group include cigarettes and wines with ratios of about five per cent each.

Although advertising per firm is positively correlated with advertising per dollar of sales, the positions of two important industries change radically depending on which variable is used to measure advertising intensity. While tires and tubes and motor vehicles have quite low advertising-sales ratios, both are among the small group of industries with high or very high average advertising outlays per firm among the leading firms. As a result, tires and tubes and motor vehicles are classified respectively as industries with moderate and high overall advertising barriers.

MAJOR EMPIRICAL RESULTS

The simple correlation coefficients between profit rates and each explanatory variable are presented in table 1. All of the coefficients have the expected sign and all are statistically significant in at least one functional form. Moreover, the lograrithmic relationship appears appropriate in the case of the growth of demand variable, while the opposite is the case with regard to the advertising-sales ratio. As the latter variable is already expressed as a percentage, it is measured in units comparable to the dependent variable.

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[32] High barriers are assumed either when the advertising-sales ratio exceeded eight per cent or when advertising expenditures among leading firms averaged more than $20 million. The same classification is given to industries where the average ratio fell between four and eight per cent *and* average annual expenditures amounted to between $5 and $20 million. Low barriers exist when the advertising-sales ratio was less than two per cent and average expenditures less than $5 million *or* when the ratio lay between two and four per cent and expenditures did not exceed $1 million per firm. In other cases, moderate advertising barriers are assumed to exist.

[33] The Petroleum industry is excluded because of the difficulty of obtaining profit data comparable to other industries in view of the special tax treatment of that industry.