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CHAPTER 46

PROBLEMS OF CLASSIFICATION

1. CLASSIFICATION ON THE BASIS OF INDUSTRIAL OPERATIONS

ALL the analyses made of the earnings of different corporations and industrial groups in preceding chapters have presupposed certain classification principles. The basis of classification may have been industrial activity, financial ownership, the character of the net income, or some other criterion. But no such classification can be perfect. In the very nature of the case, to classify a corporation in this or that respect involves making a decision as to whether it belongs here or there; and all borderline cases need arbitrarily to be disposed of in one manner or another. While the classification difficulties involved, either explicitly or implicitly, in the several studies for which we have presented results may not be serious in most instances, they nevertheless are sufficiently important to require discussion.

The first problem relates both to the industrial classification of corporations as undertaken by the Bureau of Internal Revenue, in its published reports, *Statistics of Income,* and that adopted by the present writer in the original preparation of the various tables for the several samples in the Department of Commerce *Source-Book* upon which the analyses of the foregoing chapters rest.[1] In this connection,

[1] Upon these problems, William L. Crum, *Corporate Earning Power,* Ch.

it will be convenient to utilize the work of J. Franklin Ebersole and his collaborators, originally published in the *Review of Economic Statistics*.[2] We should, however, state that our discussion in no way constitutes a review of that work. (That thoughtful study was concerned chiefly with the problem of forecasting income, which is not germane to our purposes.) We shall extract certain passages from Ebersole's study that relate to the classification of corporations. Although of major importance for us, some of the points treated were of minor importance in the Ebersole article (several even appeared in footnotes) ; and the reader is asked to bear in mind that our criticism is of these details of argument, and in no way of Professor Ebersole's contribution to the subject of income forecasting.

The Bureau of Internal Revenue's industrial classifications assign a corporation to a particular industrial division, such as Manufacturing or Mining, or to a major group, such as Foods or Textiles, upon the basis of the company's predominant activity. Thus the Standard Oil Company of New Jersey would be characterized as an oil refining enterprise and placed in the major group Chemicals, and if placed further under a minor group caption (in the terminology of this study) would go under Petroleum Refining—although much of its activity is not manufacturing but mining (that is, drilling for oil). Similarly, the General Motors Corporation would be regarded as a motor vehicle producer; its manufacture of both electric refrigerators and

II, Classification Difficulties, and J. Franklin Ebersole, Susan S. Burr and George M. Peterson, Income Forecasting by the Use of Statistics of Income Data, *Review of Economic Statistics,* November 1929, may both be consulted to advantage. Ebersole *et al.* are much more skeptical of the validity of the industrial classifications employed by the Bureau of Internal Revenue than is Crum. Much seems to the present writer to hinge upon one's purpose in utilizing such data; likewise, the relative frequency with which a given type of error occurs is all-important, as will shortly be suggested.

[2] *Op. cit.*

sporting goods would be ignored. Because of this practice Ebersole, Burr and Peterson have contended that the overlapping between the Bureau of Internal Revenue's industrial classifications "is so great that each group, instead of adequately representing a single industry, merely represents a poor sample of all industry." [3] This contention rests upon the fact that many income tax returns represent large corporations that either engage in several types of business or else, if they are combinations of one sort or another, may file *consolidated* returns, that is, make one tax return that includes all affiliated companies. Nor can it be assumed, declare the writers just quoted, that errors caused by this overlapping can cancel one another: "For instance, if an automobile manufacturer owns a railroad and includes its income in a single return which is tabulated in manufacturing, there is no assurance that this is offset by some . . . bus company . . . manufacturing automobiles and included in transportation . . . ." The writers even go so far as to say that: "Since 1918 the *Statistics of Income* tabulations show merely the number of returns routed to the Statistics Section [the statistical division of the Bureau of Internal Revenue], there *being no data whatever* as to the actual number of corporations." [4]

Concerning these devastating criticisms, several observations may be offered. Taking them up in reverse order, it would appear that the statement that the *Statistics of Income* tabulations contain "no data whatever" on the actual number of corporations rests upon a rather legalistic definition of the term 'corporation'. In much current industrial and financial analysis the word corporation is frequently used as synonymous with 'enterprise'; and in this sense such an integrated enterprise as the United States Steel Corpo-

[3] *Ibid.*, p. 173.
[4] *Ibid.*, p. 172n. The italics are mine.

ration is spoken of as one corporation by the 'Street' quite as much as by the Bureau of Internal Revenue. Merely because, legally, the United States Steel Corporation may not necessarily be responsible for the actions of the numerous companies that it controls, is not to imply that, for many purposes, it should not be regarded as 'one corporation' or as 'the leading corporation' in the steel industry. While not indicating the number of *legally chartered corporations* in the country, the *Statistics of Income* tabulations undoubtedly indicate with reasonable accuracy the number of corporate *enterprises*, even though some of the larger ones own or control subsidiary concerns for which they report income data in their own returns.

As to the instance of the automobile manufacturer owning a railroad, the frequency of this occurrence is rather slight if by 'railroad' is meant anything more than a few switch tracks or loading spurs. The only real railroad that has ever been owned by an automobile manufacturer is a rather small carrier as railroad properties go, and the inclusion of its data under the heading of manufacture exercises an altogether insignificant effect upon the figures for that division. Here again the difference between data for an individual corporation and for a large group of corporations, several times remarked in the preceding chapter, should be borne in mind. Any one company's figures may be influenced by this, that or the other factor; but the quantitative effect thus exerted upon the total figures for the group is automatically less than that upon the single company's figures.

More serious is the overlapping between the manufacturing and mining divisions because many manufacturing corporations operate their own metal mines or oil wells. Here Ebersole, Peterson and Burr offer a criticism that is valid in many ways. We have, however, already touched upon

this matter in Chapter 8 and pointed out that while the satisfactoriness of the mining data as adequately representative of *mining* activity is thus impaired, the satisfactoriness of the data for manufacturing activity is in some respects thereby enhanced. No adequate picture of the United States Steel Corporation, for example, as an integrated iron and steel enterprise could be obtained without including in its accounts such mining and transportation activities as are undertaken almost entirely for, and conduce directly to, the production of iron and steel products upon a large scale by the corporation in question. Again, everything depends upon the purpose of the investigation.[5]

Concerning, in this connection, the third count in the indictment of the Bureau of Internal Revenue's figures—that because of the consolidated report, each industrial group constitutes not merely a single set of industrial activities but a poor sample of all industries—the charge again seems too broad. First, the most egregious cases of conglomerate activities are the exceptions and not the rule. Ebersole, Peterson and Burr ask: "What is the main business of a company that owns, controls and files one return for operations covering . . . oil wells, pipe lines, refining, filling stations, electric light and gas plants and some investment companies?"[6] Presumably the corporation here in mind is the Cities Service Company, industrially an exceptionally diversified institution. If, however, 'electric light and gas plants' had been omitted from the list, the description of activities might well fit any one of several large oil companies other than Cities Service; and, if so, the answer

[5] Our statement here assumes that the investigator's primary interest lies in the steel industry as a whole, not in the performance of the non-integrated iron and steel companies *per se*. An investigator might, of course, for some purposes be concerned with the non-integrated as distinguished from the integrated enterprises.

[6] *Op. cit.*, p. 173n.

would simply be: the production of petroleum products, the several phases of the productive process being highly integrated. To be sure, the income arising from any one part of the process cannot be segregated in the data as given; but there is no really good reason to desire such a separation for purposes either of general economic analysis or of investment banking. An investor in the Standard Oil Company of New Jersey or the Texas Corporation invests his capital in these *several* activities, all of which are essential to the processing of oil for the final consumer. And waving aside Cities Service as representing an unusually diversified combination of activities, it is proper to regard a combination of oil wells, pipe lines, refineries, tank cars, and filling stations as constituting the normally related activities of oil production when carried on upon a large scale; and viewed in this way, the operation of pipe lines is just as much a part of the productive[7] activity of a large oil company as the operation of refineries and of filling stations.

This leads us to point out, in the second place, that a diversity of processes and activities is normally characteristic of many business enterprises whether incorporated or not. To take a trading group as an example, one would not object to the retention of the corner pharmacy—whether incorporated or otherwise—in a retail drug group because the enterprise deals in such items of hardware as alarm clocks and razors, in such foodstuffs as ice cream and candy, and in such drygoods as handkerchiefs, bandages and gauze —not to mention numerous articles other than drugs that such a store may often carry—for this conglomerate assemblage of products, traditionally and in reality, *is* a 'drug store'. To say that a datum showing the rate of return earned by such enterprises as compared with grocery or hardware stores can have no significance because the figure

[7] The term is, of course, employed in the economic sense.

represents income derived from the sale of heterogeneous products would be absurd. Similarly, to say that the enterprises denominated as 'department stores' do not constitute a particular type of business, the practices and earnings of which cannot be examined in comparison with other types of enterprise, would likewise be futile. The list could be extended.

But Ebersole presents an entirely valid criticism of the use of the consolidated return and its tendency to vitiate computations derived from *Statistics of Income* figures in pointing out that a given corporation may be not be kept in the same industrial classification in successive years. If, for example, a mail order house were at one time or another to begin the operation of retail stores and if the number of stores operated grew from year to year, a time might come when a very slight change in the nature of the enterprise might cause a complete change in classification. For example, at the start of the ten-year period, a corporation might derive 95 per cent of its gross revenues from mail order operations and 5 per cent or less from its one or several stores. If the proportion of business done by the retail stores so increased that, as of a given time, 49 per cent of the year's total business came from the stores and 51 per cent from the mail order trade, the corporation would still be classified as a mail order house. If, now, the next year 51 per cent of the gross revenues came from its stores, the corporation would then be shifted from the mail order group to another category. Not only would the character of the company's business have altered in no significant manner as between two years, but a distortion of the figures in both of the minor groups—that from which the corporation was taken and that into which it was put—would be effected. Thus, in any elaborate analysis of minor groups of industry, changes in classification that are made mechan-

ically upon the basis of *predominant* activity are apt to affect disastrously the year-to-year comparability of the results for small minor groups. Whether or not sufficient distortion of this sort takes place as between *major* groups so as occasionally to vitiate such figures as are published in *Statistics of Income* is uncertain.

Our small corporations samples are somewhat subject to this qualification. There is no assurance that the same company (in so far as the samples may contain some of the same companies in successive years) is classified in the same minor group from year to year. In respect of small corporations, however, the qualification necessary on this score is far less serious than of large companies, as the influence of any one or two companies upon the total figures for an industrial group is slight.

All of our large corporations samples, however, consist of identical corporations from year to year; and these corporations have been kept in *exactly the same groups* throughout the entire ten-year period.

But there were several important instances in which to have kept a particular corporation in a particular group for the entire ten years would have meant closing one's eyes to the obvious fact that the nature of the corporation's business *had* substantially changed; for example, a company manufacturing crude chemicals might have undertaken the manufacture of paints and its paint business have grown to such a volume that it surpassed, not slightly but very greatly, the volume of its other chemical products. In a few such instances the company was not put into either classification but in a miscellaneous category; that is, in the particular instance just given, the company would have been placed neither in the Paints nor the Crude Chemicals group but in Miscellaneous Chemicals and Chemical Products, for the entire ten years. For in many such instances, blindly to keep

corporations in the same group from year to year might effect as gross a distortion of results as to follow the rule of predominance.

It is clear that no completely satisfactory basis of classification is possible—any basis adopted must be in many respects arbitrary. Doubtless our practice of putting into miscellaneous categories the doubtful cases of our large corporations series solves the problem for purposes of sample studies that cover only ten or fifteen years. Probably no rule that could be employed continuously by the Bureau of Internal Revenue in its compilations would satisfy all users of the material. Over a long period of years, if the nature of a corporation's business indeed markedly changes it *should* be shifted out of one category into another. Perhaps a satisfactory working basis—although still arbitrary—would be to throw the enterprise in question into a new group only when the proportion of gross revenues derived from such activities constituted as much as, say, 75 or 80 per cent of its total volume of operations. In any event, the *Statistics of Income* data that we have employed in this book have been only for industrial divisions and major—not minor—industrial groups; and we may assume that reservations are necessary upon the score of industrial classification in few instances.[8] Our own large corporations

[8] Professor Ebersole and his co-authors do well in the articles cited to call attention to the qualifications that ought to be borne in mind by anyone who uses the figures published by the Bureau of Internal Revenue. For some purposes doubtless certain of the imperfections of classification may invalidate the *Statistics of Income* data in question; but for many purposes of general economic analysis, we cannot believe that they seriously do so. The position taken in this chapter is substantially that of Professor Crum, who has made much use of *Statistics of Income* data—particularly those for the net return upon sales and gross revenues—by industrial divisions and major groups in much the way in which those and other data have been employed in the present volume. In his *Corporate Earning Power* (1929) Crum states:

"In spite of these imperfections in classification, it is believed that the

samples, to repeat, are not subject to any such reservations.[9]

2. INTERCORPORATE INCOME AND INVESTMENT

Many large corporations, whether consolidated or not, own stock interests in other corporations on which they receive dividends. These dividends constitute a part of the income of the corporation that receives them, although they are not taxable. The income amounts contained in some tables of *Statistics of Income* may be taken with or without the inclusion of such dividends; and in nearly all of the tables of our samples, they may be reckoned either way. But we are not, in the balance sheet data of our samples, able to segregate the intercorporate investment on which such dividends are earned. Thus the capitalization data of our samples, taken as absolute amounts, involve a certain duplication: the capitalization of some corporations reflects

aggregate figures for the various divisions, groups, and subgroups are significant and valuable. One of the chief reasons for this confidence is that many of the errors in classification are such that they tend to offset one another, and to have therefore a relatively small aggregate effect on the group total. Moreover, we are accustomed to use statistical data for which similar classification difficulties exist. Indeed, most statistical classification in economics and business is likely to be hazy and imperfect, and we are in the habit of making reservations in our reasoning from such figures. Reservations of this sort should be made in the study of these income data. Such reservations need not be more stringent, however, than in other like problems in economic and business analysis, and they certainly do not seriously impair the usefulness of the figures for such analyses . . ." (p. 23).

[9] This chapter, in unrevised form, was submitted to Professor Ebersole, who was good enough to make several valuable criticisms of which cognizance has been taken in the revision. However, of a part of Section 1, Professor Ebersole says, "Have you not overlooked two facts . . . the bias of the figures during a period of consolidation whereby a larger area of business comes under the control of the corporation (single or consolidated) bearing the *same name,* and the mortality of old corporations and the birth of new corporations within the same classification?" Possibly these two matters should be treated in this chapter; see, however, Ch. 34, 35, 43.

the ownership not merely of its own assets but also a part of the assets of other corporations. For purposes of calculating the earnings rate of any corporation upon its invested capital, such dividends must be included in income; and it is thus proper to retain the investment (on which such dividends are received) in capitalization. But since some duplication is thus involved if either the income or investment figures be considered as absolute amounts, and since from the point of view of any given corporation the income thus received is in most instances to be classed as non-operating income, it is desirable to ascertain the extent to which such intercorporate holdings and revenues obtain. We have no data directly upon capital holdings, but the proportion of total income received upon such investments serves as a rough guide to the relative investments themselves.

It will be sufficient to analyze the data for the large manufacturing corporations series in 1928.[10] For All Manufacture, the total of intercorporate income received by the 2,046 companies of the sample amounted to 12.7 per cent of the aggregate net income before the segregation of dividends received. The two largest major groups, Metals and Foods, show figures of only about 4 per cent each. The Chemicals group, however, has a ratio of 30 per cent.[11] The large proportion of intercorporate dividends present in this group must be regarded as a substantial qualification upon the significance of the absolute income and capital figures involved. Data for all groups are presented in Table 113.

[10] The original data for other years are available in the *Source-Book.*

[11] This is the highest ratio of any major group except Rubber, in which the figure is anomalously 119 per cent because the net income derived from operations is a deficit that is converted into a positive figure when the intercorporate dividends are added to it. Dividends received in the Rubber group in 1928 amount to about $9 million, while the aggregate total net income of the group (including such dividends) is $7.5 million. The Rubber group, however, experienced an exceptionally poor year in 1928, so the illustration is not typical.

TABLE 113

DIVIDENDS RECEIVED IN RELATION TO NET INCOME: LARGE IDENTICAL MANUFACTURING CORPORATIONS

SERIES, 1928

MINOR GROUP		PERCENTAGE OF DIVIDENDS RECEIVED TO NET INCOME
1	Bakery products	0.3
2	Flour	0.4
3	Confectionery	4.3
4	Package foods	2.0
5	Dairying	0.1
6	Canned goods	3.9
7	Meat packing	9.4
9	Beverages	3.1
10	Tobacco	4.6
11–8	Miscellaneous food products	7.6
12	Cotton spinning	0.1
13	Cotton converting	1.2
14	Cotton weaving	8.8
15	Weaving woolens	1.8
16	Silk weaving	1.1
17	Carpets	1.9
18	Men's clothing	0.4
19	Knit goods	1.0
20	Miscellaneous clothing	1.2
21	Miscellaneous textiles	0.6
22	Boots and shoes	0.3
23	Miscellaneous leather products	9.9
24	Rubber products	118.8
25	Lumber manufacture	5.2
26	Planing mills	5.5
27	Millwork	0.3
28	Furniture (non-metal)	4.0
29	Miscellaneous lumber products	0.6
30	Blank paper	20.4
31	Cardboard boxes	0.9
32	Stationery	1.0
33	Miscellaneous paper products	9.1
34	Newspapers and periodicals	23.5
35	Book and music publishing	0.5
36	Job printing	4.3
37	Miscellaneous printing and publishing	0.8
38	Crude chemicals	3.5
39	Paints	7.8
40	Petroleum refining	31.2
41	Proprietary preparations	0.5
42	Toilet preparations	1.6

TABLE 113 *(continued)*

DIVIDENDS RECEIVED IN RELATION TO NET INCOME

MINOR GROUP		PERCENTAGE OF DIVIDENDS RECEIVED TO NET INCOME
43	Cleaning preparations	0.4
44	Miscellaneous chemicals	48.5
45	Ceramics	0.8
46	Glass	0.6
47	Portland cement	4.2
48	Miscellaneous stone and clay products	1.4
49	Castings and forgings	2.6
50	Sheet metal	6.1
51	Wire and nails	8.4
52	Heating machinery	7.1
53	Electrical machinery	6.1
54	Textile machinery	2.3
55	Printing machinery	0.1
56	Road machinery	1.3
57	Engines	3.0
58	Mining machinery	1.4
59	General factory machinery	3.2
60	Office machinery	2.0
61	Railway equipment	24.6
62	Motor vehicles	1.6
63	Firearms	2.5
64	Hardware	2.4
65	Tools	6.8
66	Bolts and nuts	2.9
67	Miscellaneous machinery	2.0
68	Non-ferrous metals	8.4
69	Jewelry	0.8
70	Miscellaneous metal products	1.5
71	Scientific instruments	35.8
72	Toys	1.1
73	Pianos	0.9
74	Miscellaneous special manufacturing	1.7
MAJOR GROUP		
1	Foods	4.4
2	Textiles	2.2
3	Leather	1.8
4	Rubber	118.8
5	Lumber	3.1
6	Paper	12.1
7	Printing and publishing	18.5
8	Chemicals	30.1

TABLE 113 *(continued)*

DIVIDENDS RECEIVED IN RELATION TO NET INCOME

MINOR GROUP		PERCENTAGE OF DIVIDENDS RECEIVED TO NET INCOME
9	Stone, clay and glass	2.0
10	Metals	3.8
11	Special manufacturing industries	20.7
	All manufacturing	12.7

Only a few minor groups show high ratios of dividends received to total net income. All but eight of the 73 manufacturing industries have ratios of less than 10 per cent. The five which (apart from the Rubber group commented upon above) have ratios of 25 per cent or more are: Miscellaneous Chemicals, 48.5; Scientific Instruments, 35.8; Petroleum Refining, 31.2; Railroad Equipment, 24.6. In most minor groups, therefore, the proportion of intercorporate income and investments is not sufficiently large to modify greatly the absolute figures; and the earnings rates derived therefrom may be regarded substantially as earnings from operations.[12] In a few groups, such as those just listed, qualifications must, however, be made with respect to the interpretation of the absolute capital and income figures.

3. CONSOLIDATED AND NON-CONSOLIDATED REPORTS

Frequent reference has been made in the two preceding sections to consolidated corporations in contrast to those which report individual income and investment figures, either to the Bureau of Internal Revenue or otherwise. For neither the data published in *Statistics of Income* nor for the corporations of our samples have we precise information concerning the extent to which consolidated corporation

[12] That is, from the point of view of each group as a whole, but not necessarily from that of a particular corporation within any group.

reports may effect a distortion in the figures as grouped by major or minor groups of industries. We are, however, able to ascertain the general extent to which consolidated corporations share in the business of the country from the published *Statistics of Income* figures; and for the data of our large corporations sample in Manufacturing and Trade, we may compare the rates of return received by the two types of enterprise. Both sets of comparisons are for 1928. First, as to all of the manufacturing corporations in the country, the consolidated corporations in manufacturing are shown by *Statistics of Income* as having sales of 33 billion dollars, or about one-half of the total of 64 billion for all corporations (consolidated and non-consolidated combined). The consolidated corporations account for 2,700 million out of a total net income[13] of about 4,500 million. In Trade the proportion of business done by the consolidated corporations is much smaller. The consolidated enterprises show sales of about 7.5 billion as compared with sales of 42 billion by all Trading corporations of the country (consolidated and non-consolidated combined). The total income of the consolidated Trading corporations is about 400 million as compared with slightly over one billion for all Trading corporations.

Our large manufacturing corporations sample contains 2,046 corporations of which 127 are consolidated and 1,919 are not.[14] The capitalization of the consolidated corporations equals about $10.5 billion, while that for the two classes combined is $25 billion. The income for the consoli-

[13] Called 'compiled net profits before deduction of tax-exempt items in order to arrive at statutory or taxable income'.

[14] The definition of consolidated corporation contained in the *Source-Book* is as follows: "*Consolidated corporation* means one which, in its accounting, merges the income account and balance sheet items of its subsidiaries with those of the parent company. Thus corporations 'not consolidated' may in some cases be affiliated with, may own or be owned by, other companies, but do not merge their financial data in their reports."

dated corporations is about one billion, while that of the two classes combined is about $2.75 billion.

Separating the two sets of figures, we may ask if the average rate of income received by the consolidated corporations as a group upon capitalization is larger than that for non-consolidated corporations. The difference is not significant: in the former group, 10.3 per cent; in the latter group 11.4 per cent.

This is for Manufacturing as a whole. The data may, however, be divided into several major groups. In some groups, the consolidated corporations doubtless earn more, in others less, than the non-consolidated. Just how significant these differences by major groups are cannot be said, as the absolute number of consolidated corporations is small in all groups except the large Metals group where the difference in the two figures is slight. The data are given for whatever they may be worth in Table 114. The data by minor indus-

TABLE 114

CLASSIFICATION OF 2,046 MANUFACTURING CORPORATIONS: CONSOLIDATED OR NOT CONSOLIDATED, 1928

	NUMBER OF CORPORATIONS	TOTAL NET INCOME	CAPITALIZATION	PERCENTAGE INCOME TO CAPITALIZATION
Major group 1				
Consolidated	23	$114,467,190	$1,376,535,540	8.3
Not consolidated	192	192,836,410	1,389,350,730	13.9
Total	215	307,303,600	2,765,886,270	11.1
Major group 2				
Consolidated	9	5,127,330	191,700,720	2.7
Not consolidated	280	75,144,500	1,021,134,010	7.4
Total	289	80,271,830	1,212,834,730	6.6
Major group 3				
Consolidated	6	19,660,470	117,293,920	16.8
Not consolidated	48	9,238,560	137,607,730	6.7
Total	54	28,899,030	254,901,650	11.4
Major group 5				
Consolidated	5	1,106,870	30,131,660	3.7
Not consolidated	185	43,146,360	495,598,570	8.7
Total	190	44,253,230	525,730,230	8.4

TABLE 114 *(continued)*

CLASSIFICATION OF 2,046 MANUFACTURING CORPORATIONS: CONSOLIDATED OR NOT CONSOLIDATED, 1928

	NUMBER OF CORPORATIONS	TOTAL NET INCOME	CAPITALIZATION	PERCENTAGE INCOME TO CAPITALIZATION
Major group 7				
Consolidated	5	23,899,520	52,617,120	45.4
Not consolidated	95	74,474,620	405,872,910	18.4
Total	100	98,374,140	458,490,030	21.5
Major group 8				
Consolidated	22	348,613,470	3,194,568,510	10.9
Not consolidated	188	431,289,550	3,548,596,880	12.2
Total	210	779,903,020	6,743,165,390	11.6
Major group 9				
Consolidated	8	15,890,130	150,791,350	10.6
Not consolidated	106	73,131,850	548,850,140	13.4
Total	114	89,021,980	699,641,490	12.8
Major group 10				
Consolidated	41	557,543,210	5,323,318,410	10.4
Not consolidated	607	617,513,790	5,313,580,140	11.6
Total	648	1,175,057,000	10,636,898,550	11.1
All manufacturing				
Consolidated	127	1,094,179,880	10,599,447,240	10.3
Not consolidated	1,919	1,642,649,750	14,379,550,490	11.4
Total	2,046	2,736,829,630	24,978,997,730	11.0

trial groups are not available; but it is fair to conclude that with most minor groups perhaps containing not more than one or two consolidated corporations, the effect of such differences in earning power as may prevail between consolidated and non-consolidated corporations in particular sets of related industrial classifications is not such as to distort the minor group figures in many instances.

In Trade, our large corporations sample contains 14 consolidated corporations and 650 non-consolidated corporations. The aggregate capitalization of the 14 consolidated corporations is 271 million while that of both classes combined is 2.5 billion. The income of the consolidated corporations is 48 million while that for the two classes combined

is 307 million. Here a substantial difference in earnings rates for the two types of enterprise is found; the consolidated corporations earn 17.8 per cent upon capitalization, while the non-consolidated average 11.6 per cent. Data are not available by major groups. We may, however, conclude that if the consolidated corporations are at all widely distributed among the various Trading minor groups, the effect of overlapping industrial classifications is not at all significant, since the 14 consolidated corporations that earn this high return possess only about 10 per cent of the aggregate capitalization of the sample.

4. CALENDAR AND FISCAL YEAR RETURNS

The data of both *Statistics of Income* and of our samples contain, among the income accounts classified as belonging to any calendar year, certain corporations whose accounting period is a fiscal year ending in some month other than December. The proportion is not large. We have no figures showing the exact percentage they constitute in each industrial division or major group, but in the *Statistics of Income* data the percentage for all divisions combined runs from 4 to 11 at the most.[15] In 1928 about 55,000 corporations filed tax returns for fiscal years ending not earlier than July 1, 1928 or later than June 31, 1929, out of a total of 496,000 corporations.

The fact that as many as ten per cent—or in some major or minor groups even a greater proportion—of the corporations for which data are classified as belonging to any one year do report income that is earned partly in months of the following calendar year undoubtedly has an effect upon the time fluctuations of our data. But again this influence

[16] Data available for the years 1925–28 yield the following percentages: 4.6, 5.1, 4.2, 11.1.

would not seem to be large. Of the 55,000 corporations that filed returns for fiscal years ending between the middle of 1928 and the middle of 1929, roughly as many have fiscal years ending in one month as in another, except January and June which were more popular as terminal points. The distribution as given in *Statistics of Income* is as follows:

Fiscal year ending	*Number of returns*	*Fiscal year ending*	*Number of returns*
July 1928	3,719	January 1929	6,538
August 1928	3,624	February 1929	3,851
September 1928	3,967	March 1929	5,230
October 1928	3,689	April 1929	4,779
November 1928	3,630	May 1929	5,132
		June 1929	10,661
	Total	54,820	

Many of the returns filed for fiscal years ending 'not later than June 30, 1929' thus report income of which a substantial proportion was actually earned in 1928. Probably no less than 80 or 85 per cent of the corporations in any major or minor group report calendar year data, and a portion of the fiscal year returns data belongs to the calendar year with which they are classified; therefore no very grave fear need be entertained that the inclusion of the fiscal year figures invalidates our time comparisons.[16]

[16] Crum, who in the work already cited analyzes the fiscal year situation carefully for 1926, concludes with respect to the data of *Statistics of Income:* ". . . the really significant difficulty is that changing business conditions may have an apparent effect upon the current fortunes of corporations which report for fiscal years ending considerably before December, different from that for corporations reporting for fiscal years ending considerably after December. Furthermore, if it should turn out that the bulk of the early dates tend to apply to enterprises in a particular type of industry, and the bulk of the later dates tend to apply to enterprises in some other lines of business, there may be, on this ground also, a tendency towards bias. Under the actual circumstances, however, with the calendar year returns exceeding 94 per cent of the total (in 1926) it seems probable that these disparities even at the worst cannot damage seriously the year-to-year comparisons based on the tabulated figures." (Ch. II, Classification Difficulties, p. 25; see also Crum's discussion in Appendix A, *op. cit.*, pp. 317–8.)

Akin to this problem of the fiscal year for the income account is that of the date at which balance sheet figures are taken for corporations that do report calendar year data. In obtaining the capital figures for any given year the ideal practice would be to take an average of daily, weekly, or monthly figures for the amount of capital invested; but needless to say no such data are available. All that the statistical investigator can ordinarily obtain is a balance sheet figure as of either the beginning or the end of the year. Taking either the beginning or the end of the year figure biases the resulting earnings rate in the one direction or the other. An alternative would be to average the two capital figures, when samples made this feasible—in our large identical manufacturing corporations series, for example. But had we done this in our several analyses, our general arithmetic average earnings rates would not have been exactly comparable with the earnings rates of our frequency distributions of individual corporations in the various major groups, as the latter are available only upon single, and not average, bases.

Although an average base represents a theoretically better practice, the difference in result is not large in the case of our several data. If, for example, in any major or minor group the invested capital as of the beginning of the year were 100 and the net profit were 11, the rate of return computed upon the beginning of the year base would be 11 per cent; if at the end of the year the capital were 105, the rate of return based upon that figure would be 10.5 per cent, or rounded off, 11.0 per cent. It is thus apparent that even if the invested capital of a group were 10 or 15 per cent larger (instead of only 5 per cent as assumed in the illustration) during the year, the difference between the earnings rates as computed on an end-of-the-year basis and an average basis would not be serious. In our several samples

the balance sheet data were taken (by necessity) as of January 1 in the years 1919–22; as of either January 1 or December 31 in 1923; and as of December 31 in the years 1924–28. All income account data are for the entire year ended December 31, except in the relatively few instances of corporations with fiscal years that run otherwise.

5. CLASSIFICATION OF CORPORATIONS WITH AND WITHOUT NET INCOME

The most frequent characterization of 'successful' and 'unsuccessful' corporations made upon the basis of the published *Statistics of Income* figures is to contrast the number of corporations reporting net incomes with the number reporting no net incomes. The result shows that nearly as many corporations annually fail to return an income as to report one. Such comparison, while striking, does not tell the whole story for at least two reasons. In the first place, as Crum has pointed out, while nearly half of the corporate enterprises report to the Bureau of Internal Revenue that they earn no net income, most corporations of this kind are very small; and nothing like one-half of the total corporate business of the country is carried on without a profit. Instead, only about 20 per cent of all corporate business is done at a loss, 80 per cent of the aggregate volume showing a net income even for income tax purposes.

In the second place, many of the corporations that show no net income for income tax purposes may have net incomes and may, as Ebersole, Peterson and Burr have stated, remain permanently in business. In certain instances the income is largely of the tax-exempt nature; in other instances, or occasionally even in the same case, a close corporation may well pay out substantial salaries to its officers, "and

thus have no taxable income remainder after deducting enough for depreciation to keep its capital intact."[17]

For these two reasons the *Statistics of Income* data—although strictly correct in light of the definitions of terms underlying them—are to be interpreted with caution. Nevertheless, they point to the undoubtedly large proportion of corporate enterprises that annually receive no great income upon their invested capital; and a somewhat closer scrutiny of our several samples from this point of view is therefore needed.

Our several large corporations series, of course, each year contain corporations reporting deficits. These deficits are not deficits for purposes of income tax return as above discussed, but are true net deficits after counting in the two tax-exempt items of dividends received and interest upon Government securities. We are not able to segregate the sales of the corporations with deficits in our samples and ascertain what proportion of total business volume was done at a profit; but we are able to segregate the capitalization of the enterprises with true net losses ('true' in that tax-exempt income is not waved aside) and to ascertain what proportion of all of the capitalization in the sample earned a profit. Taking our 2,046 large manufacturing corporations series as representative of *large-scale* manufacturing, we find in 1928 that a net income was earned on 94 per cent of the investment. In 1927 the figure is 90 per cent, while in 1926 it is 96 per cent. In a year of depression such as 1921 it is 70 per cent.

While our large corporations samples contain enterprises with deficits, our several small corporations series do not. The earnings rates computed for them enable us to ascertain what returns upon investment are received by small corporations that *do* earn net incomes; but no light is thus

[17] Ebersole *et al.*, *op. cit.*, p. 171.

thrown upon the extent of the losses suffered by small corporations that *fail* to return such incomes. We have available (Table 115), however, a small sample of such corporations in Manufacture. Since the data relate only to the two years 1926 and 1928 and are susceptible of division into less than a score of minor groups, they were not introduced earlier.

This series we may call a sample of 'non-identical small manufacturing corporations with negative net incomes'. It contains 487 corporations in 1926, and 376 corporations in 1928. The incomes are 'net' in the same inclusive sense in which the term has been used in connection with our other samples. They include tax-exempt items such as corporate dividends received and interest on non-taxable securities. But they are not, of course, adjusted to take cognizance of such partly questionable deductions from income as relatively large officers' salaries, etc. that may be involved.[18] Our immediate interest is in seeing what part of the capitalization of these companies the annual net loss thus computed represents.

For All Manufacturing, the negative earnings rate upon capitalization for this sample is 8.1 per cent in 1926 and 6.5 per cent in 1928. In the ten major groups into which the data may be divided (the Leather and Rubber groups are combined) the figures run as high as 22 per cent in 1926, but in no case exceed 12 per cent in 1928. The Paper group in both years, and the Leather and Rubber group in 1928, should be disregarded as the numbers of corporations in the samples are clearly too small to be of significance.

The division of the data into minor groups shows that

[18] Colonel M. C. Rorty observes that since the payment of salaries large in proportion to profits occurs mainly, although not exclusively, in small corporations, and is far from universal there, the proportion of aggregate corporate profits thus misclassified as payment for services must be a very small fraction of the whole.

in neither year did the net loss sustained by any group amount to more than about 13 per cent of the capitalization. In most instances the figure runs between 5 and 10 per cent. It is, however, to be observed that in many of these minor group samples the number of corporations is very small. While the distorting elements that would be occasioned in such small samples, were any very large corporations included, are here entirely absent, it is nevertheless to be remarked that possibly the only very valid figures of Table 115 are those for All Manufacturing—the 8.1 per cent and 6.5 per cent losses for 1926 and 1928 respectively—and for the several major groups that contain more than a few corporations each.

TABLE 115

PERCENTAGE OF NET LOSS TO CAPITALIZATION: SMALL NON-IDENTICAL MANUFACTURING CORPORATIONS WITH NEGATIVE INCOMES IN 1926 AND 1928

		NUMBER OF CORPORATIONS		PERCENTAGE OF LOSS TO CAPITALIZATION	
		1926	*1928*	*1926*	*1928*
MINOR GROUP					
1	Bakery products	9	11	9.6	9.5
2	Flour	25	17	7.4	4.9
5	Dairying	10	10	6.3	7.0
11	Miscellaneous food products	21	13	10.8	6.9
18	Men's clothing	11	8	7.0	11.0
19	Knit goods	7	..	4.9	..
20	Miscellaneous clothing	22	41	9.7	11.3
21	Miscellaneous textiles	8	26	0.5	7.2
25	Lumber manufacture	29	..	5.8	..
34	Newspapers	9	..	3.8	..
37	Miscellaneous printing and publishing	6	9	6.5	11.0
48	Miscellaneous stone and clay products	12	7	5.6	4.7
49	Castings and forgings	17	11	8.4	7.1
53	Electrical machinery	9	6	4.2	4.6
67	Miscellaneous machinery	8	7	13.4	11.6

TABLE 115 *(continued)*

PERCENTAGE OF NET LOSS TO CAPITALIZATION

	NUMBER OF CORPORATIONS		PERCENTAGE OF LOSS TO CAPITALIZATION	
	1926	*1928*	*1926*	*1928*
MINOR GROUP				
70 Miscellaneous metal products	11	6	9.9	5.0
74 Miscellaneous special manufacturing	23	18	12.2	8.4
MAJOR GROUP				
1 Foods	98	74	8.3	5.4
2 Textiles	71	97	3.2	8.6
3–4 Leather and rubber	25	8	22.0	4.7
5 Lumber	71	27	7.7	7.7
6 Paper	7	7	10.8	7.2
7 Printing	33	25	4.9	12.1
8 Chemicals	34	37	19.1	4.4
9 Clay, stone and glass	17	11	6.5	3.7
10 Metals	99	67	5.7	7.9
11 Special manufacturing industries	32	23	11.2	8.3
All manufacturing	487	376	8.1	6.5

6. DEFICITS IN CAPITAL ACCOUNT

One problem of the classification of corporations for purposes of earnings rates analysis, which is present in the case of corporations both with and without net income, is the treatment of accumulated deficits in capitalization. If a corporation has sustained marked losses for several years, it is possible that not only will it fail to show a surplus but also that its original capitalization will have become to some extent impaired, perhaps substantially so. Among the small corporations this situation is far more common than is ordinarily realized, although to the public accountant it is a fairly familiar phenomenon.

So long as the amount of the deficit (in this section we use the term 'deficit' in reference to capital account) is

relatively small, it may be subtracted from the original capitalization and the net figure regarded as the amount of capital investment actually in the business. But when the amount of the accumulated deficit becomes large, such treatment is unsatisfactory and occasionally leads to grotesque results. A small corporation, for example, might begin business with an original capitalization of $250,000, and over a period of years undergo successive losses so that at the end of the period in question its accumulated deficit amounted to $240,000. The net capitalization or stockholders' equity remaining would thus amount to $10,000. Such a corporation might, however, in the next year earn a positive net income of $2,000. Reckoned upon a capitalization base of $10,000, such an income would give an earnings rate of 20 per cent. Or, as a more extreme illustration, a good year might bring the corporation's income to $10,000 or more; in this event the earnings rate would appear to be 100 per cent or over—an absurd result. For while the stockholders' equity in the corporation is indeed only $10,000, there is far more than that amount of capital invested in the business; its ownership has merely been shifted from the stockholders to the creditors, who, should the enterprise be liquidated, would receive the bulk of the proceeds from the sale of the fixed and other assets liquidated. The figures of the illustration are hypothetical, but the proportions involved represent approximately the situation found in several actual cases. It is therefore of interest to ascertain the extent to which such deficits in capital account prevail, as well as necessary to explain the treatment accorded them in the data of our samples.

In each of the years 1925–28 the original data from which our small manufacturing corporations series (with positive incomes of from $2,000 to $50,000) was drawn consisted of approximately 1,650 corporations. Of these

1,650 corporations, in every year about 100 companies showed accumulated deficits. Thus *at least* 6 per cent of the small manufacturing corporations of the country (the sample is biased in that it contains only corporations with positive incomes) show an impairment of the original capital invested.

The range of these deficits is wide. The distribution in 1928, for example, discloses that 8 out of 107 corporations had accumulated deficits of over 100 per cent of their original capitalization; 26 had deficits of over 50 per cent; while 46 had deficits of over 20 per cent. There are thus roughly as many of these companies with deficits of over as of under 20 per cent. Upon this arbitrary basis—and because a subtraction of 20 per cent of the original capital in reckoning the remaining stockholders' equity provides a base that does not significantly distort the resulting earnings rate—the corporations having accumulated capital deficits of less than 20 per cent were retained in the sample, the amount of the deficit being subtracted from the total capital stock. All companies with deficits of 20 per cent or more were excluded from the sample.

The exclusion of such corporations is perhaps open to the objection that it puts aside certain enterprises that may merely for a time have lost money through the abandonment of processes or equipment that have not proved successful. Such corporations may, however, be engaged in activities of another sort which later prove to be profitable, and may therefore remain permanently in business.[19] In this and perhaps in other ways, our small corporations sample therefore excludes certain types of corporation that undoubtedly constitute a part of nearly every industry. But since the corporations with deficits constituted only about 6 per

[19] I am indebted to Professor Roy B. Kester of Columbia University for several suggestions in connection with the present discussion.

cent of the original number of companies analyzed in the preparation of the samples, and since only about half of this number was excluded, less than 3 per cent of the corporations have been put aside for this reason.

As remarked earlier, the same phenomenon presents itself with corporations that show net losses in each year as well as with those that show positive incomes. Our two other small manufacturing corporations samples, that for 'small corporations with incomes of over $2,000' and that for 'small corporations with negative net incomes', were treated similarly. Figures upon the prevalence of capital deficits for these two samples separately are not available; but for the two samples combined the frequency of such capital deficits is considerably higher than for the 'small corporations with net incomes of over $2,000' discussed above. The percentage of companies excluded as the result of capital deficits of over 20 per cent in each of the four years 1925–28 is as follows: 1925, 11.4; 1926, 14.1; 1927, 20.6; 1928, 7.4.

7. REGIONAL CLASSIFICATION DIFFICULTIES

The classification of corporations upon the basis of their geographical location as undertaken in Chapter 5 requires further comment here. As was pointed out in the discussion of that chapter, the only regional classification that it was possible to make consisted of the assignment of corporations to this or that geographical region upon the basis of the location of their head offices. This is far from perfect procedure in any case, and with some corporations may result in an altogether meaningless allocation of capital and income to any particular geographical region. To some extent, of course, refuge may be taken in the view that a partial offsetting occurs. Some New England companies, may, for example, own plants in Pennsylvania, while certain Pennsyl-

vania companies may own plants located in New England. But while this may tend somewhat to balance the discrepancies in the amount of capital assigned to the several regions, there is no assurance that it effects any proper balance in earnings rates, and indeed to the extent that it takes place, really begs the question as to what the real differences in the earnings rates of different regions may be.

Less difficulty on this score is probably to be found in the Trading division where, except for chain stores, the several enterprises that may be owned by a given corporation are apt to be located either in the same state or at least within the same geographical region. But on the whole we should regard this classification by geographical regions as one of the least satisfactory in the entire volume; and any significance that the results may possess lies simply in the demarcation of corporations according to the locality of their 'organization headquarters', or, as Willard L. Thorp has expressed it, of their 'central office' managements [20]—not in differences of the regional profitableness of Manufacturing or Trading activities *per se*.[21]

[20] *The Integration of Industrial Operation* (Census Monograph III, 1924).

[21] Here the writer is unable to agree with Crum that the geographically ramified activities of individual enterprises probably do not distort significantly the use of corporation data classified by regions. To be sure, the data that Crum has thus employed (classified by the several states of the union) are broad data for the entire universe of corporations and not for samples of the sort we are using; and undoubtedly the difficulties encountered with data for the entire universe are less serious than for samples. Nevertheless the argument that discrepancies tend to offset one another seems to the writer not so well proved in this particular instance as in other instances of classification discussed by Crum in the illuminating chapter, Classification Difficulties, of the book to which we have referred previously.