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CHAPTER 8

Temporal Changes in Income

THE PRECEDING CHAPTER is concerned with relative income status, the position a man occupies in an array of practitioners by size of income; this chapter, with actual income, the number of dollars he receives for his services. Both are important to the professional man: relative income status, as a measure of professional success; actual income, as the determinant of his standard of living.

Changes in a man's actual income depend not only on changes in his relative income status but also on changes in the income of his profession as a whole. The latter, in turn, depend on changes in general economic activity and on the sensitivity to them of economic conditions within the profession. It has often been supposed that the professions are relatively sheltered; that professional workers are less affected by cyclical movements in economic activity than other workers. The data presented below demonstrate that this supposition is not tenable, at least for independent professional men and for the single cycle our data cover. True, independent professional men are less likely to become completely unemployed than salaried professional or nonprofessional workers, and hence the losses entailed by a decline in average income may be more evenly distributed among them; but their average income changes as much as that of other workers.

1 CHANGES IN AVERAGE INCOME

We have previously noted the close similarity among the professions other than consulting engineering in the patterns of temporal change in average income (Ch. 4, Chart 7). This impression is confirmed by two sets of indices of average net income, one with 1929 and the other with 1933 as the base, computed by chaining the averages from the various samples for each profession (Chart 30 and Table 64). There are, in-

TABLE 64

Indices of Arithmetic Mean Income

Professions and All Gainfully Occupied Persons

	1929	1930	1931	1932	1933	1934	1935	1936
	1929 = 100							
Physicians								
All samples ¹	100.0	89.1	77.1	58.0	53.5	61.5	65.1	74.0
1937 sample ²	100.0	88.8	76.4	57.6	52.8	59.6	63.2	71.8
Dentists ³	100.0	95.9	80.2	59.2	52.2	57.1		
Lawyers								
Both samples ⁴	100.0			65.3	57.7	60.5	63.5	68.9
1937 sample ⁵	100.0			65.3	56.7	56.3	59.1	64.1
Certified public accountants ⁶	100.0	92.3	76.6	60.3	55.6	61.1	64.0	69.9
Consulting engineers	100.0	84.8	49.7	26.3				
Employee compensation plus entrepreneurial withdrawals per gainfully occupied person ⁷	100.0	90.8	76.6	60.7	56.7	63.1	67.1	73.6
	1933 = 100							
Physicians								
All samples ¹	186.8	166.4	144.1	108.4	100.0	115.0	121.8	158.5
1937 sample ²	189.2	168.0	144.6	109.0	100.0	112.8	119.5	135.9
Dentists ³	191.8	180.1	153.8	113.6	100.0	109.6		
Lawyers								
Both samples ⁴	173.5			113.3	100.0	104.9	110.1	119.5
1937 sample ⁵	176.3			115.2	100.0	99.2	104.1	113.0
Certified public accountants ⁶	180.2	166.3	138.0	108.6	100.0	110.0	115.3	125.8
Employee compensation plus entrepreneurial withdrawals per gainfully occupied person ⁷	176.5	160.2	135.2	107.2	100.0	111.3	118.5	129.9

¹ 1933 sample used for 1929-32; 1935 sample for 1932-34; 1937 sample for 1934-36. In deriving the index the arithmetic mean incomes for each sample in Table 10 were expressed as percentages of the mean incomes for the initial year for which the sample was to be used. The percentages from the 1935 sample were then multiplied by the 1932 percentage from the 1933 sample and the percentages from the 1937 sample by the percentage from the preceding step for 1934. This gave the index with 1929 as the base. The index with 1933 as the base and the indices for the other professions were derived similarly.

² 1937 sample used for the entire period 1929-36.

³ See footnote 1; 1933 sample used for 1929-32; 1935 sample for 1932-34.

⁴ See footnote 1; 1937 sample used for 1929, 1932, and 1934-36; 1935 sample for 1932-34.

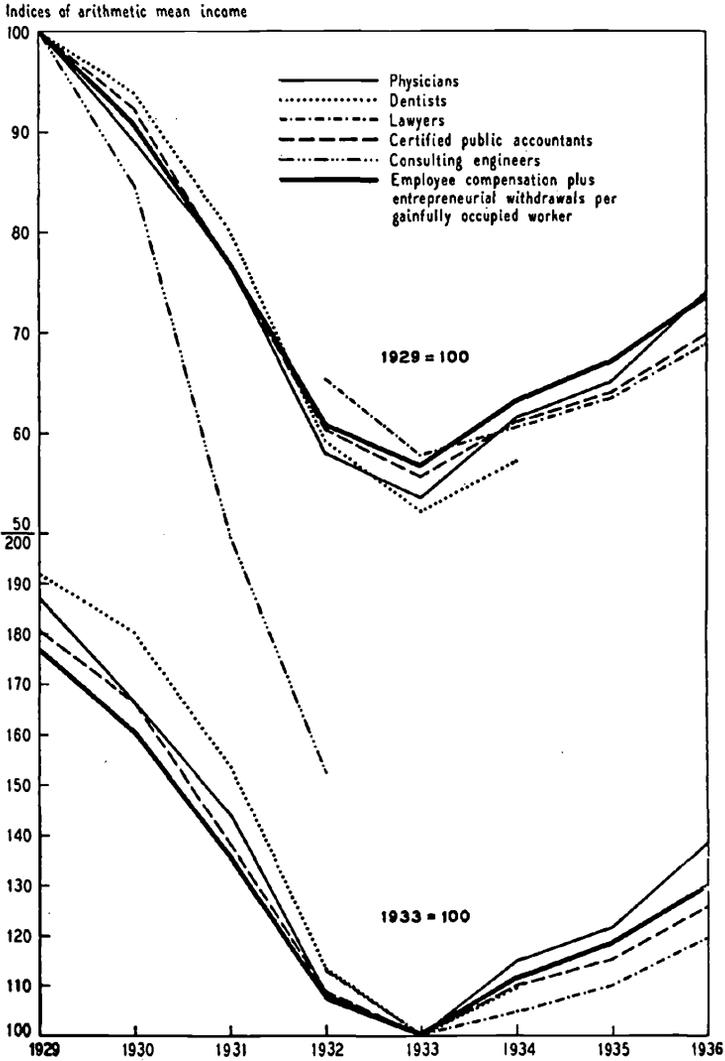
⁵ 1937 sample used for 1929 and 1932-36.

⁶ See footnote 1; 1933 sample used for 1929-32; 1935 sample for 1932-34; 1937 sample for 1934-36.

⁷ Estimates of employee compensation and entrepreneurial withdrawals for 1929-36 by Simon Kuznets, *National Income and Its Composition, 1919-1938* (National Bureau of Economic Research, 1941), Table 68. Total number of gainfully occupied persons in the United States by Daniel Carson, *Labor Supply and Employment* (National Research Project, mimeo., Nov. 1939).

CHART 30

Indices of Arithmetic Mean Income for Five Professions and
Indices of Employee Compensation plus Entrepreneurial
Withdrawals per Gainfully Occupied Worker



deed, differences in detail but the movements are so similar that it is questionable whether the minor differences ought to be attributed to anything except chance variation.¹

The precipitous fall in the incomes of consulting engineers is not surprising. The demand for services of engineers comes from industries notoriously subject to violent cyclical fluctuations—the construction and heavy industries in general. And consulting engineers are in an even more vulnerable cyclical position than engineers as a whole, since a larger part of their services than of the services of all engineers is required in connection with the initiation of new projects or the expansion of existing enterprises.

The demand for the services of the other professions is much broader and is not concentrated in any one group of industries or final consumers. The broad pattern of change in average net income in these professions resembles closely that in the average income from employment of all gainfully occupied persons (the heavy solid line in Chart 30). Were it not for the milder fall from 1932 to 1933 in the average income from employment of gainfully occupied persons, the heavy solid line would pass through the cluster of lines for the four professions and would give the impression of being an average of them.

This similarity in the temporal changes in incomes received in the several professions does not necessarily reflect a corresponding similarity in the changes in the volume of services rendered. In medicine and, to a lesser extent, dentistry, the volume of services probably fell much less from 1929 to 1933 and rose much less after 1933 than income received, the changes in income being accounted for in large part by changes in collections. In the business professions, on the other hand, the volume of services rendered probably fell and rose as much as income.

The minor differences among the four professions in the movement of average income are puzzling. In general, demand by ultimate consumers fluctuates less during business cycles

¹ Unfortunately, no method seems to be available for determining the magnitude of the differences among patterns that can be attributed to chance variation.

than demand by business firms. We should, therefore, expect the incomes of physicians and dentists, who serve ultimate consumers, to fall less from 1929 to 1933 and rise less from 1933 to 1936 than the incomes of accountants and lawyers, who serve in large part business firms. Yet the relative fall in average income from 1929 to 1933 is slightly larger for physicians and dentists than for lawyers and certified public accountants; and the relative rise from 1933 to 1936 is larger for physicians (no data are available for dentists) than for lawyers and accountants. Whether these differences are to be attributed to the character of the services provided by accountants and lawyers, to an increase in the demand for their services in connection with failure and reorganization of business firms during depression, or to the peculiarities of the samples used, we cannot tell.

From the indices on a 1929 base, one might conclude that the minor differences among the professions are larger during the recovery from 1933 to 1936 than during the preceding downswing. However, the indices on a 1933 base indicate that this is merely a result of the general tendency of relatives on a fixed base to diverge. There is little reason for concluding that the movements of average income are any more divergent among the professions during the rising phase of the cycle than during the declining.

2 CHANGES IN VARIABILITY OF INCOME

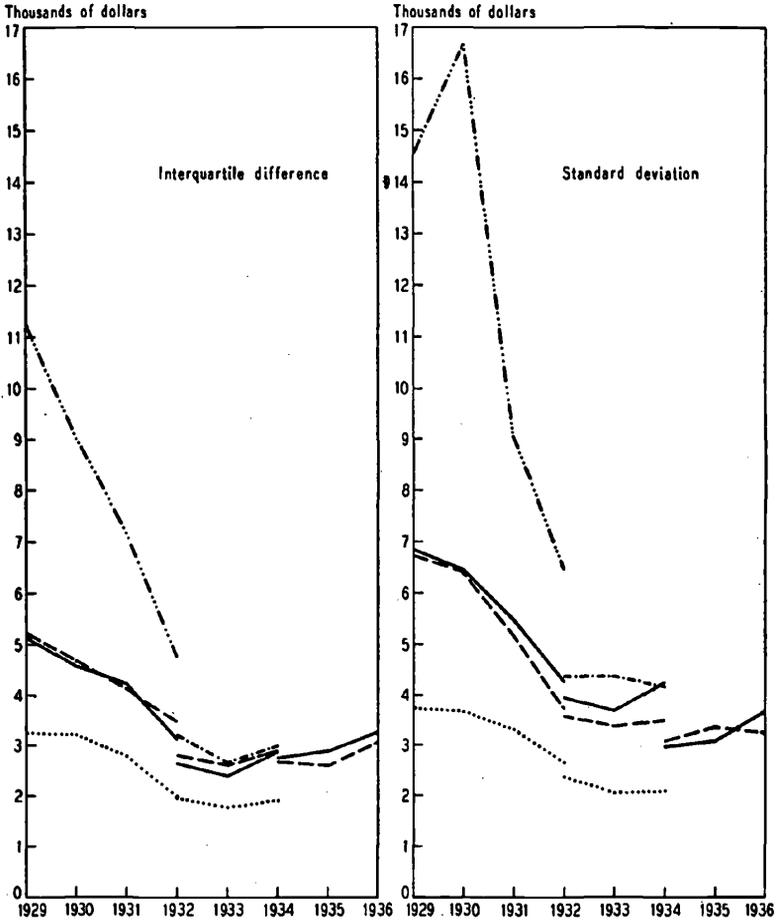
In general, absolute variability decreased in all professions from 1929 to 1933 and increased from 1933 to 1936, i.e., it changed in the same direction as average income (Chart 31). The decrease is considerably more marked than the subsequent increase, and indeed the evidence for the increase, while fairly conclusive, is by no means unmixed. Changes in absolute variability, like changes in average income, are of much the same magnitude in all professions other than engineering.

The several measures of relative variability summarized in Chart 9, reproduced here in Chart 32, tell a less simple and straightforward story. Only for engineering can we say with any confidence just what our data show, let alone what the

CHART 31

Two Measures of Absolute Variability of Income

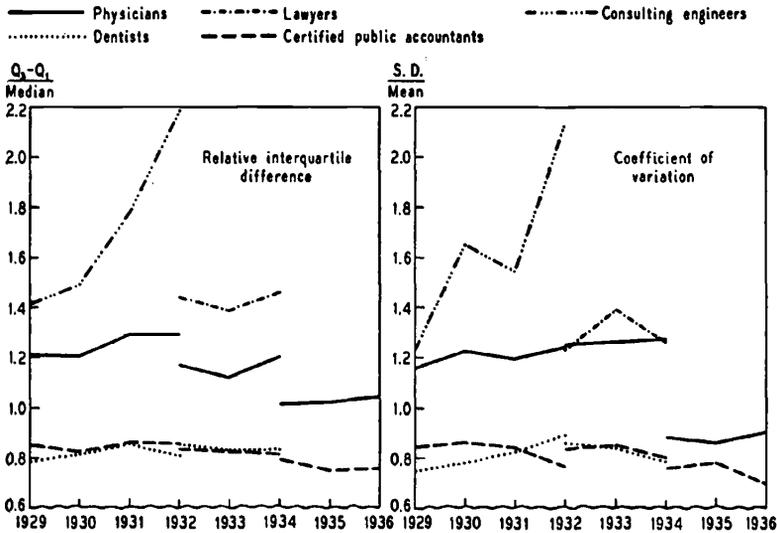
— Physicians - - - - - Lawyers - · - · - Consulting engineers
 ····· Dentists - - - Certified public accountants



'true' changes were: all measures indicate a fairly rapid rise in relative variability from 1929 to 1932. All we can say with confidence about the other professions is that changes in relative variability were not large; in other words, differences in average income account for the largest part of the temporal

CHART 32

Two Measures of Relative Variability of Income



Reproduction of Chart 9

changes in absolute variability. This statement, based on changes within the period covered by individual samples, may seem to be contradicted by the differences among the successive samples for the same profession: the 'level' of the measures varies from sample to sample and is in general lower for the samples covering 1934-36 than for the samples covering 1932-34. The successive samples for the same profession overlap, and for the overlapping year two measures are plotted on the chart, one from the earlier sample, the other, from the later sample. The difference between them cannot be interpreted as a temporal change, since both are for the same year; it must be interpreted as arising either from sampling error or bias. It follows that differences in the level of the measures from successive samples cannot be interpreted as reflecting temporal changes in variability. Evidence on temporal changes is given solely by differences among measures from the same sample.

In addition to measures summarized in Chart 32 (and Table 13) we have the results of a study of Lorenz curves for the various samples and professions. The largest differences for any profession or sample—other than consulting engineering—are for the 1933 sample of physicians, for which the Lorenz curves suggest a steady increase in relative variability from 1929 to 1932. Yet even for this sample the largest vertical difference between the 1929 and 1932 curves, when the two are plotted on a chart ten inches square, is three-tenths of an inch. It is thus obvious why we present no charts giving the Lorenz curves for the same profession and sample for different years: if reduced to a size convenient for publication, on only one or two would it be possible to distinguish the different curves.

If we combine the information from the Lorenz curves and the measures in Chart 32 (and Table 13), there is some, but by no means unmixed, evidence of a slight rise in relative variability from 1929 to 1932 in all professions, except possibly accountancy. From 1932 to 1933 there is no agreement about the direction of the change in medicine or law, slight evidence of a decrease in dentistry, and fairly clear indications of an increase in accountancy. From 1933 to 1934 inequality seems to increase in medicine, and to decrease in dentistry and accountancy; 'no agreement' is again the verdict for law. From 1934 to 1935 the evidence favors a slight increase in inequality in medicine and a slight decrease in accountancy.

The general tendency for relative variability to increase from 1929 to 1932, when average incomes were falling rapidly in all professions, suggests the hypothesis that relative variability moves inversely to the income level. Of the later samples, only those for accountancy support this hypothesis. Those for law and dentistry are neutral, but those for medicine definitely contradict the hypothesis. In short, the only simple hypothesis about the relation of relative variability to general business conditions and average income that seems consistent with our findings is that there is none and that the observed differences are chance phenomena.

3 CHANGES IN INCOME BY SIZE OF COMMUNITY

The countrywide changes in average professional income described earlier naturally dominate income changes in communities of different size. The familiar pattern of a fall from 1929 to 1933 and a rise thereafter is repeated time and again in Chart 33, which presents, by size of community classes, average incomes obtained by combining the different samples for each profession.² Since the income scale of Chart 33 is logarithmic, equal distances represent equal percentage changes. The rough parallelism of the lines in each panel indicates that temporal changes in the average income of professional workers practising in communities varying in size are alike not only in direction but also in relative magnitude. The least regular patterns of change are displayed by lawyers and consulting engineers. The data are perhaps less satisfactory for law than for any other profession; the data for consulting engineering cover only 1929-32 and include very few returns for the two size of community classes that show the greatest departures (communities under 5,000 and between 5,000 and 25,000 in population).

In the other professions the departures from parallelism, though minor, do not seem entirely random. Table 65 suggests that the fall was somewhat larger and the subsequent rise somewhat smaller in large cities than in small.³ The evidence is by no means clear-cut or conclusive. It is strongest for account-

² See notes to Tables B 3, B 5, B 8, B 10, and B 11 for methods used to combine the samples.

³ Table 65 measures changes in income between fixed dates, rather than between the high and low years for each community class. However, average income reached its trough in a year other than 1933 in only three of the twenty-eight series for which computations were made; average income in the initial year (1929 or 1932) was higher than in any other year prior to the trough in all series; and average income in the terminal year (1934 or 1936) was higher than in any other year subsequent to the trough in all but one instance. Consequently the results obtained by using fixed dates are virtually identical with those which would have been obtained by using the high and low years determined for each size of community class separately. It should be noted that, because of the limited periods our data cover, 'high' as used here is not synonymous with 'cyclical peak', though 'low' is synonymous with 'cyclical trough'.

CHART 33

Arithmetic Mean Income by Size of Community

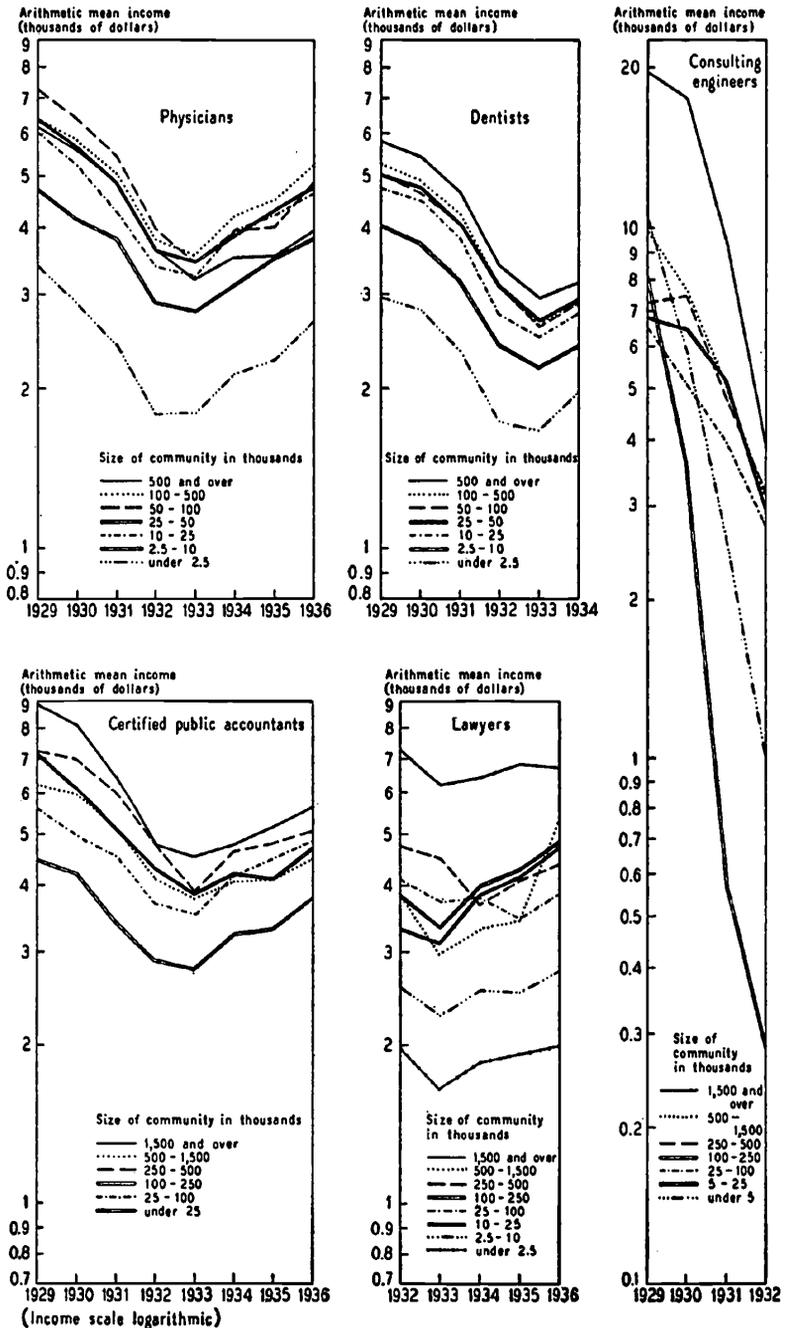


TABLE 65

Change in Arithmetic Mean Income, by Size of Community
Average for Period Covered = 100

SIZE OF COMMUNITY	PHYSICIANS	DENTISTS	CERTIFIED PUBLIC ACCOUNTANTS		LAWYERS
			Decline ¹		
	1929-33	1929-33	1929-33	1932-33	
1,500,000 & over	} 69.4	} 67.5	71.1	15.1	
500,000-1,500,000			51.9	23.3	
250,000- 500,000	} 58.9	} 68.5	62.1	5.6	
100,000- 250,000			66.0	5.1	
50,000- 100,000	78.2	64.6	} 45.9	} 9.6	
25,000- 50,000	63.6	62.2			
10,000- 25,000	69.7	64.2	} 48.6	11.6	
2,500- 10,000	53.8	62.5		11.5	
Under 2,500	64.9	57.1		16.8	
U. S.	64.2	64.9	61.4	12.1	
			Rise ¹		
	1933-36	1933-34	1933-36	1933-36	
1,500,000 & over	} 17.4	} 4.8	17.5	8.2	
500,000-1,500,000			14.7	59.9	
250,000- 500,000	} 34.5	} 7.0	21.8	-2.8 ²	
100,000- 250,000			16.9	42.0	
50,000- 100,000	29.4	7.6	} 29.9	} 4.0	
25,000- 50,000	28.6	6.8			
10,000- 25,000	31.7	7.7	} 28.5	36.5	
2,500- 10,000	29.1	6.7		18.6	
Under 2,500	35.7	12.3		18.1	
U. S.	28.4	6.8	19.8	17.7	
			Decline and Rise ²		
	1929-36	1929-34	1929-36	1932-36	
1,500,000 & over	} 86.8	} 72.3	88.6	23.3	
500,000-1,500,000			66.6	83.2	
250,000- 500,000	} 93.4	} 75.5	83.9	2.8	
100,000- 250,000			82.9	47.1	
50,000- 100,000	107.6	72.2	} 75.8	} 13.6	
25,000- 50,000	92.2	68.5			
10,000- 25,000	95.4	71.9	} 77.1	48.1	
2,500- 10,000	82.9	69.2		30.1	
Under 2,500	100.6	69.4		34.9	
U. S.	92.6	71.7	81.2	29.8	

¹ Based on arithmetic means in Tables B 3, B 5, B 8, B 10, and B 11 expressed as relatives of averages for the period in Table 16.

² Negative because mean income declined from 1933 to 1936.

³ 'Decline and rise' is sum of percentage decline and percentage rise.

ants, whose average income fell more and rose less in each of the four largest size of community classes than in either of the two smallest. The evidence for dentists, though less uniform, is still fairly convincing. Average income fell most in communities over 100,000 and rose least in communities over 500,000; it fell least and rose most in communities under 2,500. The evidence is most uncertain and mixed for physicians. Taken alone it would hardly justify any conclusion. However, what differences there are in income movement are in the same general direction as in the other two professions.

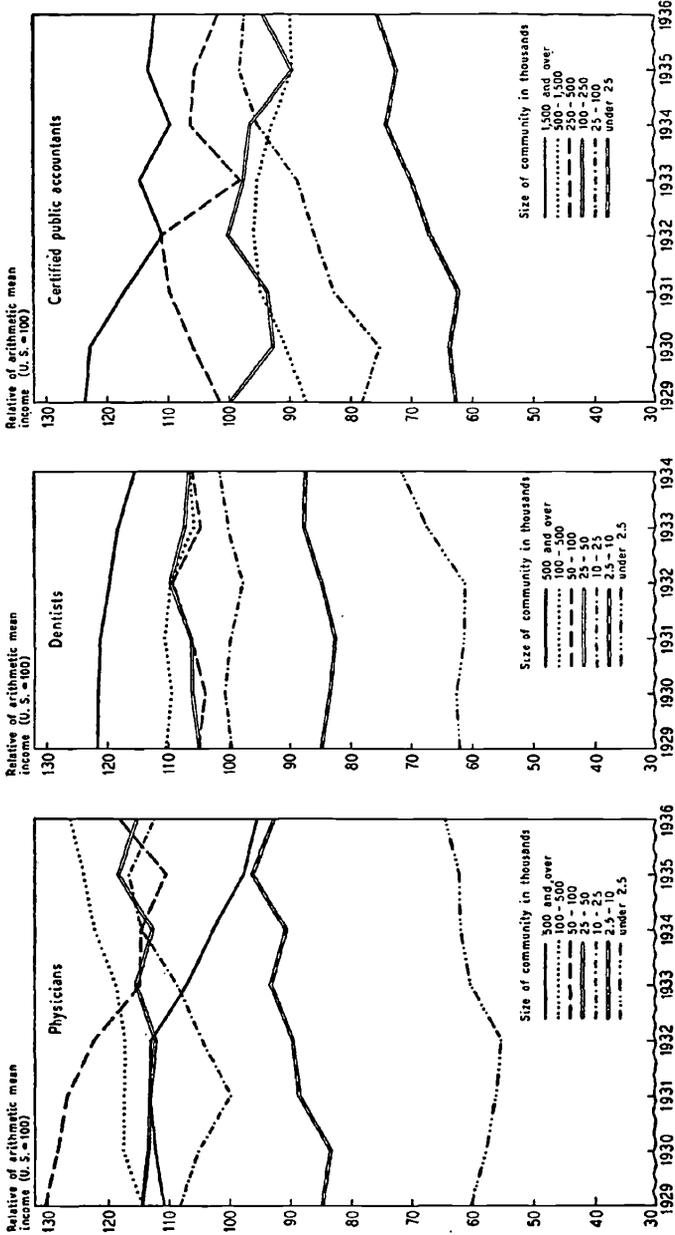
The smaller rise in the larger communities tends to counterbalance the greater fall, so that the total cyclical movement in average income, measured roughly in Table 65 by summing the percentage rise and the percentage fall, shows little tendency to vary consistently with size of community. True, for both dentists and accountants the total rise and fall shows a slight tendency to decrease with size of community. However, the data for dentists extend only to 1934; consequently, the total rise and fall includes all of the cyclical fall, but only a small part of the cyclical rise, which presumably continued after 1934. The total rise and fall therefore reproduces the tendency for the fall to be least in small communities.

The data thus suggest that the amplitude of the cyclical movement proper was much the same in all size of community classes but was superimposed on divergent underlying trends, the smaller communities in general displaying trends that were upward relatively to the trends in the larger communities. Since average incomes in general decrease with size of community, the divergent trends imply a lessening of income differences among communities of varying size.

A more sensitive test of this point is provided by Chart 34, designed to bring into sharp relief the differential behavior of income in the several size of community classes. The data plotted on the chart were obtained by expressing the average income in each size of community class in each year as a percentage of the countrywide average. Hence, if percentage changes in income had been identical in all size of community

CHART 34

Relatives of Arithmetic Mean Income by Size of Community



classes, the lines on the chart would be horizontal and parallel. Of course, perfect parallelism would hardly be expected with data such as ours, which are subject to large sampling fluctuations. The point at issue is rather whether there is any general tendency for the lines to converge. As the preceding analysis would lead us to expect, the charts do show such a tendency, most marked for accountants and least marked for physicians.

Two possible explanations can be advanced, with some evidence in support of each. The convergent tendency may reflect changes peculiar to the specific professions. In discussing the relation between medical income and number of years in practice for communities of varying size, we concluded that the concentration of young physicians in large communities is tending to decrease the difference between average incomes in small and large communities (Ch. 6). Similar tendencies may be operative in the other professions. On the other hand, the convergent tendency may reflect a common outside influence, a similar decrease in the size of community differences in the average income of the public at large. For example, the very large increase in farm aid in recent years may well have led to an improvement in the relative economic position of rural areas. The section that follows indicates that, at least for physicians and dentists, regional differences in the temporal behavior of average professional income are correlated with corresponding differences in the temporal behavior of the average income of the public. It seems not unreasonable to assume that what holds for regions holds also for communities of varying size, especially since regional differences in average income reflect primarily regional differences in degree of urbanization.

A complete analysis of temporal changes in the distribution of income by size would require an analysis of changes in the variability as well as the level of income. We have made such an analysis for the various size of community groups, but it has yielded no results worth presenting in detail. As always, changes in absolute variability parallel those in average income. Changes in relative variability are erratic; there is little

or no consistency among different measures for the same profession and even less consistency among professions. A corresponding analysis for regions yields similar negative results; consequently, the next section, like this one, is devoted entirely to income levels.

4 CHANGES IN INCOME BY GEOGRAPHIC REGION

While the dominant impression conveyed by Chart 35⁴ is one of similarity in temporal changes in income, comparison with Chart 33 suggests that there is less similarity among regions than among communities of varying size. In part this is an optical illusion. Average incomes differ more among communities of varying size than among regions; in consequence, the lines are spread more widely on Chart 33 than on Chart 35 and can diverge more without intersecting. But comparison of Table 66 with Table 65 indicates that the smaller degree of uniformity is more than an optical illusion. The percentage changes in average income vary more among regions than among communities of varying size; and the difference is greater than could be accounted for by the larger number of regions than of size of community classes.

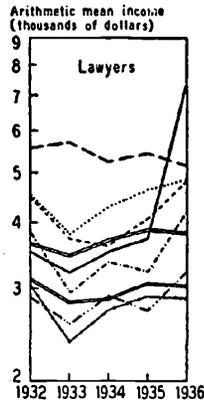
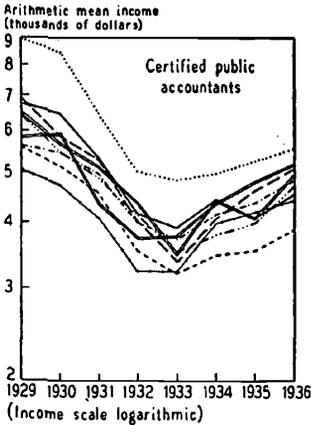
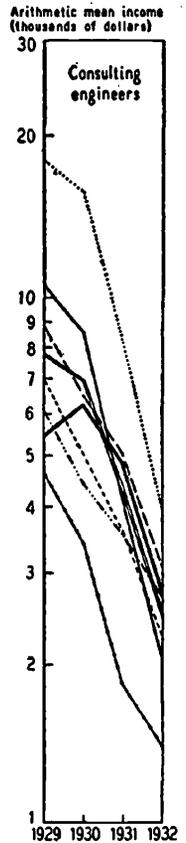
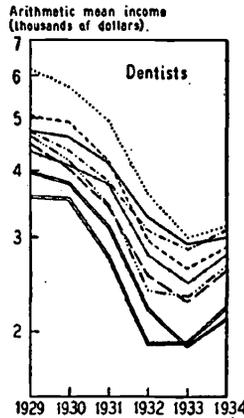
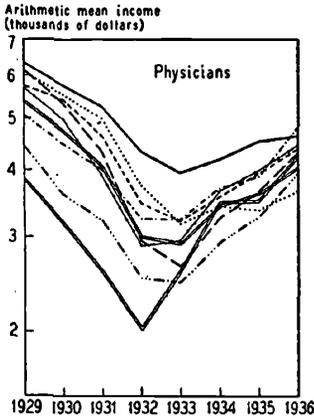
The exceedingly erratic changes in legal incomes and the short time span covered by the data for engineers again make it necessary to confine detailed analysis to physicians, dentists, and accountants. These three professions display considerable similarity in regional income changes. The fall from 1929-33 was apparently severest in the East North Central, Middle Atlantic, and West North Central regions, and mildest in the South Atlantic, East South Central, and New England regions. The subsequent rise was greatest in the East South Central, East North Central, and West South Central regions and least in the Middle Atlantic and New England regions. As these groupings indicate, there was little relation between the magnitude of the fall and the magnitude of the rise. For example, the fall in income was severe in both the Middle At-

⁴ See notes to Tables B 3, B 5, B 8, B 10, and B 11 for methods used to combine the samples.

CHART 35

Arithmetic Mean Income by Region

- New England
- Middle Atlantic
- - - E. N. Central
- ==== W. N. Central
- · - · - S. Atlantic
- ==== E. S. Central
- ==== S. Atlantic and E. S. Central
- · - · - W. S. Central
- ==== Mountain
- - - - - Pacific



lantic and East North Central regions, but the rise was small in the former and large in the latter.

The absence of any uniform relation between the fall and subsequent rise makes for wide differences in the amplitude of the cyclical movement, as measured by the sum of the percent-

TABLE 66

Change in Arithmetic Mean Income, by Region
Average for Period Covered = 100

	PHYSICIANS ¹	DENTISTS ¹	CERTIFIED PUBLIC ACCOUNTANTS ¹	LAWYERS ¹	ALL PERSONS (per capita) ²
<i>Decline</i>					
	<i>1929-33</i>	<i>1929-33</i>	<i>1929-33</i>	<i>1932-33</i>	<i>1929-33</i>
New England	48.5	48.3	57.8	7.3	47.4
Middle Atlantic	68.8	71.6	67.2	16.6	58.2
E. N. Central	85.6	67.7	71.8	-2.0 ³	71.4
W. N. Central	63.4	73.3	61.5	9.7	61.2
S. Atlantic	44.4	51.3	40.7	24.3	49.8
E. S. Central	39.3	63.1	43.9	4.7	73.1
W. S. Central	59.5	69.8	62.9	10.3	63.1
Mountain	66.9	55.3	44.4	23.3	56.8
Pacific	57.9	64.0	57.5	18.7	57.7
U. S.	64.2	64.9	61.4	12.1	60.5
<i>Rise</i>					
	<i>1933-36</i>	<i>1933-34</i>	<i>1933-36</i>	<i>1933-36</i>	<i>1933-36</i>
New England	13.6	2.2	12.8	95.9	20.9
Middle Atlantic	11.1	3.2	11.0	23.8	22.7
E. N. Central	40.5	9.5	35.1	-9.8 ⁴	38.1
W. N. Central	28.9	8.3	29.9	6.7	34.4
S. Atlantic	37.8	6.4	24.0	35.0	36.0
E. S. Central	52.5	11.5	29.9	9.2	44.5
W. S. Central	44.0	9.8	26.0	22.2	34.9
Mountain	36.7	9.6	28.8	17.8	41.8
Pacific	26.6	6.6	15.7	26.8	33.9
U. S.	28.4	6.8	19.8	17.7	31.1
<i>Decline and Rise⁵</i>					
	<i>1929-36</i>	<i>1929-34</i>	<i>1929-36</i>	<i>1932-36</i>	<i>1929-36</i>
New England	62.1	50.5	70.6	103.2	68.3
Middle Atlantic	79.9	74.8	78.2	40.4	80.9
E. N. Central	126.1	77.2	106.9	-11.8 ⁶	109.5
W. N. Central	92.3	81.6	91.4	16.4	95.6
S. Atlantic	82.2	57.7	64.7	59.3	85.8
E. S. Central	91.8	74.6	73.8	13.9	117.6
W. S. Central	103.5	79.6	88.9	32.5	98.0
Mountain	103.6	64.9	73.2	41.1	98.6
Pacific	84.5	70.6	73.2	45.5	91.6
U. S.	92.6	71.7	81.2	29.8	91.6

¹ Based on arithmetic means in Tables B 3, B 5, B 8, B 10, and B 11 expressed as relatives of averages for the period in Table 18.

² Based on series for regions computed from averages for states in R. R. Nathan and J. L. Martin, *State Income Payments, 1929-37* (U. S. Department of Commerce, 1939).

³ Negative because mean income rose from 1932 to 1933.

⁴ Negative because mean income declined from 1933 to 1936.

⁵ 'Decline and rise' is sum of percentage decline and percentage rise.

⁶ Negative because series moved inversely.

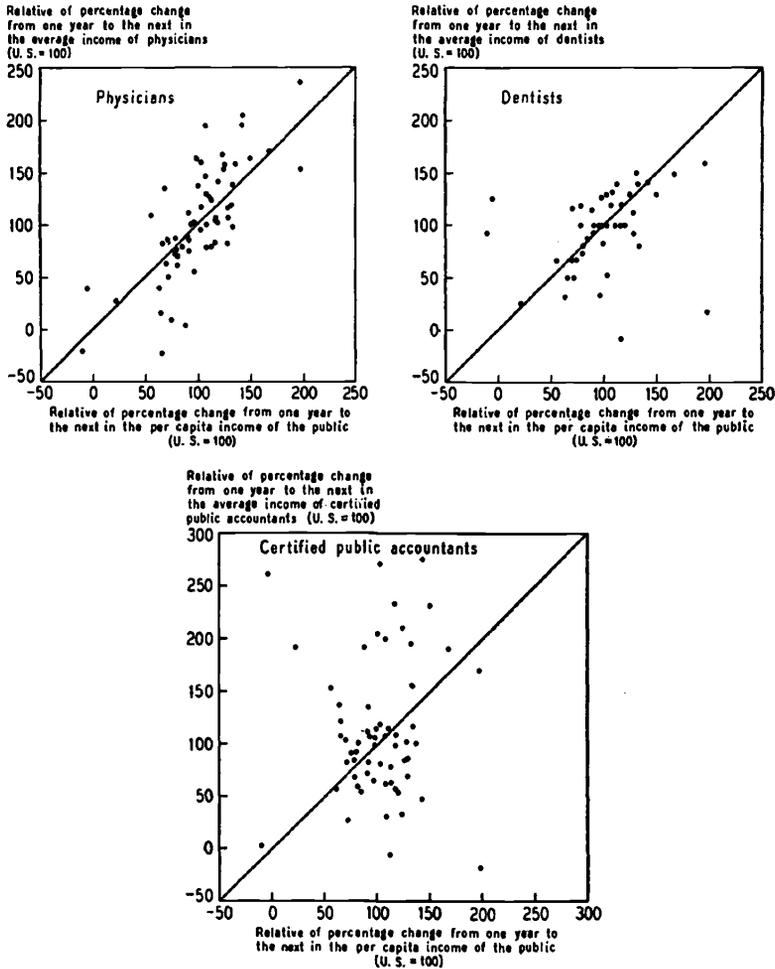
age rise and percentage fall. The differences among regions, unlike those among communities of varying size seem to reflect real differences in cyclical behavior. The amplitude of the cyclical movement appears to have been largest in a band of states running down the center of the country—the East North Central, West North Central, and West South Central regions—and smallest in the South Atlantic and New England states.

These differences in the cyclical behavior of average income apparently characterize not only the professions but also the public at large (last column of Table 66). Though there are differences in detail, the regions displaying the largest movements in professional income in the main also display the largest movements in the income of the public. A more detailed test of the relation suggested by Table 66 is provided by Chart 36, which compares the year-to-year changes in professional income with the year-to-year changes in the income of the public at large. In order to eliminate the influence of changes in the countrywide average income, the percentage change in each region is expressed as a percentage of the countrywide change. The straight diagonal lines in the charts are arbitrarily drawn so as to pass through (0,0) and (100,100); they typify a situation in which the percentage change in professional income would be identical with that in the income of the public at large.

The panels for physicians and dentists confirm the relation suggested by Table 66: there is a decided positive correlation between changes in professional income and changes in the income of the public. The panel for accountants, on the other hand, displays no correlation: the distribution of points appears haphazard. This difference between accountants and the curative professions, though surprising in the light of Table 66 which suggests a correlation between accountants and the public at large no less close than between the other two professions and the public, is consistent with previously noted differences among the professions. Medicine and dentistry serve the public directly; the demand for their services is necessarily intimately related to the incomes of the individuals residing

CHART 36

Relation between Relatives of Regional Changes from One Year to the Next in Professional Income and in per Capita Income
Regional Change for U. S. = 100



In all three panels each point represents a single region and a single pair of successive years. In the panel for physicians, one extreme observation (112, -851) has been omitted; in the panel for certified public accountants, two extreme observations (69, -163), (119, -188) have been omitted.

in the region in which they practise. Unless counterbalanced by changes in the number of practitioners, changes in the income of the public will tend to be reflected in changes in medical and dental income, and over such short periods as our data cover, substantial changes in the number of practitioners are unlikely to occur. On the other hand, accountants serve primarily business enterprises and governmental units, and relatively large enterprises are doubtless their most important customers. For the country as a whole, the prosperity of business enterprises, and hence their demand for accounting services, doubtless varies with the income of the public at large.

TABLE 67

Indices of Arithmetic Mean Income, by Type of Practice
Physicians, 1929-1936

	1929	1930	1931	1932	1933	1934	1935	1936
	1929 = 100							
General practitioners	100.0	87.2	74.9	58.7	55.3	60.5	63.1	71.1
Partial specialists	100.0	83.7	75.2	56.5	52.2	60.2	63.9	74.2
Complete specialists	100.0	93.9	77.9	56.6	50.5	58.3	62.4	70.0
	1933 = 100							
General practitioners	180.8	157.6	135.3	106.1	100.0	109.4	114.0	128.6
Partial specialists	191.6	160.3	144.1	108.2	100.0	115.3	122.4	142.1
Complete specialists	198.0	185.9	154.3	112.1	100.0	115.4	123.6	138.6

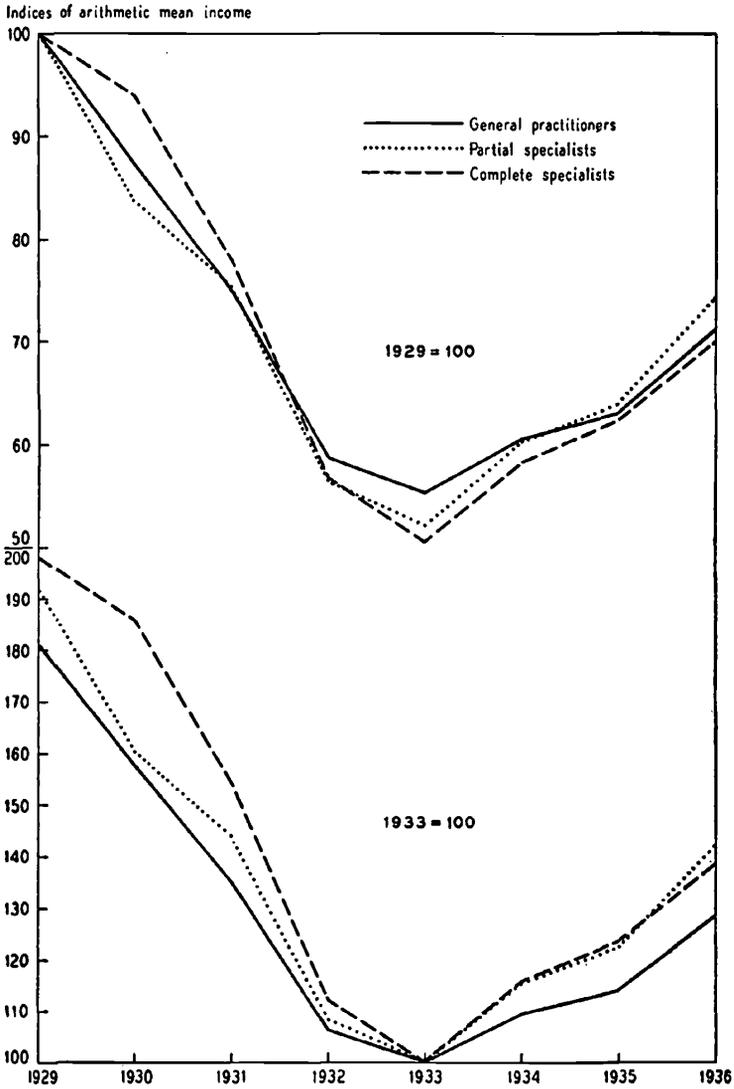
But the prosperity of enterprises, and particularly large enterprises, in a specific geographic region need not be intimately connected with the prosperity of the residents of that region, since their business will frequently extend beyond its boundaries.

5 CHANGES IN INCOME BY TYPE AND ORGANIZATION OF PRACTICE

There are only minor differences among the three types of physicians in the pattern of change over time (Table 67 and Chart 37). From 1929 to 1933 the percentage fall in income was largest for complete specialists, next for partial specialists, and smallest for general practitioners. The percentage rise from 1933 to 1936 was about the same for complete and partial specialists; but larger for both than for general practitioners.

CHART 37

Indices of Arithmetic Mean Income by Type of Practice
Physicians, 1937 Sample



Over the whole period, 1929-36, the incomes of both partial specialists and general practitioners seem to have risen relatively to the incomes of complete specialists, more markedly for partial specialists than for general practitioners. This apparent narrowing of the gap between the incomes of general practitioners and complete specialists may be a product of an increasing tendency toward specialization. On the other hand, it may be no more than a statistical resultant of classifying physicians by their status in 1936 or 1937.⁵

⁵ In the main, shifts in type of practice are from general practice to specialization, either partial or complete, rather than the reverse. As a result, the group of physicians who in 1936 were general practitioners includes relatively few who were specialists in earlier years; it excludes a larger number who were specialists in 1936 but had been general practitioners during the earlier part of the period 1929-36. Presumably the average income of these individuals was higher than the income of those who remained general practitioners over the whole period. It follows that the average income for an earlier year of individuals who were general practitioners in 1936 will tend to be lower than the average income of all individuals who were general practitioners in that year, and that this bias is larger the farther back we go from 1936. The trend over the period 1929-36 in the incomes of individuals who were general practitioners in 1936 will have an upward bias relatively to the trend in the income of all general practitioners.

Similarly, the fact that individuals are more likely to change from partial specialization to complete specialization than to change from the latter to the former, imparts an upward bias to the trend in the income of individuals who were partial specialists in 1936 relatively to the trend in the income of all partial specialists in each year. Moreover, this bias is accentuated by the inclusion as partial specialists of individuals who were general practitioners during some of the earlier years of the period. Presumably, the average income of these individuals, while larger than that of all general practitioners, was less than that of all partial specialists.

Nor is the trend in the income of complete specialists exempt from an upward bias. Included in the ranks of complete specialists in 1936 are some individuals who in earlier years were partial specialists or general practitioners and who had an average income lower than that of all complete specialists.

Classifying practitioners by their status in 1936 might thus be expected to impart an upward bias to the trend in the income of *each* of the three groups. This bias would presumably be greatest for partial specialists.

The observed changes over the period 1929-36 in the relative income levels of the three groups are entirely consistent with the biases just discussed and may conceivably be completely accounted for by them. The incomes of the physicians who were partial specialists in 1936 rose relatively to the incomes of both of the other groups; and this is what we should expect on the basis of our

TABLE 68

Indices of Arithmetic Mean Income, by Organization of Practice
 Certified Public Accountants, Lawyers, and Consulting Engineers

	1929	1930	1931	1932	1933	1934	1935	1936
	1929 = 100							
Certified public accountants ¹								
Individual practitioners	100.0	90.6	76.1	62.1	57.4	64.2	67.7	75.4
Firm members	100.0	93.9	77.6	59.1	54.5	59.5	61.0	69.4
Lawyers, both samples ²								
Individual practitioners	100.0			55.6	48.5	51.2	55.9	57.4
Firm members	100.0			76.0	69.6	72.5	75.5	85.5
Lawyers, 1937 sample ³								
Individual practitioners	100.0			55.6	49.0	49.4	52.0	55.5
Firm members	100.0			76.0	70.6	69.5	70.4	79.8
Consulting engineers								
Individual practitioners	100.0	87.5	57.9	29.1				
Firm members	100.0	82.8	44.4	24.6				
	1933 = 100							
Certified public accountants ¹								
Individual practitioners	174.1	157.8	132.5	108.2	100.0	111.9	117.9	131.5
Firm members	185.5	172.1	142.2	108.5	100.0	109.0	111.8	116.2
Lawyers, both samples ²								
Individual practitioners	206.1			114.6	100.0	105.6	111.1	118.5
Firm members	145.7			109.2	100.0	104.2	105.7	119.7
Lawyers, 1937 sample ³								
Individual practitioners	204.1			115.5	100.0	100.8	106.1	112.8
Firm members	141.6			107.6	100.0	98.4	99.7	115.1

¹ 1935 sample used for 1929-32; 1935 sample for 1932-34; 1937 sample for 1934-36. See footnote 1 to Table 64 for method of combining samples.

² 1937 sample used for 1929, 1932, and 1934-36; 1935 sample used for 1932-34.

³ 1937 sample used for 1929 and 1932-36.

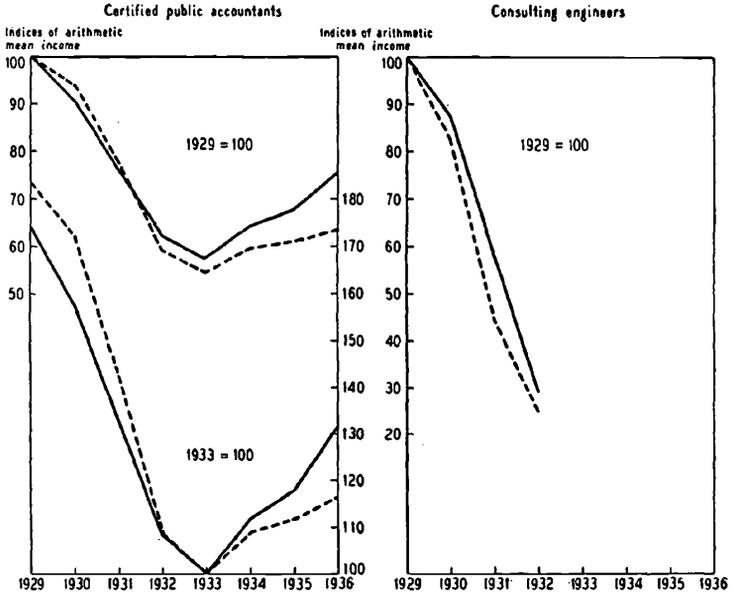
The differences between firm members and individual practitioners in the movement of average income are also of doubtful significance (Table 68 and Chart 38). For both accountants and engineers, the relative fall in income from 1929 to 1933 was larger for firm members than for individual practitioners. For lawyers, on the other hand, the relative fall seems to have been larger for individuals. However, this difference is considerably more questionable than the differences for the other

analysis even if the relative incomes of all partial specialists had remained unchanged. Similarly the apparent rise in the income of general practitioners relative to the income of complete specialists might be accounted for by a greater proportionate shift from general practice to specialization than from general practice and partial specialization to complete specialization.

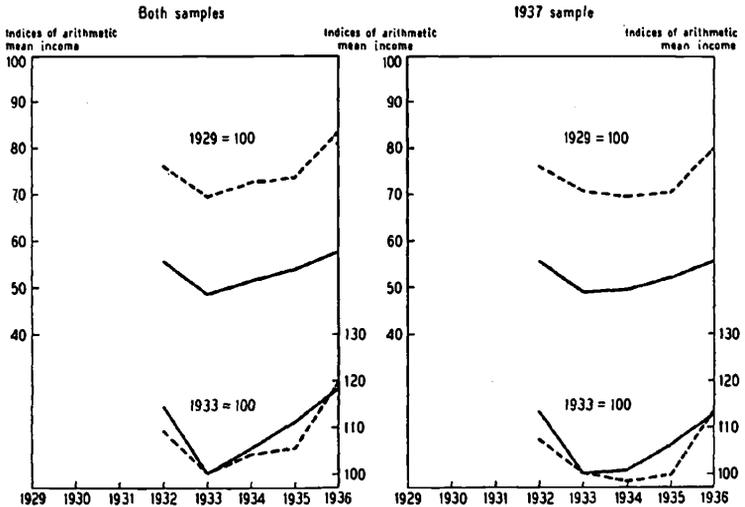
CHART 38

Indices of Arithmetic Mean Income by Organization of Practice
 Certified Public Accountants, Consulting Engineers, and Lawyers

— Individual practitioners
 - - - Firm members



Lawyers



professions, since it is based on a sample which not only is particularly suspect, but in addition was selected at a date further removed from 1929 than the dates at which the samples for the other professions were selected.⁶ For accountants, the average income of individual practitioners not only fell less from 1929 to 1933 but also rose more from 1933 to 1936, i.e., the economic fortunes of individual practitioners improved relatively to those of firm members during 1929-36.

Our data for lawyers tell a very confused story about the relative fate of firm members and individual practitioners from 1933 to 1936. For the full period, 1929-36, the average income of firm members appears to have risen a trifle more than that of individual practitioners. But this is entirely attributable to a very much greater rise from 1935 to 1936. Both from 1933 to 1934, and from 1934 to 1935, the individual practitioners' incomes rose more rapidly. Indeed, according to the 1937 sample, the incomes of firm members actually fell from 1933 to 1934.

Our data, therefore, yield no general conclusions about the relative behavior of the incomes of firm members and individual practitioners during the 1929-36 cycle. From the evidence for consulting engineers and accountants alone we should be tempted to conclude that firm members, and hence the larger and more affluent enterprises, suffered more from the depression than individual practitioners. But the validity of this conclusion is called into question not only because among lawyers the individual practitioners seem to have suffered more; but also because the relatively greater rise in the incomes of individual accountants during the upswing of the

⁶ The upward bias in the trend of incomes produced by asking information for a period of time from a sample selected at the end of the period would presumably be larger for firm members than for individual practitioners. The former are likely to be considerably older on the average than the latter and hence more likely to retire. The greater upward bias in the trend in the incomes of firm members might lead to a spurious rise in the average incomes of firm members relative to the average incomes of individual practitioners. For example, the relative fall in income from 1929 to 1934 according to the 1937 accountancy sample is larger for firm members than for individuals, although the 1933 accountancy sample indicates the reverse.

cycle suggests that the less rapid fall in their incomes during 1929-33 may reflect secular rather than cyclical influences. As for the impact of revival, we cannot draw a valid conclusion even for lawyers, let alone for the professions in general.

CHAPTER 9

Summary

1 PROFESSIONAL WORKERS AND OTHERS—NUMBERS AND EARNINGS (CH. 3)

OF THE 50 million persons listed in the 1930 Census as gainfully occupied, only 3 million were professional workers. Some 500,000 were independent practitioners; the rest, salaried employees of private enterprises or governmental agencies. Judged by earnings, the 3 million professional workers are a fortunate group. Their earnings, though less equally distributed than those of nonprofessional workers, are between two and three times as large. A small part of this difference in average earnings reflects the concentration of professional workers in large communities. The average earnings of professional workers are apparently between 85 and 180 per cent larger than those of nonprofessional workers in communities of the same size, rather than between 100 and 200 per cent larger, as suggested by the nationwide averages.

The long and intensive training needed for professional work involves not only direct expenses for tuition fees, books, and the like, but also the postponement of the date when the worker can begin to earn an income. It is difficult to estimate