

SUPPLEMENT TO STATEMENT OF DR. WILLARD F. MUELLER, DIRECTOR,
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In my statement on January 18 before the Monopoly Subcommittee I raised a number of questions concerning the theoretical and empirical credibility of a study to Messrs. Conrad and Plotkin of Arthur D. Little, Inc.¹ Most importantly, whereas their study concluded that differences in the level of profit rate among industries are explainable by differences in the degree of risk faced by firms within the industries, my analysis demonstrated that their statistical findings were the result of the inclusion of consumer goods industries with a high degree of product differentiation.

At that time I promised to provide a brief supplemental memorandum analyzing the underlying data used by Conrad and Plotkin in their study. The results of this further analysis give added support to the finding that the differences in profit rates among industries result almost exclusively from the inclusion of differentiated consumer goods industries in the sample. Such industries are characterized both by high average profits and by high intra-industry variance in profits.

EFFECT OF GROUPING SOME INDUSTRIES

Conrad and Plotkin, in choosing the sample of industries to be used in their analysis, grouped together a number of industries which are defined separately in both the Census of Manufacturers and in the data source from which they computed their regression variables.² One is immediately puzzled by the reasoning behind such an apparently arbitrary grouping procedure.³

This grouping procedure is particularly questionable with regard to the "Food Products" and "Machinery" industry groups. In the case of "Food Products" seven 4-digit SIC industries are grouped together; yet several other industries which Census defines as food industries are excluded from the grouping and included in their analysis as separate industries.⁴ Data for the seven industries were provided separately in the basic data source used by Conrad and Plotkin, and six of the seven had numbers of companies equal to or greater than the numbers of companies which were included as separate industry observations. Therefore, to be consistent these six should be included as separate observations in the sample rather than combined into a single observation.

The seven industries included in the food group are listed in Table 1 along with their individual intra-industry profit variances and average profit rates. As Table 1 shows, there are wide differences in both profit variances and average profit rates among the seven food products industries. Average profit rates ranged between 5.561 and 12.481, and the variances of industry profit rates ranged between 2.190 and 32.698.

In the case of "Machinery" Conrad and Plotkin arbitrarily combined eight 4-digit SIC industries into a single observation. Table 2 shows the variances in profit rates and average profit rates of these eight machinery industries. These industries are clearly distinct and should be treated as separate observations. As is the case with food products, both the profit variance and the average profit rate vary greatly among the various machinery industries. Intra-industry profit variance ranged between 9.372 and 41.005 and average profit rate ranged between 8.212 and 14.552.

¹ Gordon R. Conrad and Irving H. Plotkin, *Risk and Return in American Industry*, Arthur D. Little, Inc., May 1967.

² *Ibid.*, Appendix C, pp. 34-35.

³ Data were not submitted which could be used to determine the effect that the grouping of certain industries had on the regression and correlation models reported by Conrad and Plotkin. There is a suggestion, however, that the grouping may have produced higher correlation coefficients by the fact that observations computed on an unweighted basis had that effect. From the data submitted it was possible to compute simple or unweighted variance coefficients. Using these, the explained variance or the R^2 of the equation with grouped data was slightly higher than an equation with only ungrouped observations.

⁴ Conrad and Plotkin combined the seven industries shown in Table 1 as one observation, and used confectionery, soft drinks, beer and distilled liquor as separate observations. For unexplained reasons Conrad and Plotkin excluded the sugar industry from their analysis although information was available on the industry. In addition to sugar refining, Conrad and Plotkin excluded three other industries for which the Standard & Poor's Compustat Tape of 1967 contained five or more companies and ten industries which contained either three or four companies. These latter ten industries are significant because in some cases Conrad and Plotkin combined industries that contained as few as two companies into grouped observations.