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Income from
Independent Professional
Practice

CHAPTER 1

The Five Professions Studied

THE OCCUPATIONAL HIERARCHY progresses by slow steps from the completely unskilled laborer to the specialist who has spent a considerable part of his life preparing for his work. Each step merges into the next and overlaps it. Somewhere toward the upper end of this hierarchy is a group of occupations that we designate 'professional'. Its boundaries are neither precise nor stable. A century ago the 'learned professions' meant medicine, law, and theology; today they include a host of other occupations; and a century hence they will include still others. These occupations are alike in that all require prolonged and specialized training and involve work that has something of an academic and intellectual flavor—no purely mechanical or commercial pursuit can qualify. They differ in almost all other respects. By common consent, the professions include pursuits as diverse as journalism and medicine, architecture and law.

At present there are some three million persons in the United States in the professions.¹ The majority are salaried employees of other professional men or of business enterprises and governmental organizations. Some 600,000 are in independent practice, selling their services on a fee basis.² This is the group with which we shall be primarily, though not exclusively, concerned. In professions like medicine and dentistry that render services directly to ultimate consumers, independent practice is likely to be the rule, salaried employment partaking of an apprenticeship. In professions like teaching and the ministry that render services to groups of consumers, or like accountancy and engineering that serve the

¹ A. M. Edwards, *Social-Economic Grouping of the Gainful Workers of the United States, 1930* (U. S. Bureau of the Census, 1938), p. 3.

² The estimates of the total number of independent professional workers are those prepared by Simon Kuznets for use in his study of national income.

consumer indirectly through the medium of business enterprises or governmental organizations, salaried employment is usual. The few persons in these professions who practise independently form auxiliary groups rendering highly specialized services.

While all professions require specialized training, there are sizable differences in the amount of training required and in the extent to which the requirements are formalized. Practically all professions require at least the equivalent of a college education; some require no more than that; others require the completion of professional school after college. A growing number of professions are restricted to persons 'licensed' by the state; and candidates for licensure must ordinarily satisfy minimum educational requirements and demonstrate an acceptable level of competence. In other professions not under state licensure, educational requirements are a matter of custom.

The five professions that we study intensively—medicine, dentistry, law, certified public accountancy, and consulting engineering—exemplify these differences. Most persons entering engineering have had only a college education; most persons entering medicine, a college education plus four years of medical school plus one year of internship in a hospital. Four of the five professions are under state licensure; the fifth, engineering, is not. The rest of this chapter presents a more detailed description of these five professions; a description that lays special emphasis on educational and training requirements and other factors governing entry into the professions. What these have been in the past few decades has greatly influenced the present supply of professional men and hence the level of their income; what they are at present is one of the principal determinants of the future supply of professional men and hence of the changes that will occur in the level of their income.

As Table 1 shows, these five professions include over 300,000 persons in independent practice, or more than half of all professional men in independent practice. Estimates of the

TABLE 1

Number of Persons in Five Professions and
Number and Percentage in Independent Practice

		TOTAL IN	IN INDEPENDENT PRACTICE	
		PROFESSION	Number	Percentage
		(thousands)		
Physicians	1930	154	121	78
	1936	165	133	80
Dentists	1930	71	58	82
	1936	75	62	
Lawyers	1930	161	110	68
	1935	188	130	69
Certified public accountants	1930	14.8	9.9	67
	1937	16.5	11.1	
Engineers	1930	226	10	4.4
Total	1930	627	309	
Total (excl. engineers)	1930	401	299	
	1936	444	336	

SOURCES OF AND NOTES ON ESTIMATES:

PHYSICIANS

1930

Total: *Census of Population*, Vol. 5.Percentage in independent practice: Maurice Leven, *Incomes of Physicians* (University of Chicago Press, 1932), p. 103.

1936

Total: 1936 Directory of the American Medical Association.

Percentage in independent practice: computed by straight line interpolation between 78.2, percentage for 1930, and 81.2, percentage for 1938 from data in *Number of Physicians in the United States by County, July 1, 1938* (American Medical Association, 1938), pp. v-vi.

DENTISTS

1930

Total: *Census of Population*, Vol. 5.Number in independent practice: "furnished from the register of the American Dental Association"; see *National Income in the United States, 1929-35* (U. S. Department of Commerce, 1936), pp. 213, 290.

TABLE 1, NOTES (cont.)

1936

Total: dentists in practice on July 1, 1936 as reported by State Boards of Dental Examiners; see R. P. Thomas, 'Dental Survey', *Journal of American Dental Association and the Dental Cosmos*, Jan. 1938, pp. 153-60. Thomas gives 80,495 as the total number of dentists in all states except New Mexico. We added 100 for New Mexico and subtracted 5,370 to allow for an apparent overestimate for Illinois. Thomas gives 11,370 for Illinois, whereas the 1930 Census gives 5,873. Our correction assumes that 6,000 is the correct figure for Illinois.

Percentage in independent practice: assumed same as in 1930. Probably an underestimate since the count by the examining boards presumably excluded a larger proportion of dentists who were retired or not in practice than the Census.

LAWYERS

1930

Total: *Census of Population*, Vol. 5.

Number in independent practice: *Census of Population* gives 139,059 as engaged in 'professional service'. This checks closely with the 141,501 listed in the *Martindale-Hubbell Law Directory* for 1930, which presumably excludes lawyers employed by business enterprises or governmental agencies. (Figures supplied by Martindale-Hubbell. The directory is issued early in the year and hence gives number of lawyers in 1929.) Both totals include lawyers who are salaried employees of other lawyers. A New York County study indicated that these constitute 21.14 per cent of all lawyers in practice. This percentage checks closely with that for the country from the Department of Commerce sample, but the latter is probably high (see Ch. 6). Nonetheless, the estimate in the table is 78.86 per cent of the total given by the Census as in 'professional service' (139,059). See *Survey of the Legal Profession in New York County* (N. Y. County Lawyers Association, 1936), p. 12; *National Income in the United States, 1929-35*, pp. 214, 292.

1935

Total: number in *Martindale-Hubbell Law Directory* for 1936 (as furnished by Martindale-Hubbell) multiplied by the ratio of the total number listed in the 1930 Census to the number in the *Martindale-Hubbell Law Directory* for 1930.

Number in independent practice: 78.86 per cent of the total number listed in the *Martindale-Hubbell Law Directory* for 1936.

CERTIFIED PUBLIC ACCOUNTANTS

1930

Total: *Census of Population*, Vol. 5; number of accountants and auditors in professional service. This excludes certified public accountants employed by nonaccounting firms, but it includes noncertified accountants in public practice or employed by accounting firms.

Number in independent practice: a sample count of the 1938 Directory of the New York State Society of Certified Public Accountants gave 32.91 per cent as

TABLE 1, NOTES (concl.)

salariated employees of accounting or nonaccounting firms. A sample count of the 1933 Directory of the American Institute of Accountants gave an almost identical percentage, 33.03. The membership of each society or even of both societies includes a minority of all certified public accountants and is a highly biased sample of all certified public accountants. The similarity of these two figures suggests that the bias does not affect the proportions employed on salary since the membership of the Institute is a much more biased sample than the membership of the New York State Society. Hence, 67 per cent was used.

1936

Total: estimated by the American Institute of Accountants.

Percentage in independent practice: assumed same as in 1930.

ENGINEERS

1930

Total: *Census of Population*, Vol. 5.

Percentage in independent practice: a study of engineers by the BLS indicates that 4.45 per cent of all engineers professionally active and in engineering work in 1929 were independent consultants. The number in independent practice computed by multiplying this percentage by the total number of engineers checks closely with an estimate of 9,818 computed by multiplying the percentage from the Department of Commerce sample by the total number of engineers listed by the *Census of Population* in professional service. See 'Employment in the Engineering Profession', *Monthly Labor Review*, April 1937, p. 868; *National Income in the United States, 1929-35*, pp. 215, 293.

total number of persons in the profession and of the number practising independently are given for each profession for 1930, a year near the beginning of the period our primary data cover (principally, 1929-36) and for each except engineering for a year near the end of the period. These estimates vary in accuracy. Moreover, since the estimates for the earlier and later years are not derived from the same source, the difference between the two is subject to an especially large margin of error.

The table illustrates the difficulty of drawing a sharp line between a profession and neighboring pursuits, let alone between professions as a whole and all other pursuits. Certified public accountants, to cite the most extreme example, are but formally differentiated from the entire group of accountants

and auditors, which numbered 192 thousand in 1930.³ Accountants who are not certified are almost everywhere permitted to practise independently, but a much smaller proportion of noncertified than of certified accountants do so. Had the table included all accountants and auditors along with certified public accountants, less than a tenth would have been listed as in independent practice instead of two-thirds. The dividing line is less nebulous for most of the other professions; but for none is it unmistakably clear.

1 MEDICINE

During the last few decades, both technical and economic factors have contributed to a very rapid extension of specialization in medicine. The advance of medical science has made specialization both desirable and possible; the financial gains promised by specialization have furnished an economic incentive. A count of the 1931 Directory of the American Medical Association indicates that only 68 per cent of all physicians considered themselves general practitioners, the other 32 per cent being almost equally divided between partial and complete specialists.⁴ Sample studies indicate an even larger proportion of specialists. Moreover, specialization seems to be still increasing.⁵

This increase in specialization has been stimulated and accompanied by a rapid advance in training requirements. The first state board of medical examiners was created in 1873 in Texas, and "by 1895 practically every state had created some kind of administrative organization to examine and license physicians".⁶ Yet as late as 1904 only 20 states had requirements about premedical education and of these only 10 required as much as a standard four-year high school education. Only 36 states required that all applicants for licenses be graduates of

³ *Census of Population*, Vol. 5.

⁴ R. G. Leland, *Distribution of Physicians in the United States* (American Medical Association, 1936), pp. 31, 39.

⁵ See Ch. 6.

⁶ *Final Report of the Commission on Medical Education* (New York, 1932), p. 156.

a medical school.⁷ The standards of the medical schools themselves were no higher. "In 1900 less than 25 per cent of the number of medical schools exacted graduation from a high school for admission",⁸ and the quality of professional training was so poor that, in Flexner's opinion, of the 131 medical schools in the United States in 1910, fewer than 40 supplied "the distinctly better quality of medical training".⁹ In the inferior schools the actual period of training was short and the standards low.

The creation by the American Medical Association in 1904 of a permanent Council on Medical Education and the publication in 1910 of Flexner's monumental study ushered in a period of rapid rise in premedical requirements and standards of professional training and of rapid decline in the number of medical schools and medical students. By 1915, 85 of the 96 schools in existence required either one or two years of college as a minimum preparation¹⁰ and the medical course was almost universally four years. The number of medical students declined from a high point of approximately 28 thousand in 1904 to under 15 thousand in 1915, and under 14 thousand in 1920.

In 1940 there were 77 approved¹¹ medical schools in the United States, of which 5 required a college degree for entrance; one, four years of college; 60, three years; and 11, two years. The Council on Medical Education recently recommended that the minimum requirement for premedical education be raised from two to three years of college.¹² All approved schools give a medical course lasting four years of approximately thirty-two weeks each (or an equivalent amount

⁷ *Ibid.*, Appendix Table 88.

⁸ W. J. Gies, *Dental Education in the United States and Canada* (Carnegie Foundation for the Advancement of Teaching, 1926), p. 125.

⁹ Abraham Flexner, *Medical Education in the United States and Canada* (Carnegie Foundation for the Advancement of Teaching, 1910), p. 12.

¹⁰ *Final Report of the Commission on Medical Education*, p. 11.

¹¹ 'Approved' means approved by the Council on Medical Education and Hospitals of the American Medical Association.

¹² R. L. Wilbur, 'Report of the Council on Medical Education and Hospitals', *Journal of the American Medical Association*, April 23, 1938, pp. 1327-8.

of time concentrated in fewer years). In addition, thirteen medical schools in the United States require a one-year internship in a hospital for the M.D. degree.

The legal requirements for premedical education generally match the requirements that medical schools must impose in order to be approved by the Council on Medical Education. Forty-three states and the District of Columbia require a minimum of two years of college; of the other five states, two require one year of college and three a high school education or its equivalent. Moreover, most of these five states do not license graduates of unapproved American schools.¹³ Since unapproved schools are few and supply at most 5 to 7 per cent of all applicants for medical licenses, they are of minor importance.¹⁴ Twenty-one states and the District of Columbia require a one-year hospital internship of applicants for licensure.

The training legally required of medical practitioners has thus been extended since the beginning of the century from three or four years of professional education preceded by one or two years of high school to six or seven years preceded by graduation from high school.

The actual level of premedical and medical training is higher than is required by medical schools or by law. In 1936-37, 56 per cent of the freshmen enrolled in medical schools

¹³ 'Medical Licensure Statistics for 1937', *ibid.*, April 23, 1938.

¹⁴ According to the *Final Report of the Commission on Medical Education*, p. 90, there were in 1932 six unapproved schools. There appear to be no other data on the number of unapproved schools or the enrollment in them.

The percentage of all persons taking the licensure examination who were graduates of unapproved schools has varied between 4.7 and 7.5 per cent from 1930 to 1941, and the percentage of these who failed the examination, between 32 and 59 per cent. The percentage of failures among graduates of approved medical schools, on the other hand, has exceeded 5 per cent only once, in 1940, when it was 5.1 per cent. Because of the relatively high percentage of failures among graduates of unapproved schools, the percentage of all persons passing the licensure examination who were graduates of unapproved schools has been considerably lower than the percentage of all persons taking the examination—between 2.2 and 4.9 per cent from 1930 to 1941. See the annual articles on 'Medical Licensure Statistics' in the *Journal of the American Medical Association*.

received a college degree before they began medical training, an additional 5 per cent had four years of college, 27 per cent, between three and four years, and only 12 per cent the minimum, two years of college. Less than 4 per cent of the freshmen enrolled in 1938-39 had only the minimum two years. Of the 5,183 graduates of medical schools in the United States in 1936, 77 per cent held baccalaureate degrees.¹⁵ Of the graduates in 1935 of approved medical schools *not* requiring internship for the degree, 98 per cent were interning in 1935-36.¹⁶ Most of those entering the medical profession at present have had between eight and ten years' training after high school.

As already noted, the rapid increase in training requirements was accompanied by a marked decline in the number of medical schools and, until about 1920, in the number of students. In consequence, the number of physicians increased far less rapidly than total population during the last 30 or 40 years, whereas the reverse occurred in most other professional pursuits. Indeed, the absolute number of physicians declined from 1910 until about 1920, and in 1930 was not much higher than in 1910. The number of physicians per 100,000 persons declined from approximately 157 in 1900 to 145 in 1914 and 125 in 1929, a low point from which it rose to 130 in 1938.¹⁷ Initially, this decline in the number of physicians relative to

¹⁵ 'Medical Education in the United States and Canada', *ibid.*, Aug. 29, 1936, Aug. 28, 1937, Aug. 26, 1939.

The possession of a baccalaureate degree at graduation from medical college does not necessarily represent the completion of four years of college; the degree is frequently granted *in absentia* at the end of the first year in medicine. In addition, thirty-one schools offer a B.S. degree in medicine at some stage of the medical course. (*Ibid.*, Aug. 29, 1936, p. 671.)

¹⁶ *Ibid.*, Aug. 29, 1936, pp. 668-9.

¹⁷ Leland, *Distribution of Physicians*, p. 7; *Number of Physicians in the United States by County, July 1, 1938* (American Medical Association, 1938); *Statistical Abstract of the United States, 1939* (U. S. Department of Commerce, 1940), p. 10. The number of physicians used in the calculations cited is taken from *Polk's Directory* for 1900, and from the *Directory of the American Medical Association* for the other years. It includes not only physicians in active practice but also some who are retired or out of practice for other reasons. The population estimates are the annual midyear estimates of the Bureau of the Census for

total population was an unplanned by-product of the intensive drive for higher standards of medical education. During recent years, however, the limitation in the number admitted to medical schools has come to be interpreted by many leaders of the profession as representing more than a relative decline in the number of applicants willing and able to meet the higher professional standards. "Too many are still unaware," said Harold Rypins, then Secretary of the New York State Board of Medical Examiners, "that American medical schools are definitely committed to a policy of restricting the number of their students. In all the professions there has developed in the last few years, an aristocratic, or at least a restrictive movement which, in a sense, is reminiscent of the medieval guilds. The trend is still in an early stage, but in law, medicine, dentistry and other professions under control of state licensure, the signs are apparent. . . . Without intention or design, the far-reaching steps taken by the physicians to raise educational standards during the past twenty-five years has resulted in limiting the number of students. Now, realizing the advantages of this unplanned restriction, leaders . . . are taking definite steps to cut down the professional class."¹⁸

continental United States. In interpreting the figures given above, physicians frequently emphasize that the rapid growth of transportation and hospital facilities has increased the number of patients a physician can care for effectively. On the other hand, the advances in medical science have probably increased the attention that must be devoted to the treatment of each patient as well as the number of cases recognized as requiring medical attention.

¹⁸ 'Toward Professional Guilds', *Federation Bulletin*, Sept. 1933, pp. 277-84.

A careful search of the literature by the writers shows this statement to be representative of the opinion of medical leaders. See, for example, A. D. Bevan, 'The Over-Crowding of the Medical Profession', *Journal of the Association of American Medical Colleges*, Nov. 1936, pp. 377-84; J. A. Miller, 'Some Problems in Medical Ethics and Economics', *ibid.*, July 1937, pp. 218-26; W. L. Bierring, 'Social Dangers of an Oversupply of Physicians', *Federation Bulletin*, April 1934, pp. 117-24; C. B. Pinkham, 'Foreign Medical Students', *ibid.*, May 1938, pp. 132-43; E. P. Lyon, 'Swans Sing Before They Die', *Proceedings of the Annual Congress on Medical Education, Medical Licensure, and Hospitals*, 1936; Raymond Walters, 'Should the Number of Professional Students be Restricted?', *Journal of the American Medical Association*, March 30, 1935, pp. 1051-6; Wilbur, 'Report of the Council on Medical Education and Hospitals'.

The organization of medical education in the United States permits close control over the admission practices and standards of the individual medical schools. In all but three states, either legal requirements or the rules of the Board of Examiners specify that among individuals studying in this country or Canada only graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association may take the examination for admission to practice.¹⁹ The Council on Medical Education thus has almost complete control over the number of medical schools, a control that seems to have been exercised on the basis of quality of training offered and to have had a salutary influence on the standards of medical education.²⁰ In addition, the Council has direct contact with and influence over each school through its accrediting activities.

Late in 1934 or early in 1935 the Council on Medical Education issued a warning "against the admission of larger classes than can properly be accommodated or than can reasonably be expected to satisfy approved scholastic standards" with the comment: "seven schools have definitely stated that their enrollment will be decreased and others have indicated adherence to the Council's principles".²¹ The warning seems to have had a decided effect on the number of students admitted to medical schools (Table 2). Each of the five years prior to 1934 for which data are available, with the possible exception of

¹⁹ The three exceptions are Illinois, Ohio, and Massachusetts. In Massachusetts the law has been amended so that since 1940 the Board has had the authority to limit examinations to graduates of approved schools. 'Medical Licensure Statistics for 1936', *Journal of the American Medical Association*, April 24, 1937. Several other states occasionally admit graduates of unapproved schools, mainly through certification, but sometimes through examination. The three states mentioned seem to be the only ones where this practice is either regular or of any importance.

²⁰ See, however, S. P. Capen, 'Results of the Work of the Commission on Medical Education', *Proceedings of the Annual Congress on Medical Education and Licensure* (American Medical Association, 1933).

²¹ 'Medical Education in the United States and Canada', *Journal of the American Medical Association*, Aug. 31, 1935, p. 686.

1929, showed an increase in the number of applicants accepted while each of the six years from 1934 to 1939 showed a decrease. Especially large decreases occurred in the two years immediately following the publication of the warning, 1935 and 1936. In recent years, the number of applicants accepted has been 700 to 1300 less than in the peak year, 1933, and

TABLE 2

Admissions to Approved Medical Schools in the United States, 1926-1929 and 1932-1941

	NUMBER OF APPLICANTS			
	Total	Accepted	Rejected	% ACCEPTED
1926	10,006	6,420	3,586	64.2
1927	11,019	6,496	4,523	59.0
1928	12,420	6,974	5,446	56.2
1929	13,655	7,035*	6,620	51.5
1932	12,280	7,357	4,923	59.9
1933	12,128	7,543	4,585	62.2
1934	12,779	7,419	5,360	58.1
1935	12,740	6,900	5,840	54.2
1936	12,192	6,465	5,727	53.0
1937	12,207	6,410	5,797	52.5
1938	12,131	6,223	5,908	51.3
1939	11,800	6,219	5,581	52.7
1940	11,854	6,328	5,526	53.4
1941	11,940	6,822	5,118	57.2

From articles by F. C. Zappfe, *Journal of the Association of American Medical Colleges*, March 1933; July 1937; May 1938; July 1939; July 1940; Sept. 1941; May 1942. Annual study on which these data are based was not made for 1930-31.

* Includes 405 accepted by Canadian medical schools.

about the same as in 1926, the earliest year for which we have comparable data. The *percentage* of applicants accepted declined not only from 1933 to 1938 but also from 1926 to 1929.

In recent years almost half of those applying for admission to approved United States schools have been refused. Of course, many who are refused in one year apply again. Of 3,586 individuals refused in 1926, 29 per cent had been accepted by 1929, 17 per cent had been repeatedly refused, and

54 per cent had not applied again.²² If these figures give a true picture of the situation in recent years, approximately 67 per cent of all who attempt to enter approved United States medical schools eventually succeed. Interestingly enough, the percentage of applicants previously refused who are accepted is only slightly lower than the percentage of first applicants who are accepted.²³

Not all of the 67 per cent who succeed in entering approved United States medical schools graduate from them and gain permission to practise. Some drop out of school of their own accord, some cannot meet scholastic standards and fail to graduate, some graduate but then fail the examination for a license to practise. The net result of failures at these stages can be estimated for recent years. These estimates, combined with the estimate of 67 per cent based on data for 1926-29, indicate that not more than 55 per cent of all persons who attempt to enter approved United States medical schools gain entry, graduate from an approved school, and pass the licensure examination. This estimate allows for repeated attempts at all stages.^{23a}

²² B. D. Myers, 'Report on Applications for Matriculation in Schools of Medicine of the United States and Canada, 1929-1930', *Journal of the Association of American Medical Colleges*, March 1930, pp. 65-89. These percentages as well as those in the next footnote include Canadian as well as United States schools. However, the Canadian schools accounted for only 3 to 5 per cent of all applications filed.

²³ According to Myers (*ibid.*):

	NEW APPLICANTS			APPLICANTS PREVIOUSLY REFUSED		
	1927	1928	1929	1927	1928	1929
Total	9,680	10,631	11,092	1,339	1,789	2,563
Accepted	5,746	6,000	5,802	750	974	1,233
Percentage accepted	59.4	56.4	52.3	56.0	54.4	48.1

^{23a} The figure of 55 per cent is the product of (1) the estimated proportion of persons attempting to enter approved U. S. schools who ultimately succeed, (2) the estimated proportion of persons matriculating in approved schools who ultimately succeed in graduating from approved schools, and (3) the estimated proportion of persons graduating from approved schools who succeed in passing the licensure examination.

Item (1) is the 67 per cent explained in the text. The basis for the other items is as follows:

(2) For each year from 1936 to 1942, the number of persons graduated from approved U. S. schools in that year was divided by the number of persons

Of course, there are channels other than approved United States schools by which entry into medical practice could be secured. Some of the persons who fail to enter practice through approved United States schools may be able to go to one of the few unapproved schools or to a foreign school, and then pass the examination for licensure. New entrants to the medical profession may also include some who never tried to enter

matriculated in approved U. S. schools four years earlier. The average of these ratios is .806 for the period 1936 to 1940, .828 for the period 1936 to 1942. The number of graduates and the ratio were abnormally high in 1941 because two schools discontinued internship requirements and hence each graduated two classes. The 1942 ratio was also much higher than for any preceding year. Consequently, we use a range from .806 to .828. Graduates in each year were not all necessarily in the freshman class four years earlier. In some schools, students graduate only after internship, so that a five-year period elapses between matriculation and graduation, and in one or two schools, students may graduate after three years. In addition, some persons drop out of school for a year or more and then return, some spend more than one year in the same class, and some may enter as advanced students (e.g., persons who received some training abroad or in unapproved schools). The changing body of students represented means that the ratios cited may be interpreted as taking full account of persons who enter as advanced students and of repeated attempts by persons who fail courses.

(3) For each year we have data on the number of graduates of approved U. S. medical schools who take state licensure examinations and the number who pass. The average percentage passing for 1935 to 1941 is 96.1. These figures are unsatisfactory because some persons may take the examination in more than one state and be counted twice and because some persons who take the examination have previously been admitted to practice in other states. Further, the percentage passing in any one year clearly understates the percentage who ultimately pass, since a person who fails the examination in one year or in one state can take it in another year or in another state. Probably very few fail to pass the examination eventually. In addition, some graduates may get licenses on the basis of the examinations of the National Board of Medical Examiners without taking the licensure examination though the number who do so is relatively small. Because of these difficulties, we use here a range of .961 to 1.0.

Multiplying together items (1) and (2) gives a range of 54.0 to 55.4 for the percentage of persons who attempt to enter approved U. S. medical schools who ultimately graduate from them; multiplying together items (1), (2), and (3) gives a range of 51.9 to 55.4 for the percentage who succeed also in passing the licensure examination.

It should be noted that about six per cent of the persons who in any year apply to approved medical schools and are accepted never enroll. We have ignored this source of loss since presumably such persons either did not seriously intend to enter medical schools when they applied or changed their

approved United States medical schools: residents of this country who initially went to unapproved United States schools or to foreign schools, and foreigners who emigrated to this country after being trained abroad. But these other channels of entry account for only a minor share of all new entrants. It is clear from the available data that the bulk of all new entrants are graduates of approved United States medical schools, although these data are inadequate to provide an exact quantitative estimate.^{23b}

Possibly in response to the increased difficulty of being admitted to American medical schools, the number of Americans studying abroad rose from 710 in 1930 to 2,054 in 1932. In 1933 the Federation of State Medical Boards adopted a resolution urging the strengthening of the requirements for admission to the examinations for licensure.²⁴ The number studying

minds later. In either case they cannot properly be included as persons attempting to enter medical schools. In ignoring this group, while using the figure of 67 per cent based on *all* persons who file applications, we implicitly assume that if the persons refused entry had been accepted, the same percentage would not have enrolled as of the persons actually accepted.

The sources for the basic data are annual compilations of educational and licensure data in *Journal of the American Medical Association* and *Journal of the Association of American Medical Colleges*.

^{23b} From 1932 to 1941 between 78.4 and 93.2 per cent of all persons passing the examination for licensure were from approved schools. But (1) these figures include some persons more than once since a person who takes and passes the examination for licensure in more than one state in the same year will be counted once in each state; (2) persons passing the licensure examination include some persons who are already in practice in other states and hence are not new entrants; (3) some persons are admitted to practice without taking state licensure examinations on the basis of the certificate of the National Board of Medical Examiners, the government service, Canadian and foreign credentials. We know that the number in the third group accounts in general for less than 10 per cent of the total net addition to the profession; we do not, however, know how many of these are graduates of approved schools, though we suspect that most of them are since, as is noted below, securing a license on foreign credentials without examination is extremely difficult.

²⁴ This resolution was to the effect "that no American student matriculating in a European medical school subsequent to the academic year of 1932-33 will be admitted to any state licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges, and the Council on Medical Education

abroad thereupon declined to less than 1,500, or 7 per cent of the total enrollment of 22,000 to 23,000 in the United States in the years from 1934 to 1937.

Similarly, the prospect of an influx of foreign physicians after Hitler's rise to power in Germany led to more rigorous requirements for immigrants. It is no longer possible in any state for physicians to be licensed by indorsement without examination. Moreover, 16 states refuse to recognize under any circumstances credentials of schools not in the United States; 21 states and the District of Columbia recognize such credentials only after additional work in the United States—usually a year of internship in an approved hospital or a senior year in an approved medical school, or in some instances, both. Only 11 states recognize such credentials without additional work. The imposition of citizenship requirements in many states and the universal requirement that applicants take the medical examination in English have placed further obstacles in the path of foreigners seeking permission to practise. Of the 32 states and the District of Columbia recognizing credentials of foreign schools, 20 require full citizenship, and 10, the declaration of intention to become citizens ('first papers'). The requirements about both additional training and citizenship seem to apply to all individuals, no matter how long they may have practised abroad.²⁵

The concern over the influx of foreign physicians and the

and Hospitals . . . , and graduation from a European medical school after a medical course of at least four academic years, and further submit evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located. This policy of the Federation has been made effective by individual action on the part of some of the State licensing boards and the National Board of Medical Examiners." ('Medical Education in the United States and Canada', *Journal of the American Medical Association*, Aug. 26, 1933, p. 685.)

²⁵ 'Medical Licensure Statistics for 1940', *ibid.*, May 3, 1941, p. 2045; Harold Rypins, 'The Increase in the Number of Practitioners in the Country', *Proceedings of the Annual Congress on Medical Education and Licensure*, 1937.

According to Rypins, the average number of foreign-born graduates licensed annually throughout the country during the five years 1932-36 was less than 300: 200 by examination and 100 by certification. About 6,000 new physicians are licensed annually. See also Pinkham, 'Foreign Medical Students'.

number of Americans studying abroad found expression also in a series of resolutions by the House of Delegates of the American Medical Association. In 1936 a resolution was adopted urging that graduates of medical schools of other countries be expected to prove their fitness for medical practice by being in possession of a license to practise in the country of their graduation and a certificate of internship in a hospital approved for such training or complete the fourth year in an American Class A medical school.²⁶ In 1938 a resolution was adopted stating: "it is highly desirable that an additional requirement of full citizenship in the United States of America be demanded" of "foreigners, graduates of foreign institutions, . . . before being admitted to practice."²⁷ The Council on Medical Education of the American Medical Association, which approves hospitals for internship, passed a resolution "that, when suitable graduates of Class A schools in the United States and Canada are not available, hospitals approved for intern training may accept graduates of European universities who have passed parts I and II of the examinations of the National Board of Medical Examiners."²⁸

The increasing number of graduates of foreign schools seeking entry to practice in this country is reflected in the percentage of candidates failing the medical examination for licensure. After declining uninterruptedly from 14.8 in 1923 to 5.7 in 1930, the percentage failing rose in every year thereafter through 1940 except 1933 and 1937, when it remained unchanged from the preceding year. In 1941, the percentage

²⁶ 'Medical Education in the United States and Canada', *Journal of the American Medical Association*, Aug. 27, 1938, p. 801.

²⁷ One implication of the two resolutions deserves mention. Since many foreign countries grant licenses to practise only to their citizens, an American studying in one of these countries would have to become a citizen of that country in order to qualify under the first resolution. When he returned to the United States, he would have to regain his citizenship in order to qualify under the second.

²⁸ 'Medical Licensure Statistics for 1938', *ibid.*, April 29, 1939, p. 1720. While on the surface this resolution may seem a relaxation of restrictions, it is really the reverse, since a corollary of the resolution is that graduates of European universities may not be accepted if graduates of American schools are available.

failing declined to 19.7 from the peak of 20.7 reached the preceding year. This ten-year rise in the percentage failing was due primarily to the increasing number of graduates of foreign schools who took the examination, a group that has a very high percentage of failures. The number of graduates of foreign schools taking the medical examination for licensure rose from under 200 prior to 1934 to a peak of over 2,000 in 1940. The percentage of these failing varied from a minimum of 31 per cent in 1935 and 1937 to a peak of 60 per cent in 1941. Among graduates of approved United States medical schools, the percentage failing has been in the neighborhood of only 3 to 5 per cent.²⁹

The formal premedical and medical training requirements are thus not the only, and may not even be the most important, factor governing entry into medicine. The attitudes and actions of the American Medical Association and its Council on Medical Education, of individual medical schools and their national association, and of the state boards of medical examiners and their national federation also play an important role, a role that in recent years has been to make entry more difficult.

For our purpose, it is sufficient to describe this role in terms of its overt expression and its effect on the supply of physicians, since it is in this way that it bears on our primary problem—the analysis of factors determining the incomes physicians receive for their work. But such a description is entirely inadequate as a basis for judging the social implications of the control of entry. From this point of view, the description we have given is incomplete, since it is concerned with quantity rather than quality, results rather than causes, and actions

²⁹ The figures for graduates of foreign schools do not include graduates of approved Canadian schools.

The percentage of all persons taking the examination (graduates of U. S. approved, unapproved, and extinct schools, Canadian schools, and foreign schools) who failed is as follows for each year since 1930: 1930, 5.7; 1931, 6.2; 1932, 7.6; 1933, 7.6; 1934, 8.4; 1935, 9.1; 1936, 10.0; 1937, 10.0; 1938, 11.7; 1939, 16.3; 1940, 20.7; 1941, 19.7. See the annual articles on 'Medical Licensure Statistics', *Journal of the American Medical Association*.

rather than motives. The social desirability or undesirability of the changes here described has been much debated, but that large issue lies outside the scope of this investigation.⁸⁰

2 DENTISTRY

Dentistry resembles medicine in function, organization, kind of training, and clientele. Specialization is far less wide-spread in dentistry than in medicine, though in both it has increased markedly during the last few decades. According to the study of the Committee on the Costs of Medical Care, in 1929, 3 per cent of the dentists regarded themselves as complete specialists and 8 per cent as partial specialists, but many of the 89 per cent who engaged in general practice excluded certain fields.⁸¹ Similarly, dentistry has experienced much the same changes in training requirements as medicine, but with a lag of about a decade and with the general level of requirements still appreciably lower than in medicine even in recent years.

The apprentice system of training, originally dominant in both medicine and dentistry, lasted much longer in dentistry. In 1870 less than 15 per cent of the dentists were graduates of professional schools, the first of which in this country had been established in 1840. The adoption by all states between 1870 and 1900 of laws providing for licensing dental school graduates without the examination required of nongraduates gradually led to the termination of the apprentice system. By 1901, 60 per cent of all dentists were graduates of dental schools; by 1925, 97 per cent.⁸²

⁸⁰ Control of entry by professional organizations deserves study in its own right and not merely as an incident in a study of incomes. Medicine offers an opportunity to observe a form of politico-economic control that promises to become increasingly important and that offers one type of pattern for the future organization of our society. Leaders of medicine are pretty generally convinced that it is a form of control that has been in the social interest and deserves imitation. There are others who think the opposite. The need for a thorough investigation and evaluation of these opposing viewpoints is clearly indicated. Source materials for such an investigation are plentiful.

⁸¹ Maurice Leven, *Practice of Dentistry and the Incomes of Dentists in Twenty States: 1929* (University of Chicago Press, 1932).

⁸² Gies, *Dental Education*, pp. 43, 45.

The relatively late rise of the dental schools, the lowly status accorded dentistry until recently, and the important role played in the early years of dental education by privately owned schools conducted for profit combined to keep the requirements for admission to professional training low and the training itself unsatisfactory. As late as 1879 the majority of dental schools required for admission to professional training only the 'rudiments of an English education'. By 1902 two years of high school were required; by 1910, graduation from a high school; by 1917, graduation from a four-year high school.

In 1921, five years after a university dental school began to exact two years of work in an academic college for admission, and a year after one of the schools had inaugurated the one-year requirement, fourteen other schools began to enforce the one-year requirement which by 1925 became a minimum in twenty-eight of the forty-four schools in the United States.³³

The Dental Educational Council, recently replaced by the Council on Dental Education, was established in 1909, five years after the formation of the Council on Medical Education. It did not issue a public classification of the dental schools until 1918. Of the forty-nine dental schools in the United States in 1918, the Council rated sixteen Class A, twenty-seven Class B, and four Class C. Two were not officially mentioned. Of these 49 schools, 16 were proprietary, that is, privately owned and conducted for profit. By 1925, 24 of the 43 schools in existence were rated Class A, and only 3 were proprietary. Not until 1926, however, was an entrance prerequisite of one year of college work included among the minimum requirements for the Council's Class A or B rating.

The dental course itself increased in length and comprehensiveness. With the exception of a short-lived extension to four years by some schools in 1903-04, the dental course was almost universally three years until 1917 when it was extended to four. Throughout the period, the standard academic year

³³ *Ibid.*, pp. 55, 125. It will be recalled that in 1915, 85 of the 96 medical schools in existence required either one or two years of college work as a minimum preparation.

was being lengthened and a larger proportion of the schools were conforming to the standard.⁸⁴

Legal requirements, like those of the schools, were raised materially during this period but nonetheless lagged considerably behind the rising requirements in medicine. In 1925 only one state required two years of college of prospective dentists; 4 states, one year; 32 states and the District of Columbia, graduation from high school; and 11 had no preprofessional requirements. In the same year 38 states and the District of Columbia required two years of college of prospective physicians; 4 states, one year; and the other 6 states, graduation from high school.

By 1941 all 39 dental schools in the United States gave a four-year course. One school required 3 years of college for admission, the other 38, two years. However, 44 per cent of the 2,074 freshmen enrolled in 1938-39 had more than 2 years of pre dental training: 16 per cent had 3 pre dental years, and 28 per cent, 4 or more pre dental years. Of the 1,794 graduates of dental schools in 1939, 22 per cent held baccalaureate degrees.⁸⁵

The legal requirements have not changed much since 1925. Only 9 states appear to require college training and of these, 6 specify only one year. However, nearly all states require graduation from a 'reputable', 'recognized', or 'approved' school, and the list of American schools the state boards will recognize is ordinarily identical with that of the Council on Dental Education. In consequence, the explicit legal requirements are of little practical importance. Five states specify that the applicant be a citizen, and four that he have his 'first papers'.⁸⁶

⁸⁴ *Ibid.*, pp. 55, 117, 124.

⁸⁵ *Dental Students' Register* (Council on Dental Education, 1940), Tables 3 and 5.

⁸⁶ This summary of legal requirements is based on information generously furnished by S. R. Lewis, Secretary of the Committee on Legislation of the American Dental Association. At its first meeting in May 1938 the Council on Dental Education passed a resolution asking all dental schools to cease using the rating given them by the Dental Educational Council, the former accrediting body. The Council on Dental Education is now engaged in rating the dental schools anew. (We are indebted to G. D. Timmons, Secretary-Treasurer of the American Association of Dental Schools, for this information.)

In dentistry as in medicine, the rise in entrance requirements was accompanied by a sharp drop in students and graduates. Total enrollment decreased from 13,000 in 1922-23 to under 7,500 in recent years; and the number of graduates, from a high point of 3,400 in 1924 to slightly more than half that number.³⁷ The number of dentists per 100,000 persons has declined during the last decade, and possibly during an even longer period. This relative decline in the number of dentists seems attributable entirely to a decline in the number of students willing and able to meet the higher standards. Neither dental literature nor the meagre data on admissions to dental schools or to practice furnish any evidence of concern about the number of entrants as such.³⁸ Indeed, perhaps the most important article we have found on the subject was concerned with the possibility that the increase in training requirements might curtail too greatly the number of prospective dentists.³⁹

Data on the number of persons applying for entry to dental schools are not available prior to the academic year 1941-42. For that year, the following figures have been compiled by the Council on Dental Education for all schools in the United States: ⁴⁰

	NUMBER	PERCENTAGE OF TOTAL
Applicants (academic year 1941-42)		
Accepted and in attendance	2,476	73.9
Accepted and not in attendance	321	9.6
Total accepted	2,797	83.5
Refused admittance	553	16.5
Total applicants	3,350	100.0

³⁷ W. J. Gies, 'Is the Influx of New Graduates Commensurate with the Demand for Dental Service, or Should the Educational Requirements be Altered?', *Journal of the American Dental Association*, April 1931, pp. 589-99; *Dental Students' Register*, Tables 1 and 3.

The more rapid decline in graduates than in enrollment reflects, of course, the lengthening of the dental course.

³⁸ The paucity of data on admissions is itself circumstantial evidence of the absence of any concern as to numbers, since such data would be one of its first by-products.

³⁹ Gies, 'Is the Influx of New Graduates Commensurate with the Demand for Dental Services?'

⁴⁰ *Journal of the American Dental Association*, Dec. 1942, p. 2257.

While precisely comparable data are not available for earlier years, enough data are available to suggest that the same percentage can safely be used at least for 1939, and probably for a somewhat longer period.^{40a} The percentage of persons applying for entry to dental schools who were refused admittance may therefore reasonably be assumed to have been about 16.5 per cent in recent years. The corresponding figure for medicine is between two and three times as large—43 per cent in 1941, between 45 and 50 per cent in every year from 1935–40, and above 35 per cent in every year from 1926–34 for which data are available (1926–29, 1932–34, see Table 2). These figures are directly comparable: for both medicine and dentistry they are based on the total number of persons applying for entry, including persons who were accepted but did not enroll. Moreover, the percentage of persons accepted who did not enroll is very similar in the two professions.

The percentages for dentistry just cited do not take account of repeated attempts to enter schools; so that we cannot obtain for dentistry a figure comparable to the 67 per cent of applicants to approved United States medical schools who succeed in entering after one or several attempts. But even if we assume that none of the 16.5 per cent of applicants to United States dental schools who are each year refused tries again or that none succeeds in later attempts, the resulting percentage who fail to gain entry is still only one-half of that estimated for

^{40a} The data available for 1939 give the total number of *applications* received. This figure clearly overstates the number of *persons* applying for entry since many persons apply to more than one school. There is a parallel distinction between the number of applications accepted and the number of persons accepted, since a person may be accepted by more than one school and hence counted more than once in the number of applications accepted. In 1941, the total number of *applications* received by dental schools, before correction for multiple applications, was 5,479. The number of applications accepted was 59 per cent of the total number of applications received; the number of freshmen enrolled, 45 per cent of the total number of applications received. In 1939, the number of applications accepted was 56 per cent of the total number of applications accepted or rejected (4,479, excluding 345 for which no information on acceptance or rejection is given); the number of freshmen enrolled, 45 per cent. See *Dental Students' Register for 1939*, Table 5.

applicants to medical schools after allowing for repeated attempts.

Candidates for a dental license, on the other hand, have on the average had somewhat more difficulty in passing the licensure examination than candidates for a medical license. The percentage failing the dental examination has been fairly stable at about 18 to 20 per cent.^{40b} In medicine, as noted above, the percentage failing the licensure examination has been rising. For the years 1935-41 it averaged about 14 per cent. The figures cited for both medicine and dentistry are for all persons taking the examination, whether graduates of United States schools or not.^{40c}

The present data do not permit us to combine consistently the experience of would-be entrants into both the medical and dental professions in the long process from application for admission to the professional school through the licensure examination. One cannot start with a cohort of such would-be entrants for each of the two professions, and cumulate the percentages of failures at successive stages into final percentages showing what proportions of the initial cohorts succeed in passing the full series of tests. But it is fair to state that the partial data available on proportions of persons accepted by approved schools who graduate, and of persons taking licensure examinations who pass, fail to show differences that would significantly reduce the initial excess of the rate of

^{40b} R. P. Thomas estimates for 41 states the number of dentists taking the examination for licenses annually and the percentage of failures for the five years 1932-36. His figures suggest that 18 per cent of all who took the examination failed—16 per cent of recent graduates and 29 per cent of the dentists out of school one year or longer ('Dental Survey', *Journal of the American Dental Association and the Dental Cosmos*, Jan. 1938, p. 157). Figures for more recent years are given annually in the *Journal of the American Dental Association*. In 1939, 20 per cent, and in 1940, 17 per cent failed.

^{40c} The figures for both medicine and dentistry overstate, of course, the percentage who are never admitted, since individuals who fail once may take the examination again. Both sets of figures contain duplications since individuals may take the examination for licensure in more than one state; and both include individuals previously admitted to practice in other states.

failures among applicants to medical schools over that among applicants to dental schools.

However comprehensive and consistent percentages of the type discussed above may be, they measure relative difficulty of entry in a sense different from that of a comparison of requirements for pre-professional and professional training. The well-established fact, already discussed, that medicine has higher requirements for such training than dentistry means, in and of itself, greater difficulty of entry in the sense of requiring greater persistence in study, possibly higher mental ability, and certainly greater economic sacrifice prior to beginning of practice. We have also noted that among the leaders of the medical profession, in contrast to the leaders of the dental profession, there has been explicit concern about rapid increase in the number and possible deterioration in the quality of students and practitioners—a concern that may well have led to raising the hurdles which prospective entrants to the medical profession must clear. By the very facts of higher educational requirements and of the tendency toward restriction of numbers, the greater difficulty of entry into the medical profession is demonstrated; and would remain so even if the percentage of failures among would-be entrants into medicine were equal to or lower than among would-be entrants into dentistry.

Differences are present in the percentage of such failures in spite of the well-known higher requirements for entry into and pursuit of the medical profession, in spite of presumptive pre-selection in the sense that only those try who consider themselves possessed of the ability and training to satisfy these higher requirements. This may mean either that medicine appeals to proportionately larger groups of those who, by objective standards, cannot satisfy the requirements of the medical profession than dentistry does to those who, by equally objective standards, cannot satisfy the requirements of the dental profession; or that greater restriction of numbers in medicine bars otherwise fit candidates. The relative weight of these two and other possible explanations, is not and can-

not be adequately measured by mere percentages of failures and success among experimentally uncontrolled groups of applicants, students, and examinees.^{40d}

It should also be noted that the percentages of failures at entry or on licensure examinations are based on data for the last 5 to 10 years, whereas the data on income analyzed in this study are for persons who were graduated during a considerably earlier period. The difference between ease of entry into medicine and dentistry, as measured by training requirements, was probably even greater then than it is now. The intensive drive for higher standards of medical education which resulted in a rapid and sharp decline in number of schools and students began in 1910; the corresponding drive in dentistry, not until the early 1920's. During the intervening period, requirements for entry to dental practice were extremely low and proprietary schools—privately owned and conducted for profit—were common. As late as 1925, requirements of dental schools were considerably lower than those imposed in medicine by 1915 or earlier.

Despite the greater difficulty of entry into medicine, the number of persons who each year succeed in entering the profession has been in recent years a larger percentage of the total number already in practice than in dentistry. The reason for this is, of course, that there is an even larger difference between medicine and dentistry in the percentage that persons applying for entry are of all persons in the profession. Expressing the estimated number of persons applying for entry annually during 1935-41 as a percentage of the estimated number of persons in the profession in 1936, we get 7.3 per cent for medicine and 3.9 per cent for dentistry. Expressing the average number of graduates in 1935-41 as a percentage of the same total, we get 3.1 per cent for medicine and 2.3 per cent for dentistry.^{40e}

^{40d} See, however, discussion in Ch. 4, Sec. 2f.

^{40e} The reason for using figures on graduates is that there are no reliable figures for both professions on actual new entrants. The figures on persons granted licenses are unreliable as indicators of actual entrants because (1) some new entrants get licenses in more than one state, (2) some persons who get licenses are not new entrants, having previously practised in other states. Figures cor-

Stated differently, there were each year more than four times as many persons applying for entry into medical schools as into dental schools, if we include both persons applying for the first time and persons applying again after an earlier refusal; between three and a half and four times as many applying for the first time; three times as many graduates from medical schools as from dental schools; and more than twice as many physicians as dentists.^{40f}

rected for these items are available for medicine but not for dentistry. Further, in both medicine and dentistry, and particularly during the last few years in medicine, new entrants include a sizable number of persons other than graduates of American schools, primarily recent immigrants who formerly practised abroad. While these persons are properly included in the total number of new entrants, such a total is not comparable with our figures on persons trying to enter the professions, which are solely for persons applying for entry to American schools. In view of these difficulties, the number of graduates is probably the index of new entrants most nearly comparable with the available data on persons trying to enter the professions.

^{40f} The detailed figures underlying these ratios and the percentages given above are as follows:

	YEARS AVERAGED	NUMBER IN		RATIO OF NUMBER IN MEDICINE TO NUMBER IN DENTISTRY
		Medicine	Dentistry	
Persons applying for entry Persons applying for entry for first time	1935-41	12,123	2,929	4.1
Graduates Persons	1935-41	5,188	1,734	3.5 to 4.1
In independent practice	1936	133,000	62,000	2.1
In profession (including salaried and some persons retired or out of practice)	1936	165,000	75,000	2.2

The figure for dentistry on number of persons applying for entry was obtained by raising the average freshman enrollment for 1935-41 by the ratio of the number of persons applying for entry in 1941 to the number of persons enrolled in 1941. The figures on number of persons in independent practice and in the profession are taken from Table 1. The figures for persons applying for the first time are explained below. The rest of the figures are arithmetic averages of the corresponding annual figures.

The figures on the number of persons annually applying for entry include some persons who have been refused in earlier years but are applying again. They therefore overstate the number applying for the first time. This overstatement is probably larger in medicine than in dentistry because the percentage of persons refused admission is larger. The only evidence on the importance of

Unless the age distributions of physicians and dentists, the retirement rates in various age classes, and the like, are appreciably different, a continuation of this much greater rate of additions to medicine would serve to increase the ratio of the number of physicians to the number of dentists. The most comprehensive data available, those of the Census of Occupations, show, however, that between 1910 and 1930, the ratio of the number of physicians to the number of dentists *declined* from 3.78 to 2.19 (the number of physicians, including osteopaths, being 151 and 154 thousand in 1910 and 1930 respectively; and of dentists, 40 and 71 thousand); and that only from 1930 to 1940 did the ratio rise from 2.19 to 2.35. Apparently, the greater rate of additions to the medical profession is a relatively recent and mild trend.

It should be noted that these figures reflect the different dates at which educational standards were raised and, as a consequence, the number of students declined, in the two professions. The decline in the number of medical students began before 1910; in the number of dental students, almost twenty years later. The period from 1910 to 1930 naturally reflects most of the decline in medicine and hardly any in dentistry; the latter began to have a significant effect only about 1930.

3 LAW

The increasing complexity and scope of industry, finance, and government, the enormous growth of administrative tribunals, and the multiplication of laws affecting business have greatly

this factor is the special study of medical applicants cited in footnote 22 above. Calculations based on this study give as a minimum estimate of the ratio of persons applying for the first time in medicine to persons applying for the first time in dentistry a figure in the neighborhood of 3.5. The ratio of applicants in the two professions is therefore somewhere between 3.5 and the figure of 4.1 given above.

It should be noted that the figures on persons applying for entry during 1935-41 are not strictly comparable with the figures on graduates during 1935-41, since the latter applied for entry during an earlier period. It is for this reason that ratios for the same calendar period, such as those in this footnote, give only rough indications of the relative ease of entry into the two professions.

extended legal functions. As a result, individuals in their private capacity are becoming relatively less important as purchasers of legal services, and government and business more important; the proportion of all lawyers who are salaried employees is increasing; and 'office activities' now exceed in importance the trial work which originally constituted the lawyer's major function and with which law is still primarily associated in the lay mind.⁴¹

Partnerships or firms, almost entirely absent in the curative professions, play an important role in law. Approximately 25 per cent of all lawyers practising independently are members of firms.⁴² To some extent, organization into firms serves the same function in law as specialization does in the curative professions since the larger legal units are in a position to assign firm members or salaried employees to specific segments of legal practice. In addition, there is some specialization by individual lawyers and by firms, but it is neither so widespread nor so formalized as in medicine.

Marked increases in the requirements for admission to practice began later in law than in either medicine or dentistry. Not until after the promulgation by the American Bar Association in 1921 of proposed standards for admission to the bar did really effective increases in training requirements occur. The recommended standards included two years of college education prior to law study and three years of full-time or a longer course of part-time study in schools approved by the Council on Legal Education.⁴³

When this recommendation was made, not a single state required any college education and only 27 states and the District of Columbia as much as 3 years of legal training before admission to the bar. Eighteen states and the District of Columbia had no requirement about general education, and 10 states did

⁴¹ L. K. Garrison, 'Survey of the Wisconsin Bar', *Wisconsin Law Review*, Feb. 1935, pp. 136, 149; A. Z. Reed, *Annual Review of Legal Education for 1930*, p. 6.
⁴² See Ch. 6.

⁴³ Reed, *Present-Day Law Schools in the United States and Canada* (Carnegie Foundation for the Advancement of Teaching, 1928), pp. 58-60.

not specify a definite period of legal training. As late as 1925 only one state, Kansas, required 2 years of college or its equivalent prior to the study of law. By 1937, on the other hand, 29 states required a minimum of 2 years of college prior to the study of law,⁴⁴ and 7 states, 2 years of college education before admission to the bar but not necessarily before law study. Forty states and the District of Columbia required three or more years of legal training, 4 states, no more than 2 years, and 4 had no requirement. In addition, 22 states did not admit graduates of other than 'approved' law schools.⁴⁵

Unlike medical or dental training, the prescribed legal training need not be taken in school. All but seven states permit the entire period of training to be spent in a law office. However, "the number availing themselves of the privilege of study by clerkship is almost negligible as, except in rare cases, the bar examination cannot be successfully passed without formal school training."⁴⁶ Moreover, five states require that some part of the professional training be acquired in a law office⁴⁷—four states, 6 months, one, 12 months.

A much more important difference between the legal and curative professions is that in the former it is possible to get professional training by attending school in the afternoon or evening on a part-time basis. This increases the possibility of individuals' 'working their way' through professional schools and thus lessens the dependence on others for the funds needed to finance training.

Of 190 law schools in existence in 1936, 73 offered solely part-time instruction, 34 both full- and part-time, and 83, exclusively full-time. Almost 19,000 students were classified as

⁴⁴ Two of these required a college degree or passage of a general educational examination and one, again Kansas, had passed a law requiring that, effective July 1, 1940, all students have a college degree.

⁴⁵ *Progress of Legal Education* (Carnegie Foundation for the Advancement of Teaching, 1922); *Annual Review of Legal Education for 1937*.

⁴⁶ J. G. Rogers, 'The Standard American Law School', *Annual Review of Legal Education for 1936*, p. 15.

⁴⁷ An additional state, New York, requires clerkship of candidates who are not college graduates (*ibid.*, p. 37).

attending afternoon and evening classes and only slightly more as attending morning classes.⁴⁸ The proportion of all law graduates receiving their education on a part-time basis is somewhat smaller than the proportion of students, since part-time students typically attend law school during more years than full-time students. The trend in the proportion of students taking part-time work cannot be determined with any exactitude from available data. It is clear, however, that the proportion of schools offering part-time work increased very rapidly from 1870, when the first important part-time schools were established, until about 1920, and at a somewhat slower pace thereafter. The proportion of students taking part-time work has probably undergone similar changes.⁴⁹

Part-time schools cater to the less affluent, are less often affiliated with a university, and are more frequently conducted for profit than full-time schools. As a result their standards have been lower and their requirements less rigid, as the accompanying tabulation indicates.

	1922		1937	
	FULL-TIME	PART-TIME AND MIXED	FULL-TIME	PART-TIME AND MIXED
Total number of schools	70	77	84	101
Number of schools requiring for admission:				
No college education	18	67	2	36
1 year of college	14	4	0	3
2 years of college	30	6	45	58
More than 2 years but no degree	5	0	30	2
College degree	3	0	7	2

Progress of Legal Education, p. 29; *Annual Review of Legal Education for 1937*, pp. 34-63.

With one exception, all the full-time schools in existence in 1937 gave a 3-year law course. A directly comparable figure

⁴⁸ *Ibid.*, p. 72. These figures exclude approximately 2,000 graduate and unclassified students.

⁴⁹ Reed, *Annual Review of Legal Education for 1930*, p. 25, and *Training for the Public Profession of the Law* (Carnegie Foundation for the Advancement of Teaching, 1921), pp. 397-8.

cannot be cited for part-time schools because of the difficulty of comparing time spent in part-time work and time spent in full-time work.⁵⁰ But we have Reed's authority for the statement that despite the "general movement for lengthening the course in part-time law schools, such schools are far from catching up with their full-time rivals, as regards the amount of time that is measured by their law degree. On the contrary, they are being more and more outdistanced in this respect."⁵¹

The increase in training requirements for admission to the bar from two or three years in 1920 to a minimum of five years at present was accompanied by a rapid increase in lawyers, law schools, and law students. The number of lawyers per 100,000 persons declined steadily from 144 in 1900 to 116 in 1920 but then rose to 131 in 1930 and seems to have continued to increase thereafter, despite a moderate decrease in the number of law students. Although, as we shall show in Chapter 4, the decline in the incomes of lawyers from 1929 to 1933 roughly paralleled the decline in the incomes of physicians, the prior rapid increase in the number of lawyers seemed to give greater support to the contention of 'overcrowding' and to make the problem more prominent. In any event, during recent years discussion and advocacy of limitation of entry have probably been even greater among lawyers than among physicians—a phenomenon perhaps not unrelated to the smaller degree of actual restriction in law.⁵²

⁵⁰ Hours of classroom instruction are not a valid basis for comparison because they take no account of outside study required of or done by the student.

⁵¹ *Annual Review of Legal Education for 1930*, pp. 26-8.

⁵² See 'The Overcrowding of the Bar', *Notes on Legal Education*, June 1932; "'Life" in Bar Admission Standards', *ibid.*, Dec. 1936; 'Modern Bar Admission Standards and the List of Approved Law Schools', *ibid.*, July 1937; 'Admissions to the Professions of Medicine and Law: A Comparison', *ibid.*, July 1933; 'Pennsylvania Considers Adoption of a Quota System', *Bar Examiner*, July 1933; C. E. Clark, 'The Selective Process of Choosing Law Students and Lawyers', *ibid.*, Sept. 1933; C. E. Dunbar, Jr., 'The Bar Association Standards and Part-Time Legal Education', *ibid.*, Jan. 1940; A. J. Harno, 'Lights and Shadows in Qualifications for the Bar', *ibid.*, Nov. 1932; C. E. Clark and W. O. Douglas, 'Trends in Legal Education and Bar Admission Requirements', *Recent Social Trends* (McGraw-Hill, 1933), II, 1480-8; H. C. Horack, 'Supply and Demand in Legal

The legal profession has sought with some success to have admission to bar examinations limited to graduates of 'approved' law schools.⁵³ As noted above, in 1937, 22 states admitted only graduates of schools approved by the Section on Legal Education and Admissions to the Bar of the American Bar Association. These ratings seem to have no direct influence in the remaining jurisdictions.⁵⁴ As a result, in 1936, there were 96 unapproved law schools with an enrollment of 18 thousand or 45 per cent of all law students.⁵⁵ The most important of the law school associations, the Association of American Law Schools, had only 84 members, all on the approved list. In all there were 94 approved law schools.⁵⁶

Because the legal profession has had so little direct control over the number of law schools or their policies, the pressure for limiting the number of lawyers has been directed mainly toward more severe educational requirements and greater

Profession', *American Bar Association Journal*, Nov. 1928; C. H. Kinnane, 'The Threatened Inundation of the Bar', *ibid.*, July 1931; Sidney Teiser, 'A Proposal for a Limited Bar', *ibid.*, Jan. 1935; I. M. Wormser, 'Fewer Lawyers and Better Ones', *ibid.*, April 1929; M. R. Kirkwood, 'Some Problems in Admission to the Bar that Affect the Law Schools', *American Law School Review*, April 1930; O. J. Phillips, 'Building a Better Bar', *ibid.*, Dec. 1934; symposium on 'The Overcrowding of the Bar and What can be Done about It', papers by Y. B. Smith and J. G. Rogers, *ibid.*, Dec. 1932; S. T. Wallbank, 'The Function of Bar Examiners', *ibid.*, Dec. 1931; P. J. Wickser, 'Ideals and Problems for a National Conference of Bar Examiners', *ibid.*, Dec. 1931, and 'Law Schools, Bar Examiners, and Bar Associations—Co-operation versus Insulation', *ibid.*, April 1933; Garrison, 'Survey of the Wisconsin Bar'.

⁵³ "Generally the feeling in this country is that the adoption of a quota is unnecessary and would result in vociferous protest from the public. If our lawyers act intelligently they will forestall it by adopting those methods which have been so successful in the medical profession. First, they will require the two-year college standard before the beginning of law study, and second, they will, through their Boards of Bar Examiners, require graduation from law schools which competent agencies declare give an adequate legal education." 'Admissions to the Professions of Medicine and Law: A Comparison'.

⁵⁴ *Annual Review of Legal Education for 1937*.

⁵⁵ In interpreting these figures, the cautions given above should be borne in mind, since the unapproved law schools are predominantly part-time or mixed schools.

⁵⁶ *Annual Review of Legal Education for 1936*.

stringency by bar examiners and the courts.⁵⁷ Explicit action by examining boards has taken several forms. The most extreme is probably the establishment in several counties in Pennsylvania of a quota system whereby only a certain number of lawyers are admitted each year.⁵⁸ Very similar is a recent ruling of the Delaware Supreme Court that permits the bar examiners to limit the number of registrations for law study.⁵⁹ Some states have limited the number of times candidates may take the bar examination.⁶⁰ One state, New Mexico, has established a 'probationary' bar, providing for a temporary license after the bar examination has been passed, and a permanent license, a year later. The numerous other proposals for limited or graded bars seem not to have been enacted in any jurisdiction.⁶¹

As noted above, the control of entry by professional associations is considerably weaker in law than in medicine. To some extent, this smaller degree of control may reflect the opposition within the legal profession to the adoption of policies designed to solve the problem of overcrowding through limitation of entry. Three other factors, however, help to explain why this opposition has been more successful than the corresponding opposition within the medical profession. In the first place, the drive for higher training requirements began at a later date

⁵⁷ H. W. Arant, President of the Association of American Law Schools, states: "If the profession really is overcrowded, they [the bar examinations] must be thought of as . . . devices for regulating the size of the legal profession." "The Relationship Between Legal Education and Bar Examinations", *Annual Review of Legal Education for 1937*, p. 4.

⁵⁸ See *Bar Examiner*, July 1933.

⁵⁹ *Annual Review of Legal Education for 1937*, p. 21.

⁶⁰ Approximately 7 states have an absolute limitation on the number of re-examinations. In addition, 8 require special permission after a specified number of examinations. See B. L. Adams, 'Restrictions on Reexaminations', *Bar Examiner*, Aug. 1932; and the *Annual Review of Legal Education* for more recent years.

⁶¹ Reed, *Annual Review of Legal Education for 1934*, p. 35. See also *Annual Review of Legal Education for 1929*, pp. 26-31.

In New Jersey, there are two classes of lawyers—attorneys and counsellors. But this distinction seems largely a relic of earlier regulations and to have little practical importance.

in law than in medicine. In medicine, this drive arose from a pressing need for better standards of training, and limitation of entry was an entirely unintended by-product. The success of the drive left the medical profession in a position to control entry for other purposes. In law, too, the initial drive for higher training requirements had little or no connection with any desire to limit entry. But starting later, it had proceeded less far when the problem of overcrowding seemed to become urgent. In the second place, the harm done to the public by low educational standards and requirements is more immediate and more easily recognized in medicine than in law. Finally, and probably most important, the political leadership of the country has been so largely recruited from the bar as to give rise to a general belief that it would be undesirable in a democracy to restrict entry into the bar to any limited social or economic class. It so happens that few part-time schools are on the list of 'approved' schools. In 1936, 75 of the 83 full-time schools were on the approved list, 18 of the 34 mixed schools, and only one of the 73 part-time schools. Restricting admission to the bar to graduates of approved schools in effect means denying admission to graduates of part-time schools. Yet the part-time schools are likely to be the only recourse of young men from poor families who must support themselves while getting their training.⁶²

Table 3 suggests that the agitation for restriction led to an initial sharp increase in stringency by bar examiners, but that this increase has not been cumulative. The percentage passing the bar examination fell from 59 in 1927 to 45 in 1932 and 1934, and then rose to 51 in 1940. These figures understate the percentage finally admitted to the bar even more than the percentage of applicants annually accepted by medical schools understates the percentage of all applicants who are eventually accepted. The bar examination is taken at a much later stage

⁶² For a profound and penetrating analysis of this problem, see F. M. Shea, 'Overcrowded?—the Price of Certain Remedies', *Columbia Law Review*, Feb. 1939, pp. 191-217.

TABLE 3

Admissions to the Bar, 1927-1940

	APPLICANTS TAKING EXAMINATION			NUMBER ADMITTED ON		Motions ^a	APPLICANTS TAKING EXAMINATION FOR FIRST TIME		APPLICANTS REPEATING EXAMINATION	
	Total No.	passing	% passing	Diploma ¹ & Examinations	Examinations		Total	% passing	Total	% passing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1927		8,825	59	553	9,378	876				
1928 ⁴	17,288	9,276	54	617	9,893	731				
1929 ⁴	18,905	9,387	51	630	10,017	765				
1930 ⁴	19,830	9,445	48	567	10,012					
1931 ⁴		9,129	48							
1932	19,470 ⁵	8,774	45 ⁵	566	9,340	634	7,253 ⁶	50 ⁶	7,210 ⁶	36 ⁶
1933	18,314 ⁵	8,494	46 ⁵	764	9,258	678	9,054 ⁷	51 ⁷	7,816 ⁷	38 ⁷
1934	17,958 ⁵	8,245	45 ⁵	854	9,099	775	8,476 ⁸	55 ⁸	7,027 ⁸	38 ⁸
1935	16,812 ⁵	8,149	48 ⁵	822	8,971	601	8,507 ⁹	54 ⁹	6,303 ⁹	38 ⁹
1936	16,435	7,651	47	976	8,627	502	7,944 ¹⁰	57 ¹⁰	6,554 ¹⁰	38 ¹⁰
1937	16,629	7,989	48	945	8,934	618				
1938	16,789	8,105	48	692	8,797	591	8,305 ⁹	58 ⁹	6,350 ⁹	39 ⁹
1939	15,935	8,102	51	429	8,531	471	8,170 ⁸	60 ⁸	5,882 ⁸	41 ⁸
1940	14,581	7,414	51	528	7,942	431	7,556 ⁹	60 ⁹	5,208 ⁹	41 ⁹

1927; col. 4: L. K. Garrison, 'A Survey of the Wisconsin Bar', *Wisconsin Law Review*, Feb. 1935, p. 134.

1928, 1929, 1930; col. 2, 3, 4, 5, and 6: Will Shafroth, *Bar Examiners and Examinees* (Council of the American Bar Association on Legal Education and Admission to the Bar). Figures in the table embody revisions furnished by Mr. Shafroth.

All other data: *Bar Examiner*, Aug. and Sept. 1932; April and May, 1934 to 1938; April 1939, 1940, and 1941.

¹ Several states admit graduates of specified law schools to the bar without examination.

^a Represents total new admissions.

^b Represents admission of lawyers previously admitted in another state.

⁴ Year ending July 1.

⁵ Excludes Arkansas.

⁶ Excludes Arizona, Arkansas, District of Columbia, Michigan, New Jersey, Ohio, Texas.

⁷ Excludes Arizona, Arkansas, District of Columbia.

⁸ Excludes Arkansas, District of Columbia, Louisiana.

⁹ Excludes District of Columbia, Georgia.

¹⁰ Excludes District of Columbia, Georgia, Iowa.

in the candidate's training than that at which application is made for admission to medical school; hence, a much larger percentage of those who fail the bar examination try again. A study conducted some years ago indicated that 92 per cent of those who took the bar examination eventually passed.⁶³ The subsequent increase in the number of states limiting re-examinations and decrease in the percentage passing the bar examination has presumably led to a diminution in the percentage who eventually pass. Individuals who take the bar examination after having previously failed have considerably less success than those taking the examination for the first time. Approximately 55 per cent of first-timers have passed in recent years as compared with 38 per cent of repeaters, a difference much larger than that between the percentage of first applicants who are accepted by medical schools and the percentage of applicants previously refused who are accepted.

New entrants into the legal profession declined from approximately 10,000 annually during 1928-30 to fewer than 9,000 annually during 1935-37. The number taking the examination declined from approximately 20,000 in 1930 to fewer than 17,000 in 1937 (Table 3).

4 CERTIFIED PUBLIC ACCOUNTANCY

Certified public accountants render services to business enterprises and governmental agencies almost exclusively. As in law, salaried employment is common, and partnerships and firms play an important role. Approximately a third of all certified public accountants are salaried employees, and a third of those practising independently are members of firms.⁶⁴

The functions of certified public accountants practising independently are of two distinct types: auditing, supervising,

⁶³ 'Admissions to the Professions of Medicine and Law: A Comparison'.

The figure of 92 cited in the text represents the percentage of all candidates examined in California, Colorado, Illinois, New York, and Pennsylvania during 1922-24, and in Ohio during 1926-28 who had been admitted to the bar by January 1932.

⁶⁴ See Ch. 6.

and analyzing the results of operations of business enterprises; and providing specialized counsel in bookkeeping and other control activities.⁶⁵ The need for an agency outside the business enterprise to perform the first function arises from a desire to have a check that is not affected by the interests of the business enterprise itself and that will therefore be accepted by others as impartial.

The first statute dealing with certified public accountants was enacted in 1896 by the New York State legislature. Within the next twenty-five years all states enacted similar statutes. The laws provided for the restriction of the title 'Certified Public Accountant' to individuals who meet certain preliminary requirements. The profession of public accountancy was not restricted to those certified, and, until recently, non-certified public accountants were not appreciably fewer than certified.

In all states candidates for the title of Certified Public Accountant are now required to pass an examination. In the past, usually when the original statute was enacted, large groups of individuals in practice were accorded the title without examination. The educational and experience requirements that must be complied with before a candidate for the Certified Public Accountant title is admitted to the professional examination vary widely.

Three states, Iowa, New York, and New Jersey (since Jan. 1, 1941), require graduation from a college or school of accountancy; one state, Kansas, 2 years of college; 42 states and the District of Columbia, a high school education (four of these states will permit the substitution of lengthy experience with an accountant for a high school education); and 2 states, Florida and Louisiana, have no educational requirements. All states except Delaware and Montana require some accountancy experience, the minimum amount accepted varying from one to five years. Four states require one year; 12 states, 2 years;

⁶⁵ See Marvin Isaacs, *Professional Accountancy and Training in Collegiate Schools of Business* (Far Rockaway, 1933), pp. 6-7.

26 states and the District of Columbia, 3 years; 2 states, 4 years; and 2 states, 5 years. This summary understates somewhat the experience requirements, since in several states the amount of experience required depends on the kind of experience, the amount required ordinarily being least if the experience is with a certified public accountant. Eighteen states and the District of Columbia will permit a candidate to substitute higher education for experience; in 5 states, for the entire experience requirement; in 7 states, for one year of experience; in one state, for a year and a half of experience; and in 5 states and the District of Columbia, for 2 years of experience.⁶⁶

Except in Iowa, New York, and New Jersey,⁶⁷ the educational and training requirements in certified public accountancy are lower than in the other professions considered. On the other hand, the examination that candidates for certification must take seems to be a much more important selective factor than the licensure examinations in the other professions—80 to 90 per cent of all candidates have failed in recent years, as compared to 40 to 60 per cent in law, 15 to 20 per cent in dentistry, and less than 10 per cent in medicine. Not only the percentage of individuals passing each examination but also the percentage who eventually pass is materially lower than in the other professions. A study for 1932-37 showed that 33 per cent of those permitted to take the examination eventually pass.⁶⁸ Of course, the consequences of failure are less serious in accountancy than in the other professions since the accountant who is not certified can still practise his profession, while the lawyer, physician, or dentist who fails to get his license cannot.

⁶⁶ T. W. Byrnes and K. L. Baker, *Do You Want to Become an Accountant?* (F. A. Stokes, 1940), pp. 32-42.

⁶⁷ This exception is, however, exceedingly important. New York alone contains almost one-third of all certified public accountants as compared with about 13 per cent of physicians and dentists and 17 per cent of lawyers.

⁶⁸ 'Certified Public Accountant Examination Certificates', *Journal of Accountancy*, April 1938, pp. 277-8. The 33 per cent is based on figures for 1932-37 submitted by 20 state accountancy boards and one territorial board. Figures for 9 states show that 41 per cent of college graduates eventually pass compared with 32 per cent of nongraduates.

As in the other professions, legal regulation lags behind actual practice. Of some 700 new members admitted to the American Institute of Accountants between January 1, 1927, and September 1, 1934, 34 per cent were college graduates; of the 1,406 new members admitted to the New York Society of Certified Public Accountants during approximately the same period, 54 per cent were college graduates. At the time they received their certificates, the average age of the new members of the New York Society who were educated in the United States (1,343 out of 1,406) was 31.6 years for the 588 high school graduates and 28.4 years for the 755 college graduates. The latter average is almost two years higher than the average age, 26.5 years, of the 1937 graduates of medical schools.⁶⁹

An interesting feature of the training requirements, in comparison with those of the other professions considered, is the extent to which apprenticeship is still the principal legally recognized method for obtaining professional training. Even the four states requiring formal training in a professional school specify that a candidate have some experience before he is granted the certificate—in two states, one year; in the other two, three years. As in law, however, it is difficult to pass the examination without some formal training, and consequently most of the candidates take courses in professional schools, many in part-time and evening schools.

In striking contrast to the medical and legal journals, the accounting journals seldom contain articles or editorials on 'overcrowding'. Occasionally, current problems of unemployment and reduced income are mentioned, but they are almost universally attributed to the general business situation, not to any 'overcrowding' in the profession itself. Presumably this reflects both the apparently rising secular trend in the demand for certified public accountants and the intimate connection

⁶⁹ W. W. Nissley, 'Education for Professional Accountants', *Journal of Accountancy*, Jan. 1935, pp. 18-20; 'Medical Education in the United States and Canada', *Journal of the American Medical Association*, Aug. 28, 1937.

between accountants and business enterprises which leads to a general recognition of the close integration of the economic fortunes of the accounting profession with the business cycle.

The absence of concerted effort to restrict entry on grounds of 'overcrowding' might conceivably be combined with, and explained by, the presence of highly successful restrictive measures. In fact, however, there seems to have been no deliberate restriction of entry. The very low proportion passing examinations for the certificate—about 15 per cent—is rather to be explained by the absence of high educational or training requirements for admission to the examination.

Interestingly enough, while there seems to be no deliberate restriction of entry, the institutional arrangements governing the certification of public accountants are so developing as to be peculiarly well adapted to restriction. In all except nine states—these nine states include, however, over half of all certified public accountants—the state examining boards use examinations prepared by a professional association, the American Institute of Accountants.⁷⁰ Moreover, in almost all states using the Institute examinations, the grading is done by Institute examiners who send to the state examining board class grades—A, B, C, and D—rather than numerical grades, thus making it difficult for the state boards to vary the passing grade. In the nine states not using the Institute examinations, the state board prepares and grades the examinations.

5 CONSULTING ENGINEERING

The demand for consulting engineers, like that for certified public accountants, arises in the main from the need for independent and impartial advice and review. The functions of this group have been described as follows:

⁷⁰ The 9 states are Kentucky, Maryland, Michigan, New Jersey, New York, Ohio, Pennsylvania, Virginia, and Wisconsin. This information about the examination mechanism was furnished by the American Institute of Accountants, as were the estimates of the number of certified public accountants by states.

"The consulting engineers who can fairly and honestly use the term comprise those engineers in private practice who may confidently count upon retainers from public and private enterprises. . . . Their clients are the larger corporations who desire to consult an engineer upon some project in which their own engineering staff needs advice and guidance from an engineer probably more open-minded upon the subject under consideration than is the chief engineer of such enterprise.

Public authorities of municipalities and of state and federal governments seek professional advice in a similar manner. Oftentimes the consulting engineer with his own large staff is retained by public authorities for the complete design, execution and direction of large engineering enterprises. . . .

Another and important employment of consulting engineers by various clients is that of reporting upon existing properties, especially as to operating conditions, with recommendations in respect to new financial structures and more economical methods of operation."⁷¹

Other functions of consulting engineers include minor forms of expert service, such as serving on boards investigating or controlling existing or proposed projects and furnishing expert testimony in litigation.⁷² As in law and certified public accountancy, firms are of considerable importance. Almost half of all consulting engineers are members of firms.⁷³

Consulting engineering is the only one of the five professions that is not under state licensure. Presumably anybody, whether or not he has had formal training, can function as an engineer, if business or public enterprises entrust him with a job. In practice, however, the great majority of all engineers are graduates of engineering schools, involving a professional training period of four years and a general prerequisite of graduation from high school. Of 52,589 engineers supplying usable information to the U. S. Bureau of Labor Statistics in

⁷¹ F. A. Molitor, 'Consulting Engineering', *Vocational Guidance in Engineering Lines* (American Association of Engineers, 1933), pp. 126-7.

⁷² *Ibid.*, pp. 121-9.

⁷³ See Ch. 6.

reply to a questionnaire mailed in 1935, 79.6 per cent had received an engineering degree from a college or university, 2.5 per cent had a nonengineering degree, 10.8 per cent had some engineering training in college but had not completed the course, 5.1 per cent had received training in noncollegiate technical schools, and 1.8 per cent had only a secondary school education. Moreover, an analysis of the returns by year of graduation for graduates and by age for nongraduates indicated that the proportion of all engineers who are engineering graduates has increased considerably. "Of the engineers classified as 'recent' since they entered the profession after the 1930 census, 18,451, or 98.48 per cent, reported as being graduated between 1930 and 1934. Contrasted to this group, there are only 286 or 1.52 per cent 'other engineers', i.e., those who did not report graduation but were born within the period of 1910-15."⁷⁴

The relatively few engineers who have attained a place in their profession that allows them to practise as private consultants presumably differ in many respects from their fellow engineers. Unfortunately, data are available only on age and experience. A study of the 1930 earnings of mechanical engineers yielded a median age of 35 years for the entire sample, but a median age of about 44 years for independent consultants.⁷⁵ In the Bureau of Labor Statistics study men-

⁷⁴ Andrew Fraser, Jr., 'Educational Qualifications in the Engineering Profession', *Monthly Labor Review*, June 1936, pp. 1528-42. The 52,589 usable returns represent 30.4 per cent of the 173,151 questionnaires sent out. In a later article on this survey ('Employment in the Engineering Profession, 1929 to 1934', *ibid.*, April 1937, p. 861) it is indicated that a larger proportion of recent graduates reported than of the older engineers. In view of the declining importance of nongraduates, the figures in the text above are presumably biased in favor of engineering graduates. We have made no attempt to adjust for the bias in the sample, since the broad conclusion would remain unchanged. The Bureau of Labor Statistics figures presented in the later articles on the survey, dealing with other aspects of the results, have been adjusted for this bias.

⁷⁵ *Mechanical Engineering*, Nov. 1931, p. 817, and Dec. 1931, p. 880. About 8,000 were included in the sample of whom approximately 300 were independent consultants.

tioned above, 4 per cent of the engineers professionally active prior to 1930, but only 0.3 per cent of those entering the profession in 1930-32, were independent consultants in 1934.⁷⁶

CHAPTER 2

The Data on Income from Independent Professional Practice

THE FIVE PROFESSIONAL GROUPS we study include over 300,000 persons in independent practice; the primary data on which the analysis is based are for 13,000 persons in all and considerably fewer for any single year. What is true of the 13,000 need not be true of the 300,000. Whether we can pass with confidence from our samples to the universes they purport to represent depends on how the samples were selected, what biases they have, what corrections can be made for these biases, the internal consistency of the samples, their consistence with

⁷⁶ *Monthly Labor Review*, April 1937, p. 868. The sample on which these percentages are based included 31,252 'older engineers' and 9,469 engineers entering the profession between 1930 and 1932. Among the 7,403 in the sample who entered the profession in 1933 and 1934, 0.2 per cent were independent consultants in 1934.

An earlier study of engineering graduates, which covered every fifth class from 1889 to 1919, showed that in 1924, 2.7 per cent of the sample for the class of 1919, and 18.8 per cent of the combined classes of 1884 and 1889 were engaged in the consulting branch of the profession. The total sample included 2,336 graduates, of whom approximately 445 were in the class of 1919 and 95 in the classes of 1884 and 1889. *Study of Engineering Graduates and Non-Graduate Former Students* (Society for the Promotion of Engineering Education, 1926), p. 34.