THE UNITED STATES COLLEGE-EDUCATED POPULATION: 1960

by

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Related Postcensal Studies

Seymour Warkov, with the assistance of Sanford Abrams and John Marsh. AMERICA'S SCIENTISTS AND ENGINEERS: EMPLOYMENT CONDITIONS, 1960 AND 1962. Washington, D.C.: National Science Foundation (in press).

Seymour Warkov and John Marsh. THE EDUCATION AND TRAINING OF AMERICA'S SCIENTISTS AND ENGINEERS: 1962. Report No. 104. Chicago: National Opinion Research Center, 1965.

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PREFACE

The need for information on the nation's scientific and engineering manpower resources has grown sharply in the last few years. Policy planners and managers involved in developing and administering programs dealing with such diverse subjects as research and development, national defense and security, space, health, education, and economic growth have become increasingly concerned about the availability of adequate and accurate information on these human resources.

In 1957 a special advisory panel appointed by the National Science Foundation and the President's Committee on Scientists and Engineers identified the requirements and formulated a program of scientific manpower data to meet needs. The findings, issued by NSF in the report A Program for National Information on Scientific and Technical Personnel (NSF 58-28), became the basis for many of the data collection and study programs subsequently sponsored by NSF. One of the projects recommended in this report as highly urgent was "a special direct survey of a large sample of the persons recorded in the 1960 Census enumeration as college graduates or as persons currently or last employed in scientific and technical positions, whether college graduates or not, to determine relationships between training and subsequent occupations."

Planning of this project, known as the Postcensal Survey of Professional and Technical Manpower, was initiated by NSF in 1960 and by data collection in 1962, when records from the decennial Census became available. In addition to the present report, two other reports have been prepared.

The first study, America's Scientists and Engineers: Employment Conditions, 1960 and 1962, is being published by the National Science Foundation. The other report, The Education and Training of America's

Scientists and Engineers: 1962, by Seymour Warkov and John Marsh, was published by the National Opinion Research Center. Additional special reports over the next few years are also expected.

Because this report extends the work reported in the study to be published by NSF, it is appropriate to indicate here that the first study

--described the sample of 1960 scientists and engineers by age, sex, and education and considered occupational group differences in citizenship, marital status, region of residence, and intergenerational occupational mobility in terms of these compositional factors;

--analyzed occupation group differences in 1960 by class of worker status, length of employment with the 1960 organization, and industrial classification;

--documented occupational differences in extent of recruitment to the 1960 occupation group from other occupation groups and strata as indicated by occupational affiliations at age twenty-four;

--determined how many 1960 scientists and engineers were participating in the experienced civilian labor force in 1962, compositional differences in rates of withdrawal over the approximately two-year period, and occupational affiliations of workers changing occupations;

--described the class of worker differences, industrial settings for major employment, years with the 1962 employer, hours worked weekly, etc.;

--analyzed the two most time-consuming work activities in the major employment of scientists and engineers and the compositional differences in these major work roles; also described the entire range of work activities encompassed by scientific and engineering employment;

--considered occupation group, education, sex, and age as factors determining the median salary rates of scientists and engineers in their major 1962 employment and described the additional sources of professional income contributing to their 1961 earnings.

Acknowledgments for the work and effort involved in undertaking and completing this study are numerous. The organizations primarily involved were the National Science Foundation, which provided the primary support and overall guidance for the study; the National Opinion Research Center of the University of Chicago, which served as the secretariat in planning the survey and was primarily responsible for the analysis of the survey data and preparation of the study reports; and the Bureau of the Census, which carried out the actual survey operations. Other Federal agencies that contributed financial assistance and advice included the Bureau of Labor Statistics, the U. S. Office of Education, the National Institutes of Health, and the Veterans Administration.

In addition to the organizations themselves, a number of individuals in these organizations contributed substantially in carrying out this study, as follows:

National Opinion Research Center.--Seymour Warkov, Senior Study Director, had major responsibility for all phases of the project at NORC, assisted by Sanford Abrams and John Marsh, under the general direction of Peter H. Rossi, Director of NORC.

Bureau of the Census.--Stanley Greene, Chief, Economics Statistics Branch, Population Division, had primary responsibility for carrying out the survey operations and reviewing the tabulations prepared, assisted by John Priebe. David L. Kaplan, Assistant Chief, Population Division, assisted in the planning of the survey, the design of the survey questionnaire, and the selection of the appropriate sample. Contributions were also made by William J. Milligan and Stuart Garfinkle, formerly of the Bureau of the Census, and in general, by various staff members of the Decennial Operations Division, who were concerned with the programming and tabulating of the survey data.

National Science Foundation.--The Postcensal study was carried out by the Manpower and Education Studies Section, Thomas J. Mills, Head, in the Foundation's Office of Economic and Manpower Studies, Jacob Perlman, Head. Robert W. Cain, Study Director, and Norman Seltzer, Associate Study

Director, Manpower Studies Group, were directly involved in all phases of the study, from the planning stage through the operations to the review and evaluation of the prepared reports. In addition, Mr. Seltzer served as coordinator for all the organizations participating in the project.

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Aims of the Study

A comprehensive analysis of the education and employment of scientific and engineering manpower in the United States has long been overdue. To aid in filling this gap in knowledge, the Advisory Panel to the National Science Foundation and the President's Committee on Scientists and Engineers recommended "a special direct survey of a large sample of persons recorded in the 1960 Census enumeration as college graduates or as persons currently or last employed in scientific and technical positions, whether college graduates or not, to determine relationships between training and subsequent occupation."[1] As a result, the National Science Foundation contracted with the National Opinion Research Center to plan a series of studies of persons in scientific and technical occupations, now known as the Postcensal Survey of Professional and Technical Manpower, out of which have come this volume and two preceding ones.[2] The primary focus of these studies has been to add a body of knowledge on certain target occupations (primarily scientific and technical), whose most efficient utilization is central to the continued technical progress and leadership position of the United States. As the

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[1] A Program for National Information on Scientific and Technical Personnel (NSF58-28) (Washington, D.C.: National Science Foundation, August, 1958).

[2] The two focal studies are Seymour Warkov, with the assistance of Sanford Abrams and John Marsh, America's 1960 Scientists and Engineers: Employment Conditions, 1960 and 1962 (to be published by the National Science Foundation) and Seymour Warkov and John Marsh, The Education and Training of America's Scientists and Engineers. Report No. 104. Chicago: National Opinion Research Center, 1965.

we are forced to rely on the outdated and possibly even unrepresentative study done in the 1940's of readers of Time.[8] Recently, however, there have appeared a number of reports on the recent college graduate population and its early career history.[9] In the light of the increased numerical significance of the college educated and the scanty information about them, the aims set out for this study are especially welcome, particularly when they are considered in relation to highest degree attained.

Procedures

The 1960 Census of Population provided the baseline for the planning and selection of the samples used in the Postcensal studies. It was first of all the framework for selecting representatives of some forty scientific, technical, and professional occupations classified as "professional, technical and kindred" under the three-digit occupational code employed by the Bureau of the Census. Each of these forty occupations was sampled in sufficient numbers to ensure that a minimum of 1,000 respondents in each occupational category received questionnaires.[10] Considerably smaller sampling bases were used for the remaining college-educated population, and the relative proportions were determined after placing them in one of seven categories. Three of these categories

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[8]Ernest Havemann and Patricia Salter West, They Went to College (New York: Harcourt, Brace, 1952).

[9]See, for example, James A. Davis, Great Aspirations (Chicago: Aldine, 1964); James A. Davis, Undergraduate Career Decisions (Chicago: Aldine, 1964); Joe L. Spaeth and Norman Miller, Trends in the Career Plans and Activities of June, 1961 College Graduates (Chicago: National Opinion Research Center, March, 1965). For a complete bibliography of reports, articles, and theses relating to studies of the recent college graduates, write to the Librarian, National Opinion Research Center, Chicago, and request "Bibliography of Publications, Study 431."

[10]For further details, see Warkov et al., America's 1960 Scientists and Engineers, Chap. 1.

consisted of persons who were not in the labor force at the time of the 1960 Census but who had been employed at least as recently as 1950 (the so-called "labor reserve"). Subgroup one were women between the ages of twenty and fifty-four with experience in one of the selected professional or technical occupations, subgroup two were others with experience in these occupations, and subgroup three were all others in the labor reserve. Of the remaining four groups, three were in the experienced civilian labor force and consisted of managers in selected industries, remaining women between twenty and fifty-four years old, and all others. The final category consisted of those who had not been employed in the ten years previous to the last Census.

In total, over 70,000 questionnaires were sent out to the kinds of people detailed above. The questionnaire mail-outs resulted in 51,505 returns (72 per cent), made up of 46,842 in the selected scientific and technical occupations and 4,663 representing the remainder of the college-educated population.[11]

The National Opinion Research Center initially developed the questionnaires used, and these were further pretested by the Bureau of the Census. Sample selection, data collection, and the processing and tabulation of data were done by the Bureau of the Census.

Limitations of the Analysis

All segments of the population described under "Procedures" (e.g., the scientific and technical occupations, the college-educated managers in

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[11]Three questionnaires were used: one for the scientific occupations, one for the technical occupations, and one for all other. All questionnaires were similar, and therefore only one example is included in Appendix I. For this analysis, information is not available on work activities, people worked with, attitudes toward work, current additional job or business, and details on job qualifications and training. In the questionnaire these omissions refer to Section I, parts B, C, D, and E; Section III, questions 8, 9, 10, 11, and 12.

selected industries, and so on) were assigned weights according to their share of the total population in the 1960 Census. Weights were derived from the numbers in individual occupations, in the case of the target occupations and from categories of occupations or occupational status, modified by age and sex, for the remainder. A table showing weights assigned is given in Appendix II. In any study of this magnitude, some errors can be expected, but in the case of this report on the college-degree population, the most serious distortions were created by the sample sizes and resulting weighting amounts used. Specifically, relatively large samples and thus relatively small weights were given to the target occupations. However, for the remainder of the college-trained population, small samples were used which had to be heavily weighted, so that approximately 8 per cent of all cases were used to represent over 70 per cent of the universe of the college-educated population. Even more critical, because of the weight of 5,118 given to the subgroup, "experienced civilian labor force not elsewhere classified," about 1 per cent of the cases here were used to represent more than one-third of the total college-educated population. Now, these procedures are eminently legitimate in giving us population estimates for each of the occupations and categories listed. The difficulty arises when heavily weighted groups are broken into numerous subgroups for which the unweighted case base is not sufficiently large. Equally troublesome, as is the case of the material presented in this volume, are instances where data are run, not by occupations, but by some other variables, thereby obscuring the size of the actual samples involved and combining into the same groups respondents drawn from different population subsamples (which were therefore given quite different weights). Many of these limitations arise, therefore, from the way tables were run for this preliminary analysis, and some problems could be solved by treating the unweighted results (not available at this time).

This discussion of the limitations of our data is not to be interpreted as a reason for rejecting out of hand the findings which will

be presented. Quite the contrary. The Postcensal studies, we repeat, provided an opportunity for obtaining information about the college-educated population not otherwise available and make an invaluable addition to our knowledge about this increasingly important segment of the United States population. But some comment is required on interpretation of the findings. Most reliable are reports on overall results, such as the proportions holding various degrees. Equally trustworthy are findings showing consistent patterns, for example, with respect to the disadvantages of women in employment and earnings. When results are not so clear-cut, there are often interesting tendencies displayed, and at times these will provide the basis for comment. The reliability of such tendencies cannot be vouched for, but when they mesh with those reported in the two earlier reports on the Postcensal Survey, they should be considered as meaningful. Least reliance should be placed, however, on universe estimates (these are never reported in the text but are shown in the tables) and on such individual details as, for example, the proportion of female Ph.D.'s whose last field of study was elementary school teaching and who are currently employed in private industry.

College Education and College Degrees

Of the total population who had completed four or more years of college by 1960, the 80 per cent who had received academic degrees other than professional or associate ones are the subject of the bulk of this analysis. They have been divided into four degree categories, in terms of the highest degree earned, for purposes of this report: bachelor's degrees, advanced work beyond the bachelor's but without further formal degree,[13] master's degrees, and doctorates. Table 1.1 shows the distribution of these four groups, and as expected, the proportion holding advanced degrees drops sharply from those with baccalaureates only. A

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[13]For the sake of brevity, this group will be termed "bachelor's plus."

plurality, 40 per cent, held a bachelor's degree while an additional 24 per cent had advanced training beyond the baccalaureate. Only 13 per cent had the master's degree and 3 per cent the doctorate.

TABLE 1.1

COLLEGE-EDUCATED POPULATION (1960), BY EDUCATIONAL ATTAINMENT (1960)

Degree	Per Cent	Number
Bachelor's	40	3,374,026
Bachelor's plus	24	1,994,388
Master's	13	1,132,301
Doctorate	3	220,127
Professional	3	263,189
Associate	*	24,715
No degree	14	1,153,350
Not reported	3	248,833
Total	100	8,410,929

* Less than one-half of 1 per cent.

In Table 1.1 we also show the universe estimates for each of the degree groups and the total population with four or more years of college. Since these estimates will be the basis for the subsequent analysis, some comment is necessary concerning their accuracy. While it is our contention that the relative proportions given in the table and in the above discussion appear reasonable, the population figures on which they are based are not. For example, our estimate of 8.4 million for those with four or more years of college contrasts with 7.5 million for the 1960

Census.[14] A National Academy of Sciences-National Research Council study of doctorate production in United States universities found a total of 171,647 Ph.D.'s had been awarded between 1920 and 1961.[15] This was based on the records of all Ph.D.'s conferred during that time period and does not take into account deaths and emigration. For the Postcensal study, there are estimated to be 220,127 holders of the doctorate living in the United States as of 1960. This count includes those earned at foreign universities. These discrepancies between our results and those of other reliable studies have led us to disregard our own population estimates as entirely accurate representations of actual individuals, but to use them in calculating percentages, since our assumption is that whatever errors have been introduced remain consistent for each degree group.

While the sampled population all completed at least four years of college by 1960, not all had obtained a degree in that time period. In fact, 14 per cent were reported to have no academic degree. It is not known how many of this group were either in the process of completing or intended to complete a degree, but an examination of their age distribution in Table 1.2 reveals no concentration in the younger ages. Hence they cannot simply be seen as an extension of the college student population.

In addition to those with no degree, 3 per cent had professional degrees, less than one-half of 1 per cent had associate degrees and another 3 per cent did not report the level or date of their degree. For the most part, these people in the medical sciences, along with those without degrees, have been excluded from the subsequent analysis. On those occasions when we do comment on the total sample in the text or tables, this will be indicated by references to the college-educated population.

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[14] U. S. Bureau of the Census, United States Census of Population: 1960. Subject Reports. Educational Attainment. Final Report PC(2)-5B. (Washington, D.C.: U. S. Government Printing Office, 1963).

[15] Harmon and Soldz, op. cit.

TABLE 1.2

AGE DISTRIBUTION OF THE 1960 COLLEGE-EDUCATED POPULATION WITH NO ACADEMIC DEGREE

Age in 1960	Per Cent
Under 20	1
20 - 24	10
25 - 34	23
35 - 44	21
45 - 54	19
55 - 64	17
65 and older	10
Total	100[a]
Base N	1,153,350

[a]Actual variations from 100 per cent are caused by rounding.

Since the focus of this study is on that 80 per cent of the sample who make up the college degree population, it is evident why those without regular academic degrees have been excluded from the analysis. Those with associate degrees normally have attended two-year colleges, usually giving some technical training, and these are in our terms of reference, considered the equivalent of those without academic degrees, even though they had at least sixteen years of schooling in 1960. Those with professional degrees have of course completed a full program of academic studies and in many instances probably had earned at least a bachelor's degree. However, since their education and employment keep them in relatively narrow confines, it was decided to exclude them also from this broader survey of the college degree population. But wherever pertinent,

brief comments on the characteristics of those with no degree or associate degree status or with professional degrees will be added to the descriptions of the degree groups who make up the central focus of this study.[12] In addition, wherever this aids in deriving an overview of the total population with four or more years of college, we will present data both in the text and in tabular form on the college-educated population. This will also be done whenever these data supply information, such as that on the relation between age, sex and some other variables, which is not available for the college degree population alone, but which is important for interpreting material on degree groups.

Framework for the Study

Thus far we have discussed the aims of this study of the college degree population in the context of the total Postcensal Study. The procedures followed in gathering the data and preparing them for presentation have been outlined, along with the impact of these procedures on the subsequent interpretation of the findings. The population has been delimited according to degree levels, which will henceforth provide the primary focus for the chapters which follow. Chapter 2 will be concerned primarily with field of specialized study of the degree groups. In Chapter 3 the focus will be on employment experiences, including employment status, relations between fields of specialized study and work, characteristics of employing bodies, the nature of employment, financial rewards, and involvement in professional activities. Chapter 4 will deal with the demographic characteristics and high-school backgrounds of the degree population. Each chapter concludes with a summary of the pertinent findings.

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[12] Excluded are those for whom degree level or date of degree completion are not known.

CHAPTER 2

CHARACTERISTICS OF THE COLLEGE TRAINING OF THE DEGREE POPULATION

Sex and Age of the College-Degree Population

The four groups into which the college-degree population has been divided are sharply differentiated according to the sex of their members. As Table 2.1 shows, while women make up over one-half of those holding bachelor's degrees, they make up just over one-third of those with bachelor's pluses and master's degrees. In the case of doctorates, barely 12 per cent of those with Ph.D.'s were women.[1] The differences between sexes in their educational attainment tell only the beginnings of far-reaching differences in almost all aspects of education and employment history. Wherever it is possible, then, sex differences will be reported along with degrees attained. Where this information is not available, it will still usually be possible to indicate that sex is a critical determinant of group differences.

TABLE 2.1

COLLEGE DEGREE POPULATION (1960), BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Sex	Bachelor's	Bachelor's Plus	Master's	Doctorate
Men	47	61	60	88
Women . . .	53	39	40	12
Total .	100	100	100	100
Base N .	3,374,026	1,994,388	1,132,301	220,127

N	6,720,842
Other groups . .	1,690,087
Total	8,410,929

[1]For those college-educated groups omitted from this analysis, we find that the professional one consisted almost solely of men (97 per cent), but only 61 per cent with less than bachelor's degrees were men.

Age distribution also varied with degree level. For example, median age was thirty-six for baccalaureates and forty-three for doctorates, with other degree groups in between, as shown in Table 2.2. On the basis of the 1960 Census, we find that the median age for the total population of the United States twenty years of age and older was forty-three.[2] The relative youth of those at lower degree levels would indicate the comparative recency with which college education has become a sought-after or attainable goal for sizable proportions of the population.[3] However, the prolonged nature of doctoral training has kept the median age of doctorates up to the median of the total population.

Fields of Study, 1960

Distribution by Fields

Respondents were asked to designate from a precoded list of fields of specialization the one which they pursued in gaining their highest degree. Along with an "other" category, fifteen fields of study have been specified. Some comment about these is in order as an aid to the subsequent description and interpretation. Because of the way the study was designed,[4] some fields were more likely to have been selected than others. This was

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[2]Computed from U. S. Bureau of the Census, United States Census of Population: 1960. Detailed Characteristics. United States Summary. Final Report PC(1)-1D (Washington, D.C.: Government Printing Office, 1963), pp. I-349, I-350.

[3]For historical evidence on the growth of college education, see Kenneth A. Simon and W. Vance Grant, Digest of Educational Statistics (Washington, D.C.: Office of Education, 1964), p. 76.

[4]See Chapter 1.

TABLE 2.2

COLLEGE DEGREE POPULATION (1960), BY AGE AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Age (1960)	Bachelor's	Bachelor's Plus	Master's	Doctorate
Under 20	0	*	*	*
20 - 24	7	7	2	*
25 - 34	38	35	27	22
35 - 44	29	30	30	32
45 - 54	17	19	27	23
55 - 64	6	7	11	16
65 and older . . .	3	3	3	7
Total . . .	100[a]	100	100	100
Base N . . .	3,374,026	1,994,388	1,132,301	220,127
Median age .	36.5	37.6	41.4	42.8

N	6,720,842
Other groups .	1,690,087
Total . .	8,410,929

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

not based on their relative frequency but on their importance for the main part of this Postcensal Study. This resulted in some fields being more heavily weighted than others in order (as has already been discussed in the preceding chapter) to bring the occupations associated with them into line with their incidence in the population. This was the case with elementary and secondary school teachers and technicians. Occupation and fields of specialized study do not correlate perfectly. However, in the case of education, this correlation is high, so that we have some idea of the extent to which weighting affected population estimates and hence sampling variability. In addition to the categories of elementary and secondary education, there is a third and unspecified one of education. This appears to be something of a catchall, and if we do analyze individual fields intensively, we find that unspecified education often displays unaccountable patterns.

In the case of technical specialties, such as those related to health or the physical sciences, the only caution in order is that they were fairly heavily weighted. While weighting was not a problem for the miscellaneous category of physical sciences, they represent a small proportion of the sample and detailed cross-tabulations are likely to be of dubious validity.

Perhaps most significant, as Table 2.3 reveals, is the fact that 25 per cent of the total college-educated population did not indicate any field of specialization for their highest degree. However, while 95 per cent of those with less than bachelor's degrees did not report field of study, the proportion not reporting field among the degree groups ranged from 9 to 15 per cent. Unfortunately, there is no way of knowing how this non-response rate affected the distribution of fields, and while it seems worthwhile to show the total distribution, it should obviously be treated with care.

TABLE 2.3

DISTRIBUTION OF FIELDS OF SPECIALIZED STUDY FOR HIGHEST ACADEMIC DEGREE (1960), COLLEGE-EDUCATED POPULATION (1960)

Field of Specialized Study	Per Cent	Number
Elementary teaching	8	687,837
Secondary teaching	8	633,851
Education	6	474,070
Engineering	8	671,733
Mathematics and statistics	1	103,362
Physics	*	40,309
Chemistry	3	214,066
Other physical sciences	1	51,792
Biological sciences	2	191,036
Agricultural sciences	1	103,051
Health fields	7	579,921
Psychology	2	151,477
Social sciences	6	544,739
Humanities	7	564,827
Technical specialty	*	20,769
Other specialty	15	1,262,700
Not reported	25	2,115,389
Total	100	8,410,929

*Less than one-half of 1 per cent.

Sex Differences in Choice of Fields

For that part of the population for which field of specialization was available, and without taking into account degree level, Table 2.4 shows considerable differences between men and women. Fields in which a majority were female include the three education categories: psychology, humanities, and biological sciences. It was only elementary education, however, which was overwhelmingly female. Men had a monopoly over many more fields. For example, men made up more than 90 per cent of those who studied engineering, physics, agriculture, and miscellaneous other physical sciences.

TABLE 2.4

PROPORTION OF MEN IN FIELD OF SPECIALIZED STUDY FOR HIGHEST ACADEMIC DEGREE (1960), COLLEGE-EDUCATED POPULATION (1960)

Field of Specialized Study	Per Cent Men in Field	Base N
Engineering	99	671,733
Agricultural sciences	93	103,051
Other physical sciences	91	51,792
Physics	91	40,309
Chemistry	79	214,066
Technical specialty	73	20,769
Mathematics and statistics	62	103,362
Health fields	58	579,921
Social sciences	57	544,739
Humanities	44	564,827
Biological sciences	44	191,036
Education	42	474,070
Psychology	39	151,477
Secondary teaching	32	633,851
Elementary teaching	20	687,837
Other specialty	71	1,262,700
Specialty not reported	59	2,115,389
All fields	57	8,410,929

Degree Level and Field of Specialization

While the concern of the previous discussion was with the possible distorting effects of lack of response to the question of fields of specialization, this is less acute when degree groups are taken into account, since 60 per cent of those not reporting a field also did not have a degree. Comparing the distribution of degrees within fields in Table 2.5, those who studied physics and chemistry were most likely to have doctorates. Doctorates made up 18 and 17 per cent respectively of these fields, appreciably more than the 3 per cent average for the total college degree population. Psychology also had an above-average concentration of Ph.D.'s. In contrast, agriculture was dominated by those with only a bachelor's degree. To a considerably lesser extent, this was also true of mathematics and statistics, elementary education, and engineering.

The Interaction of Sex and Degree Level

Consistently, sex differences were of major significance in producing most of the preceding distributions of the college degree population. They again emerge as a significant factor when the relation between sex, degree level, and field of specialization is considered. For example, it may be asked how the choice of fields affects the relatively small proportion of women with doctorates. Are the small numbers of women competing in essentially masculine fields more likely to have Ph.D.'s, or are those fields in which women predominate also likely to have a relatively high proportion of doctorates? The tendency appears to follow the first alternative. If it was a man's field, then the women in it were more likely to have doctorates than if it was a woman's field.

Table 2.6 shows that the same tendency did not operate for men. In the case of men, the highest relative share of Ph.D.'s was in the biological and social sciences, fields in which under one-half were women. The most highly masculine fields, engineering and the physical sciences, had a lower percentage of male Ph.D.'s, but this was due to the inclusion of engineering in the category, which we know is highly masculine and (until recently) in which advanced degrees were relatively unimportant for employment and advancement.

Fields Studied at Each Degree, by Highest Degree in 1960

The above discussion on fields of specialized study for degree groups did not distinguish among all the courses of study which a college graduate may have followed in gaining any one of his degrees. Instead, the focus was on the field of study of the highest degree reported up to 1960. At this point, however, all the fields studied may be considered. Before proceeding to this analysis, some note must be made of the proportion who did not report all their fields of specialization. As Table 2.7 shows, those not reporting on all fields were more numerous than were those not reporting field for highest degree attained by 1960. In the case of those with master's degrees and Ph.D.'s, those not reporting on all fields were 31 and 30 per cent respectively. This must be borne in mind when interpreting the results. At the same time, the omissions in those cases where at least one field of study was given probably represent cases where training at previous degree levels was in the same field as that for the highest degree. This would appear to be a reasonable explanation of why this question was not answered completely, but there is no way of knowing if this is exactly what did happen.

TABLE 2.7

COMPARISON OF PROPORTION OF COLLEGE DEGREE POPULATION NOT REPORTING FIELDS OF STUDY, BY DEGREE LEVEL (1960)

(Per Cent)

Fields of Study	Bachelor's	Bachelor's Plus	Master's	Doctorate
Field of study (1962) for each academic degree (1960) . . .	10	14	31	30
Field of study for highest academic degree (1960) . . .	9	11	15	12
Base N	3,374,026	1,994,388	1,132,301	220,127

Looking at the distribution of fields for each degree in Table 2.8, the diagonal cells, where the same category is given for the field of highest degree to 1960 and all fields studied, were invariably the largest.[5] For holders of the bachelor's degree, the diagonal cells were all in the vicinity of 100 per cent. That is, the field by which this group was designated in 1960 usually represented the last field of study before the bachelor's degree.

The bachelor's plus group had a somewhat more varied background but variation was least for engineering and health fields. As will be shown, these were also fields in which there was a high degree of congruence between study and work,[6] indicating considerable commitment to those fields. The only other field where its students did not have diversified training was agricultural sciences.

As might be expected, those with master's degrees generally had also studied in more fields than those with less education. This was more likely to be the same as the field of highest degree up to 1960 for those in engineering but least likely to be so for those in psychology. The physical sciences as well were associated with considerable variety in scholastic training.

The largest number of fields of study was reported for those with doctorates. Theoretically, this could be about 300 per cent for each specialty, considering the Ph.D. as the third degree. But because of underreporting and the possibility that not all those with doctorates took intermediate degrees, especially the master's, none of the categories except that of undifferentiated education added up to 300, and this category in fact exceeded 300. Be that as it may, we find engineering again to be relatively inbred. However, at this level, it was those trained in elementary and secondary teaching who had fewest outside specializations. This

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[5] It should be noted that the information on fields of study for all degrees attained was tabulated in terms of degrees attained up to 1962. Thus part of the lack of congruence between field of study of highest degree (as of 1960) and all fields of study is due to further study after 1960.

[6] See Chap. 3.

was in marked contrast to the other, not otherwise specified education category, which had the largest proportion of external fields, largely in the social sciences and humanities. This reflects the fact that doctorates in elementary and secondary education are normally contingent on several years' prior teaching experience, so that recipients of such degrees are then more likely to have a consistent background in education. It is not known, however, what requirements are made for other education degrees. The remaining fields showed an intermediate degree of variation, with about 40 per cent of those in them having studied some field other than the last one by which they were classified in 1960. An exception to this was chemistry, where a similar proportion to those in engineering (under one-fifth) had taken external studies.

While considerably more information is contained in Table 2.8 than that which has been discussed, it is best to avoid excessively detailed analyses for the reasons noted at the outset of this report. Yet some additional comment is possible about the exchange among types of specialized studies. At the bachelor's level, where concentration is maximum, movement from one field to another is not relevant. At the bachelor's plus and master's level, however, there is some change of fields for each level attained. Most noteworthy are the movements from all other fields into one of the fields of education, from the physical sciences into engineering, from one physical science to another, and from one biological science to another. Similar patterns were present at the doctoral level, although the flow into teaching and engineering had now greatly decreased, and psychology, other social sciences, and the humanities emerged as another natural exchange market.

A Summary View of Study Specialization

A full assessment of fields of specialized study is curtailed by the statistical problems presented by an uneven representation of some fields. Yet, aside from this difficulty, it was possible to designate fields according to their relative sex composition. Men clearly dominated engineering, physics, agriculture, and miscellaneous physical sciences.

A majority of those who had studied elementary education were women, and they made up more than one-half of other education categories, psychology, humanities, and biological sciences. Physics and chemistry had the largest share of doctorates. Those with bachelor's degrees predominated among those who had studied agriculture. Sex affected educational attainment by field as well, with women, for example, more likely to have doctorates in masculine fields.

When fields studied for each degree attained were considered, it was found that not only did each degree level tend to continue with its first field of specialization, but also that with each additional degree, graduates had studied a greater variety of fields. At the intermediate degree levels, there was a flow into education and engineering. In addition, some exchange took place within and between engineering and the physical sciences, the biological sciences, and humanities and the social sciences.

CHAPTER 3

EMPLOYMENT OF THE COLLEGE DEGREE POPULATION

TABLE 3.5--Continued

Employment Status (1960)	Field of Specialized Study for the Highest Academic Degree (1960) (Master's)															
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties	Other Fields
Labor force:																
Working	92	88	89	97	83	95	85	85	88	98	95	82	87	84	96	92
With a job, not at work	0	1	1	0	*	*	*	0	0	*	0	0	*	*	0	0
Looking for work.	0	2	3	1	1	2	2	1	1	1	3	*	1	2	4	*
Not in labor force:																
Retired	2	1	5	0	0	0	0	0	2	0	0	4	7	3	0	0
Keeping house . .	6	7	3	2	0	3	13	14	10	1	1	13	5	10	0	7
Student	0	2	0	0	16	0	0	0	0	0	0	1	1	2	0	*
Unable to work .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Never worked . . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total . . .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N . . .	126,160	120,690	121,636	66,508	10,076	7,079	19,159	13,180	35,008	18,267	50,618	36,591	42,390	106,538	6,066	157,218

N	909,675
Field not reported . .	167,608
NA	27,509
Total	1,104,792

*Less than one-half of 1 per cent.

TABLE 3.5--Continued

Employment Status (1960)	Field of Specialized Study for the Highest Academic Degree (1960) (Doctorate)															
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties	Other Fields
Labor force:																
Working	97	92	94	99	99	91	100	97	97	99	100	100	92	84	100	89
With a job, not at work	3	1	6	*	1	*	0	1	0	0	0	0	1	1	0	0
Looking for work.	0	0	0	1	0	0	0	2	1	1	0	0	0	*	0	0
Not in labor force:																
Retired	0	0	0	0	0	9	0	0	0	0	0	0	5	13	0	0
Keeping house . .	0	7	0	0	0	0	0	0	2	0	0	0	2	2	0	5
Student	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Unable to work .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Never worked . . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total . . .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N . . .	7,047	8,644	7,939	5,720	3,618	7,134	35,582	2,990	10,163	2,127	28,768	14,792	13,621	12,852	185	29,234

N	190,416
Field not reported . .	26,467
NA	3,244
Total	220,127

*Less than one-half of 1 per cent.

Employment Status in 1962

Employment status of the college-educated population remained similar in 1962 to that in 1960. Thus 21 per cent of the total population were not in the labor force in 1962, compared to approximately 19 per cent in 1960. Even this small shift may not in fact have occurred, since in 1960 there was some nonreporting, but in the 1962 classification, all members of the sample were fitted into some category. More important, however, are the different categories into which the population was classified at the two time periods. In 1962 a distinction was made between full- and part-time work. Generally, full-time employment was increasingly probable with more education.[2] Those with a job but not at work were largely teachers who answered the questionnaire during the summer. They tended to be concentrated at the bachelor's plus and especially master's levels. Proportionately, women were more likely to be in this situation than men. Part-time employment was reported for about 5 per cent of the population, with little difference among degree levels. However, in Table 3.6 controlling for sex reveals that women were more likely to be employed part time, and this was most frequently true of women holding doctorates. Sex differences among those not in the labor force, as these were affected by education, were similar to findings for 1960.

While the numbers on which this generalization is based are small, it may be significant that the increase of women with more education in the labor force affected mainly those in primarily female fields of study.[3] That is, in education or in the humanities those with bachelor's plus training were more likely to be employed immediately than were their counterparts

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[2] In comparing the excluded professional and no academic degree groups, the main distinction is between those in or out of the labor force. In 1962, 97 per cent of the professional degree holders were with a job, and mainly a full-time one. Of those with less than a bachelor's degree, 83 per cent were in the labor force, with almost one-fourth either not at work or with part-time jobs.

[3] These data are reported as tendencies, and because the validity of the size of the proportions is not known, no table accompanies them.

TABLE 3.6

1962 EMPLOYMENT STATUS OF THE COLLEGE DEGREE POPULATION, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Employment Status (1962)	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
With a job:								
Full time	86	77	74	81	16	29	31	37
Part time	2	2	3	3	6	7	5	11
Not at work	8	15	21	14	18	28	40	39
Not employed	1	2	*	*	1	2	2	*
Not in labor force:								
Ever worked	3	4	2	2	54	32	22	7
Never worked	*	0	0	0	5	1	0	5
Total	100[a]	100	100	100	100	100	100	100
Base N	1,576,766	1,224,220	684,135	194,261	1,797,260	770,168	448,166	25,866
	N. 3,679,382				N. 3,041,460			

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

with only a bachelor's degree. This progression continued to the Ph.D. but it was only at the doctoral level that women appreciably increased their likelihood of employment if their training was in the physical sciences.

Reflecting changes in the household demands on women, for each degree level, the proportion not in the labor force decreased as age increased. This was most apparent (as Table 3.7 shows) for the bachelor's group. Those not in the labor force increased again after fifty-five, but this did not occur with the same magnitude until at least sixty-five for those with master's or higher degrees. While it has not been possible to treat degree, age, and sex simultaneously, the two latter variables taken together in Table 3.8 indicate that while one-half of the men sixty-five and over were no longer in the labor force, this was true of two-thirds of the women. The years in which participation in the labor force was greatest ranged, for men, from twenty-five to fifty-four; for women, they were more restricted, from forty-five to fifty-four. Part-time employment was proportionately greater for those at the lower degree levels except for the small sample of holders of doctorates sixty-five or older. Full-time employment had dropped off for this group and part-time employment had noticeably increased. For others at this age level, however, all employment, whether full or part time, had sharply declined. From our previous findings, we could anticipate that our present ones are affected by sex, but without being able to control for degree, it still appears that part-time employment was high for both men and women in the oldest age group.

Comparing employment status in 1962 with the three categories of labor force status used for classifying the population in 1960 reveals some additional findings. Virtually the same proportions employed in 1962 were in the labor force in 1960. But some exchanges of personnel had taken place, and these emerge in Table 3.9 when degree groups are examined by status at the two periods. Movement out of the labor force was slight, but it was proportionately greater for groups with less education. The contrary trend was true of those either in the labor reserve or for those who have not been employed prior to 1950. For these, re-entry into the labor force was more likely to occur with more education. As a result, almost

TABLE 3.7

1962 EMPLOYMENT STATUS OF THE COLLEGE DEGREE POPULATION, BY AGE AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Employment Status (1962)	Bachelor's						Bachelor's Plus					
	20-24	25-34	35-44	45-54	55-64	65 and Over	20-24	25-34	35-44	45-54	55-64	65 and Over
With a job:												
Full time.	45	49	54	53	37	12	61	59	65	61	41	13
Part time.	4	3	5	8	5	10	4	3	4	5	10	1
Not at work. . . .	22	9	13	18	18	1	21	21	16	23	27	12
Not employed	2	1	1	*	1	*	2	2	1	2	*	10
Not in labor force:												
Ever worked. . . .	24	35	27	19	33	74	11	14	14	10	22	65
Never worked . . .	4	3	2	3	6	3	1	*	*	1	1	0
Total.	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	231,978	1,292,760	981,216	563,978	213,067	91,027	136,135	692,747	591,231	384,695	135,030	54,512
	N. 3,374,026						N . . . . . 1,994,350 Under 20. . . . . 38 1,994,388					

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.7--Continued

Employment Status (1962)	Master's						Doctorate					
	20-24	25-34	35-44	45-54	55-64	65 and Over	20-24	25-34	35-44	45-54	55-64	65 and Over
With a job:												
Full time.	67	62	62	56	45	22	51	89	75	85	71	17
Part time.	1	4	5	2	3	10	0	1	3	3	1	21
Not at work. . . .	14	22	27	35	41	10	0	6	21	12	25	36
Not employed	0	*	1	2	*	0	0	*	*	*	*	*
Not in labor force:												
Ever worked. . . .	18	13	6	5	11	58	50	1	1	*	3	26
Never worked . . .	*	0	0	0	0	0	0	3	0	0	0	0
Total.	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	19,938	305,578	339,956	303,312	124,901	38,342	105	49,185	69,737	49,862	35,152	15,993
	N. . . . . 1,132,027 Under 20 . . . . . 274 Total. 1,132,301						N . . . . . 220,034 Under 20. . . . . 93 Total 220,127					

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.8

1962 EMPLOYMENT STATUS OF THE COLLEGE EDUCATED POPULATION BY AGE AND SEX (1960)

(Per Cent)

Employment Status (1962)	Men						Women					
	20-24	25-34	35-44	45-54	55-64	65 and Over	20-24	25-34	35-44	45-54	55-64	65 and Over
With a job:												
Full time.	81	82	85	84	75	26	28	16	22	32	28	4
Part time.	2	2	2	3	4	21	6	6	8	8	6	18
Not at work. . . .	12	13	11	12	9	4	27	15	23	34	34	11
Not employed	*	1	1	1	*	*	3	1	1	1	2	4
Not in labor force:												
Ever worked. . . .	3	1	1	1	11	50	33	59	44	22	27	62
Never worked . . .	1	*	0	*	0	0	4	4	2	3	4	2
Total.	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	268,878	1,703,783	1,462,956	807,517	351,126	209,474	243,917	1,049,032	910,756	818,123	414,888	160,845
	N . . . . . 4,803,734 Under 20. . . . . 7,974 Total. . . . 4,811,708						N. . . . . 3,597,561 Under 20 . . . . . 1,660 Total 3,599,221					

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.9

1962 EMPLOYMENT STATUS OF THE COLLEGE DEGREE POPULATION, BY EDUCATIONAL ATTAINMENT AND LABOR FORCE STATUS (1960)
(Per Cent)

Employment Status (1962)	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither
With a job:												
Full time.	71	4	4	67	21	11	62	15	21	79	33	0
Part time.	4	6	4	4	7	7	3	6	7	3	11	33
Not at work. . . .	17	4	5	23	5	1	31	8	7	18	0	33
Not employed	1	1	0	2	2	0	1	1	0	*	0	0
Not in labor force:												
Ever worked. . . .	7	86	67	4	66	73	3	69	66	1	56	0
Never worked . . .	0	0	20	0	0	9	0	0	0	0	0	33
Total.	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	2,287,601	655,141	431,284	1,657,883	213,860	122,645	1,008,114	85,103	39,084	208,456	7,627	4,044
	N. 3,374,026			N 1,994,388			N 1,132,301			N. 220,137		

*Indicates less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

all the available holders of doctorates were being utilized, with but a small proportion left in reserve. The reserves of those with less education were comparatively much greater.

An examination of age groups in Table 3.10, controlling for their status at the two points in time, gives some of the characteristics of those moving in and out of the labor market. While based on a small sample, we find those under twenty-five most likely to have moved in either direction. Thus, while 14 per cent at this age level in the labor force in 1960 had moved out by 1962, 58 per cent in the 1960 labor reserve and 45 per cent in neither of these categories in 1960 moved into the labor force by 1962. These latter were presumably students who had completed their studies by this later period. At the other extreme, those sixty-five and older were both the most likely of all age groups to move out of the labor force by 1962 or to continue to remain out of it. The only other appreciable change is that approximately two-fifths of the forty-five to fifty-four-year-olds in the labor reserve in 1960 had returned to the labor force by 1962. While no other information is available, it is safe to assume that these were frequently women, often at the bachelor's plus or master's level, who were resuming their careers, probably in teaching.

Nature of Employment, 1960

Class of worker, 1960.--Those in the labor force in 1960 were also classified according to the nature of their work status. They might be working for private employers, for government, including public school systems, in their own business or profession, or as unpaid family workers. As Table 3.11 indicates, the proportions in these categories varied according to degree status. For example, no more than 10 per cent were

TABLE 3.10

1962 EMPLOYMENT STATUS OF THE COLLEGE-EDUCATED POPULATION, BY LABOR FORCE STATUS AND AGE (1960)

(Per Cent)

Employment Status (1962)	Labor Force						Labor Reserve						Neither in Labor Force nor Reserve					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
With a job:																		
Full time . .	58	73	74	66	60	32	44	9	8	15	12	1	39	6	7	9	4	2
Part time . .	4	2	4	5	5	36	4	5	6	20	4	5	0	3	7	5	6	4
Not at work .	21	18	18	26	27	13	9	4	7	5	3	1	6	3	7	5	1	0
Not employed .	1	1	1	1	1	3	1	1	2	2	3	1	0	0	0	0	0	0
Not in labor force:																		
Ever worked .	14	5	3	2	6	17	41	81	78	57	78	92	11	47	74	69	72	91
Never worked.	0	0	0	0	0	0	0	0	0	0	0	0	44	41	7	13	17	4
Total* . . .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N . .	432,314	2,061,634	1,896,742	1,385,652	612,724	181,169	56,220	586,054	226,290	71,514	56,254	112,328	24,261	105,127	250,680	168,474	97,036	76,822

N 8,401,295

NA 9,634

Total 8,410,929

*Actual variations from 100 per cent are caused by rounding.

TABLE 3.11

THE COLLEGE DEGREE POPULATION: CLASS OF WORKERS IN 1960 AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Class of Workers	Bachelor's	Bachelor's Plus	Master's	Doctorate
Private wage and salary	57	48	36	43
Government	34	43	59	34
Self-employed	9	10	6	23
Unpaid family worker	*	*	0	0
Total	100[a]	100	100	100
Base N	2,230,611	1,604,516	992,187	20,807

N	4,848,121
NA	126,711
Total	4,974,832

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

self-employed below the doctoral level; with the doctorate it was almost 25 per cent.[4]

In total, almost all those in the labor force in 1960 were either private wage and salary workers or government employees. Private business and industry employed well over one-half of those with bachelor's degrees. However, bachelor's pluses were almost equally divided between private and government employment. At the master's level, reflecting the large proportions in teaching, the majority were employed by government. Holders of doctorates were chiefly in private employment.

A division by sex in Table 3.12 reveals that at least two-thirds of women at all degree levels were government employees. Self-employment was followed by no more than 4 per cent of women, and most of these had less than doctoral degrees. While unpaid family workers were a negligible category, they appeared only among women and included even a fraction of those with Ph.D.'s. Men were invariably different from women in work status. Of the holders of baccalaureates, 70 per cent were private employees. This proportion declined with education, but never approached that of women at any degree level. The one place where government employment accounted for even a majority of men, however, was at the master's level, and here it is known that there were sizable proportions of men as well as women employed in teaching. Self-employment was also least for this group. Otherwise, more than 10 per cent were self-employed at the lower levels and 25 per cent at the doctoral level.

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[4]When individual fields are examined, one-half of those below the master's degree (including technical specialties and other fields, not elsewhere specified), have at least 5 per cent self-employed. In the case of the M A.'s and Ph.D.'s, however, there are only two out of sixteen fields with this characteristic. In the case of holders of doctorates, there was such a large proportion of self-employed in health and other fields not elsewhere specified that they had a marked impact on the overall proportion. These fields were again relatively high on self-employed among M.A.'s but the proportions were not nearly as great as for Ph.D 's and did not affect the total percentages for that degree level. These findings lead us to believe that some proportion of Ph.D.'s in health were probably M.D.'s with this additional education. These findings are not reported in detail, since there was considerable variation by individual field.

TABLE 3.12

COLLEGE DEGREE POPULATION: CLASS OF WORKER IN 1960, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Class of Worker	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Private wage and salary.	70	57	41	44	30	26	25	34
Government.	19	31	52	30	67	69	71	66
Self-employed . . .	11	12	7	25	3	4	4	1
Unpaid family worker	0	0	0	0	1	*	0	*
Total.	100[a]	100	100	100	100	100	100	100
Base N	1,516,296	1,114,240	656,155	186,542	714,315	490,276	336,032	21,487

N	3,473,233	N.	1,552,110
NA.	46,959	NA	79,752
Total	3,520,192	Total	1,631,862

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

Many women leave the labor force between the ages of twenty-five and thirty-four, and this is reflected in Table 3.13 in the swing to private employment in this age group at the lower degree levels. In contrast, government employment was high for almost all holders of the master's degree and for those below this level between forty-five and fifty-four, marking the optimal teaching years and education levels. While self-employment did not follow any pattern, it tended to be skewed toward the older ages for those with more than the bachelor's degree.

Major industry group, 1960.--Information on class of worker helps to locate the college degree population in the world of employment; turning to the major industry group, it is now possible to elaborate on the nature of this employment setting. Thus we can approach the college degree population in the labor force in 1960 from the perspective of the particular industry in which its members are found, such as construction or manufacturing; or in the case of those in educational services, the level of educational institution in which they are employed. Though the categories listed in Table 3.14 are mutually exclusive, there was indistinctness in reporting in the public administration category. For example, an individual could be in construction and employed by some government agency. Ordinarily, he would be classified under construction, but there could be some variation. For the most part, then, public administration is a residual category for government employment and particularly does not include those in education, who, while they too may be employed by a branch of government, are classified under the appropriate educational setting.

The distribution of the college degree population by major industry group varied with degree level. One-quarter of those with bachelor's degrees were employed in manufacturing, but manufacturing industries declined as employers as education increased. Thus they account for only 14 per cent of those with doctorates. An even greater decline was associated with other industrial employers. In combination, wholesale and retail trade; finance, insurance, and real estate; transportation, communication, and public utilities; and construction accounted for more than one-quarter of the

TABLE 3.13

COLLEGE DEGREE POPULATION: CLASS OF WORKER IN 1960, BY AGE AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Educational Attainment	Class of Worker	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65 Years and Over
Bachelor's	Private wage and salary.	48	67	64	37	44	48
	Government	51	25	28	48	49	48
	Self-employed.	1	8	8	15	7	4
	Unpaid family worker . .	0	*	0	*	0	0
	Total	100[a]	100	100	100	100	100
	Base N	190,513	198,403	658,539	430,297	135,487	17,372
Bachelor's Plus	Private wage and salary..	44	55	51	36	37	36
	Government	56	41	33	56	53	13
	Self-employed.	0	5	16	8	11	51
	Unpaid family worker . .	0	0	0	1	0	0
	Total	100	100	100	100	100	100
	Base N.	91,062	562,708	490,576	327,642	111,778	20,712

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.13--Continued

Educational Attainment	Class of Worker	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65 Years and Over
Master's	Private wage and salary.	75	44	33	31	29	21
	Government	25	52	63	66	55	49
	Self-employed.	0	4	4	4	16	31
	Unpaid family worker . .	0	0	0	0	0	0
	Total	100[a]	100	100	100	100	100
	Base N	18,305	264,057	308,523	273,007	110,676	17,512
Doctorate	Private wage and salary.	82	48	42	50	19	79
	Government	18	19	42	40	36	21
	Self-employed.	0	33	16	11	45	1
	Unpaid family worker . .	0	0	0	0	0	0
	Total	100	100	100	100	100	100
	Base N.	105	46,644	66,592	49,771	34,472	10,352

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.14

COLLEGE DEGREE POPULATION: MAJOR INDUSTRY GROUP (1960) AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Industry Group	Bachelor's	Bachelor's Plus	Master's	Doctorate
Public administration	8	8	4	4
Agriculture, forestry, fisheries	2	*	*	*
Mining	1	1	1	*
Construction	4	2	1	0
Manufacturing	25	20	16	14
Transportation, communication, public utilities	6	2	1	*
Wholesale and retail trade	10	5	2	*
Finance, insurance, real estate	8	2	2	*
Business and repair services	2	1	2	2
Personal services, recreation	1	1	1	3
Educational services:				
College or university	2	4	13	39
Post-secondary school	0	0	0	0
Secondary school	8	16	25	4
Elementary school	12	12	16	1
Other educational institutions	2	2	4	1
Other professional and related services	11	23	15	32
Total	100[a]	100	100	100
Base N	2,220,887	1,608,269	985,180	207,873

N	5,022,209
NA	139,845
Total	5,162,054

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

employment of holders of bachelor's degrees. However, less than 1 per cent of the employers of those holding doctorates were in these industries. Employment in other professional and related services, which includes such organizations and services as hospitals, medical, and health services and legal, welfare, and religious services, was proportionately most significant for the holders of doctorates. In the case of those with Ph.D.'s, almost one-third were employed in such services. They also employed 11 per cent of the holders of bachelor's degrees, 23 per cent of those with a bachelor's plus, and 15 per cent of those with a master's degree.

Educational institutions were proportionately the single most important type of employer for all degree levels beyond the baccalaureate. This is especially true for those with master's degrees. Looking at educational institutions by level, we find that elementary schools employed 12 per cent of those below the master's level, 16 per cent of those who had obtained a master's degree, but only 1 per cent of the Ph.D.'s. Somewhat similar trends are true at the secondary school level. Secondary schools employed 8 per cent of those with bachelor's degrees, 16 per cent of those with a bachelor's plus, 25 per cent of the holders of a master's degree, and 4 per cent of the holders of doctorates. It is only beginning at the master's level that colleges and universities emerge as significant, employing 13 per cent of this group. With the doctorate, colleges and universities become the largest single category of employer, accounting for the employment setting of 39 per cent of the Ph.D.'s.

Educational institutions other than the three types mentioned could also have been employers, but these made up exceedingly small proportions of all employers. Indeed, noncollege schools beyond the secondary level were not found at all among our population. As we previously indicated, it is not possible to tell from these data the full extent of government employment in addition to that provided by educational institutions (which of course need not be part of any governmental agency), but the category of public administration does show some decline with more education.

Table 3.15 shows considerable difference between men and women in their major industry group. Thus women, at all degree levels, were infrequently

TABLE 3.15

COLLEGE DEGREE POPULATION: MAJOR INDUSTRY GROUP (1960) BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Industry Group	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Public administration.	8	8	4	5	7	7	3	1
Agriculture, forestry, fisheries.	2	1	0	*	0	0	0	0
Mining	1	2	1	*	0	*	0	0
Construction	5	3	1	0	1	*	0	*
Manufacturing.	33	27	22	15	6	3	3	8
Transportation, comm., public utilities.	8	3	1	*	1	2	0	0
Wholesale and retail trade.	13	6	3	*	4	3	0	0
Finance, insurance, real estate.	9	3	3	*	4	1	1	*
Business and repair services	2	1	2	2	2	*	*	*
Personal services, recreation	*	2	1	3	1	1	0	0
Educational service:								
College or university	1	3	14	38	4	6	12	46
Post-secondary school	0	0	0	0	0	0	*	0
Secondary school .	4	15	23	1	16	20	29	29
Elementary school.	1	5	9	1	37	28	29	*
Other educational institutions. . .	1	1	4	1	5	7	5	1
Other professional and related services . .	10	24	13	34	14	22	18	14
Total	100[a]	100	100	100	100	100	100	100
Base N.	1,509,765	1,114,093	649,981	186,428	711,122	494,176	335,199	21,445
	N. 3,460,267				N. 1,561,942			
	NA 59,925				NA 79,920			
	Total 3,520,192				Total 1,641,862			

*Less than one-half of 1 per cent. [a]Actual variations from 100 per cent are caused by rounding.

employed in manufacturing, or for that matter, in any other settings outside of other professional and related services or educational services. In fact, education was the major category of employer for women, and increased as such as women received more education. Men at all degree levels had a more diversified occupational setting. However, this diversity declined as education increased until, at the doctorate, men too were found mainly in educational services and other professional and related services. If we focus now on the educational employers of men and women, we find considerable differences. For example, women were found mainly in elementary schools up to the doctorate, but such schools did not employ any sizable proportion of men. For both sexes, employment in secondary schools increased with more education to the master's degree, but was not proportionally as great for men as for women. Moreover, while only 1 per cent of the men with doctorates were employed in secondary schools, 29 per cent of the women with doctorates were in these schools. This concentration of women in educational services even encompassed colleges and universities, where proportionately more women were employed than men (but obviously not more in absolute terms) at each degree level except the master's.

Occupation Group, 1960

The major occupational group with which we are concerned is that classified by the Bureau of the Census as professional, technical, or kindred occupations.[5] For those in the labor force in 1960, the likelihood of being employed in these occupations increased with more education, with academic training after the baccalaureate providing the means for increasing the probability of such employment. Thus, while more than one-half of those with bachelor's degrees were in professional and related occupations, this was true of three-quarters of those with bachelor's pluses and of five-sixths of those with higher degrees.

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[5] For details on the composition of this category see U.S. Bureau of the Census, 1960 Census of Population. Classified Index of Occupations and Industries (Washington, D. C.: U.S. Government Printing Office, 1960).

Looking at individual occupational groupings in Table 3.16, we find that employment in the sciences, whether these were physical, biological and agricultural, social, medical,[6] or mathematics, involved negligible proportions until the doctoral level. Engineering, however, declined in magnitude as an occupation with increased education. But like the sciences, unspecified college personnel, which included presidents, deans, and professors and instructors of nonscientific subjects, did not appear with any noticeable frequency until the doctoral level. The proportion in elementary teaching was constant for educational levels up to the doctorate, when it accounted for less than 0.5 per cent at this degree level. Secondary teaching, however, rose from 5 to 17 per cent with education to the master's degree, but then dropped off sharply with the doctorate. Aside from these professional and related occupations, there was also some variation in the proportions employed in administrative and other white collar positions. Approximately one-third of those with bachelor's degrees were employed in managerial, clerical, and sales occupations, but this declined with education. By the doctorate, only 8 per cent were in these categories.

Although we have evidence of the less advantaged position of women with respect to employment and earnings (the latter to the reported below), findings on sex differences in occupational groups could be interpreted as indicating the opposite condition. That is, while the chances of employment in the highly desirable professional, technical, and kindred occupations increased with education for men and women, women at all degree levels were more likely to be in such occupations, as is shown in Table 3.17.[7] The difference was especially striking at the bachelor's level, where less than

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[6]"Medical scientists" here refers to professors and instructors, while other specialties in this field were classified under biological scientists (see Seymour Warkov, with the assistance of Sanford Abrams and John Marsh, America's 1960 Scientists and Engineers: Employment Conditions, 1960 and 1962 [Washington, D.C.: National Science Foundation, in press], Chapter 1).

[7]This is similar to other findings on occupation for men and women with four or more years of college, regardless of degree level. See James A. Davis, Undergraduate Career Decisions (Chicago: Aldine Publishing Co., 1965), p. 5.

TABLE 3.16

OCCUPATION GROUP (1960) OF THE COLLEGE DEGREE POPULATION, BY EDUCATIONAL ATTAINMENT (1960)

Occupational Group	Bachelor's	Bachelor's Plus	Master's	Doctorate
Physical scientists	1	2	2	10
Biological and agricultural scientists	*	*	1	4
Social scientists	*	1	2	10
Mathematicians	*	*	1	2
Medical scientists	0	0	*	1
Engineers	11	9	5	4
College personnel	*	1	3	14
Secondary school teachers	5	10	17	3
Elementary school teachers	12	11	14	*
Foresters	*	*	*	0
Librarians	*	1	1	*
Technicians	2	2	1	2
Other professional, technical, and kindred workers	22	37	38	35
Farmers and farm managers	1	1	0	0
Managers, officials and proprietors	10	9	7	5
Clerical and kindred workers	14	7	3	3
Sales workers	12	4	4	0
Crafsmen, foremen, and kindred workers	5	4	1	5
Operatives and kindred workers	2	1	1	0
Private household workers	*	0	0	0
Service workers except private household	1	1	0	3
Farm laborers and foreman	0	0	0	0
Laborers, except farm and mine	0	*	0	0
Total	100[a]	100	100	100
Base N	2,209,404	1,627,390	996,244	203,337

N	5,036,375
NA	125,679
Total	5,162,054

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.17

COLLEGE DEGREE POPULATION: OCCUPATION GROUP (1960), BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Occupational Groups	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Physical scientists	2	2	3	11	*	*	*	3
Biological and agricultural scientists	*	*	1	5	*	*	*	3
Social scientists	*	1	2	9	*	*	2	14
Mathematicians	*	1	1	2	*	*	*	1
Medical scientists	0	0	*	1	0	0	*	1
Engineers	17	13	8	4	*	*	*	1
College personnel	*	1	3	14	*	1	3	19
Secondary school teachers	3	9	17	2	10	12	17	5
Elementary school teachers	1	5	8	1	32	24	24	0
Foresters	1	*	*	0	0	0	0	0
Librarians	0	*	*	*	1	2	2	*
Technicians	2	2	1	2	2	2	1	1
Other professional, technical, and kindred workers	21	37	35	34	25	37	43	46
Farmers and farm managers	2	1	0	0	0	0	0	0
Managers, officials and proprietors	14	12	9	5	2	1	3	6
Clerical and kindred workers	11	4	2	3	22	14	4	0
Sales workers	16	5	6	0	3	4	0	0
Craftsmen, foremen, and kindred workers	7	6	2	6	*	*	0	0
Operative and kindred workers	3	1	1	0	*	0	1	0
Private household workers	0	0	0	0	1	0	0	0
Service workers except private household	1	1	0	3	1	*	0	0
Farm laborers and foremen	0	0	0	0	0	0	0	0
Laborers, except farm and mine	0	0	0	0	0	1	0	0
Total	100[a]	100	100	100	100	100	100	100
Base N	1,469,699	1,121,935	649,551	181,746	739,705	505,455	346,693	21,591

N	3,422,931	N	1,613,444
NA	97,261	NA	28,418
Total	3,520,192	Total	1,641,862

*Less than one-half of 1 per cent. [a]Actual variations from 100 per cent are caused by rounding.

one-half of the men were in professional and related occupations compared to nearly three-quarters of the women. The holders of bachelor's pluses were most similar, but there was a difference of thirteen percentage points for those having master's degrees and ten points for Ph.D.'s. While agreeing that professional and allied occupations were indeed desirable in terms of work roles and rewards, such a heavy concentration of women in them suggests a degree of inflexibility which may not be commensurate with the rewards. In other words, women are more restricted in the occupations from which they can choose, and this restrictiveness may then reflect a buyer's rather than a seller's (women's) market. The high proportions of women found in the professions was not accompanied by a diversification in fields, except to a moderate extent at the doctoral level, but it reflected the concentration of women in secondary and elementary teaching. At the doctoral level women as well as men were most heavily represented in the sciences. However, this affected a larger proportion of men and they were more likely to be in the physical sciences. On the other hand, women were found more frequently in the social sciences. Men and women were similar, however, in the proportions who were college personnel, either administrative or teaching nonscientific subjects, at the doctoral level. We have already discussed elsewhere the importance of engineering as a masculine occupation and the declining proportions of male college graduates engaged in it with increasing education.

Further sex differences emerge with respect to managerial, clerical, and sales occupations. Men were more likely than women to be managers, although because of the declining proportions of those with advanced degrees in these positions, similar percentages of men and women were managers at the doctoral level. Men also had a greater probability of being in sales occupations, with the greatest proportion found at the bachelor's level. But clerical work was more often women's work, emerging as such in the lower degree groups.

Occupation, 1960, and field of study.--The relation between field of study and occupational group in 1960 is highly varied, especially when degree level is taken into account (Table 3.18). Beginning with those with bachelor's degrees, we find some relations which are generally congruent with expectations. Thus 67 per cent of those whose field of specialized study was elementary education were also employed in elementary school teaching, and 58 per cent who studied engineering were employed as engineers in 1960. Engineers also draw on those trained in other fields, notably 62 per cent of those whose last field of study was physics. For the most part, as we have already pointed out, holders of bachelor's degrees in the labor force in 1960 were employed in professional, technical, and kindred occupations, but there were a number of exceptions. Most different were those who had studied agricultural sciences, where, in 1960, 84 per cent of these were found outside the professional and technical occupations. Occupations varied from farm owners and managers, other managerial occupations, clerical, sales, and even foremen and operatives. Students of the social sciences followed in the frequency with which they were found in nonprofessional occupations, totalling under three-quarters of the cases. They were mainly occupied as clerks, sales personnel, and managers. To a lesser extent, this was also true of those who had studied biological sciences, psychology, and other physical sciences.

At the bachelor's plus level, where almost three-quarters are in professional, technical, and kindred occupations, there is nonetheless not much in the way of concentration in specific professional or technical occupations. The major exceptions were the 58 per cent who studied engineering and were employed as engineers, the 48 per cent of those whose field of study was elementary education and who were employed as elementary school teachers, and the 36 per cent among those who specialized in secondary education and then found employment in this field. Other patterns are not so clear-cut, and sampling variability makes us hesitate to explore these further.

TABLE 3.18

OCCUPATION GROUP (1960) OF THE COLLEGE DEGREE POPULATION, BY EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Occupation Group (1960)	Field of Specialized Study for the Highest Academic Degree (1960) (Bachelor's)														
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
Physical scientists	0	*	*	1	1	19	28	36	2	1	1	0	*	*	1
Biological and agricultural scientists . . .	0	*	0	0	0	0	*	*	4	3	*	*	*	0	*
Social scientists	0	*	*	*	*	0	*	0	0	*	0	1	1	*	*
Mathematicians . .	0	*	*	*	6	1	*	*	*	*	0	*	*	*	0
Medical scientists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineers	*	1	1	58	5	62	8	10	1	3	1	3	2	1	12
College personnel	*	*	0	0	0	0	0	0	*	*	*	*	*	1	1
Secondary school teachers	10	28	11	*	6	3	1	2	3	1	1	1	4	5	7
Elementary school teachers	67	17	28	0	3	0	1	0	4	1	1	3	4	5	0
Foresters	0	*	0	*	0	0	*	*	*	8	*	*	*	0	0
Librarians	*	1	*	0	0	0	0	0	*	0	0	*	1	1	0
Technicians . . .	*	1	1	3	1	6	6	3	9	2	6	3	1	1	38
Other professional and technical workers	7	19	14	3	39	0	9	0	22	0	85	30	16	49	0
Farmers and farm managers	0	0	0	0	0	0	9	0	0	22	0	0	0	0	0
Managers, officials and proprietors .	*	2	11	10	3	9	18	10	14	15	1	5	17	7	41
Clerical and kindred workers .	9	20	24	0	14	0	9	39	19	15	0	35	26	20	0
Sales workers . .	2	6	1	7	11	0	9	0	11	15	5	18	24	1	0
Craftsmen, foremen	0	4	4	13	11	0	0	0	0	2	0	0	0	4	0
Operatives and kindred workers .	3	0	0	3	0	0	0	0	11	15	0	0	0	1	0
Private household workers	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Service workers .	0	0	0	2	0	0	0	0	0	0	0	0	3	4	0
Farm Laborers and foremen . . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laborers except farm and mine . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N	193,661	140,293	126,792	352,174	47,491	7,548	54,487	13,096	45,312	70,574	70,714	27,890	164,228	117,251	3,238

N	1,434,749
Other fields and fields not reported . .	774,655
NA	78,197
Total N	2,287,601

TABLE 3.18--Continued

Occupation Group (1960)	Field of Specialized Study for Highest Academic Degree (1960) (Bachelor's Plus)														
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
Physical scientists	*	*	*	1	5	19	19	20	2	6	1	*	*	*	*
Biological and agricultural scientists	0	*	*	*	*	*	1	*	5	15	*	*	0	*	*
Social scientists	*	*	*	*	1	*	*	*	*	2	*	6	1	*	0
Mathematicians	*	*	*	*	14	2	*	*	*	*	*	1	*	*	*
Medical scientists	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0
Engineers	*	1	2	58	12	22	6	7	1	8	1	2	2	1	2
College personnel	*	1	1	1	3	2	1	1	1	3	1	2	1	2	1
Secondary school teachers	15	36	15	*	16	6	5	9	9	27	2	7	8	8	0
Elementary school teachers	48	16	28	*	18	3	1	2	6	0	1	17	6	5	0
Foresters	0	0	0	0	*	0	0	*	*	20	0	0	0	0	0
Librarians	1	2	1	0	*	0	0	*	*	0	0	*	1	1	0
Technicians	0	1	*	3	3	3	7	7	10	2	5	2	1	1	10
Other professional and technical workers	27	35	34	5	0	32	26	27	55	0	76	41	48	48	0
Farmers and farm managers	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0
Managers, officials and proprietors	6	1	5	10	13	12	4	0	2	16	3	6	17	4	0
Clerical and kindred workers	3	4	5	3	0	0	8	0	8	0	8	16	7	18	21
Sales workers	0	0	0	0	25	0	16	27	0	0	2	0	3	4	0
Craftsmen, foremen	0	1	0	16	0	0	8	0	0	0	0	0	0	3	65
Operatives and kindred workers	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
Private household workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Service workers	0	1	10	0	0	0	0	0	0	0	0	0	0	0	0
Farm laborers and foremen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laborers except farm and mine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N	125,361	137,353	100,924	196,052	20,602	16,094	64,570	19,286	42,903	8,164	87,326	20,595	179,424	157,480	7,834

N	1,183,968
Other fields and field not reported	443,422
NA	30,493
Total N	1,657,883

TABLE 3.18--Continued

Occupation Group (1960)	Field of Specialized Study for Highest Academic Degree (1960) (Master's)														
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
Physical scientists	0	1	*	2	4	41	62	40	2	1	*	*	1	*	*
Biological and agricultural scientists	0	*	*	*	0	*	1	0	13	12	*	1	1	0	0
Social scientists	*	*	2	*	1	*	1	1	1	2	*	15	14	*	1
Mathematicians	0	*	1	*	49	2	1	1	*	1	*	*	2	*	1
Medical scientists	0	0	*	0	0	*	1	0	1	*	1	*	0	0	0
Engineers	*	1	1	57	17	25	12	7	1	2	1	1	2	*	1
College personnel	1	4	4	3	1	6	3	1	4	2	2	4	6	9	2
Secondary school teachers	21	42	30	*	18	7	4	0	8	8	1	21	23	7	8
Elementary school teachers	48	10	26	0	10	0	0	0	5	0	1	6	10	4	0
Foresters	0	0	0	0	0	0	0	*	*	6	0	0	0	0	0
Librarians	1	1	1	0	0	0	*	0	*	0	0	*	11	1	0
Technicians	*	1	*	4	0	8	9	0	4	2	0	*	*	*	4
Other professional and technical workers	19	25	29	16	0	0	0	45	52	66	78	49	9	69	84
Farmers and farm managers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Managers, officials and proprietors	4	3	7	9	0	10	6	6	8	0	3	2	7	4	0
Clerical and kindred workers	6	2	0	0	0	0	0	0	0	0	3	0	14	6	0
Sales workers	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
Craftsmen, foremen	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
Operatives and kindred workers	0	2	0	8	0	0	0	0	0	0	0	0	0	0	0
Private household workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Service workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Farm Laborers and foremen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laborers, except farm and mine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N	116,525	107,731	112,452	64,882	8,450	6,842	11,512	11,317	25,810	18,031	49,909	30,253	37,287	91,087	6,066

N	698,154
Other fields and fields not reported	298,090
NA	11,870
Total N	1,008,114

TABLE 3.18--Continued

Occupation Group (1960)	Field of Specialized Study for Highest Academic Degree (1960) (Doctorate)														
	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
Physical scientists	*	1	2	6	1	65	31	68	7	5	1	*	1	1	12
Biological and agricultural scientists	0	*	2	1	1	*	1	1	63	47	*	1	1	0	0
Social scientists	1	3	20	1	2	1	1	1	2	10	*	62	61	3	5
Mathematicians	0	1	2	*	64	2	*	*	1	1	0	1	2	1	0
Medical scientists	0	0	*	0	1	1	*	1	6	0	1	2	*	1	0
Engineers	0	0	3	80	5	9	1	12	*	0	*	1	*	*	27
College personnel	3	25	26	13	15	10	3	17	19	23	1	16	26	83	56
Secondary school teachers	13	6	20	0	13	0	0	0	0	11	0	0	2	4	0
Elementary school teachers	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0
Foresters	0	0	0	0	0	0	0	0	*	3	0	0	0	0	0
Librarians	0	0	1	0	0	0	0	0	0	0	0	*	1	*	0
Technicians	0	0	0	0	0	2	7	0	1	0	0	2	2	0	0
Other professional and technical workers	73	0	0	0	0	0	19	0	0	0	95	0	0	0	0
Farmers and farm managers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Managers, officials and proprietors	9	0	25	0	0	10	8	0	0	0	2	7	5	6	0
Clerical and kindred workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sales workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Craftsmen, foremen	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0
Operatives and kindred workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Private household workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Service workers	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0
Farm laborers and foremen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laborers, except farm and mine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N	7,047	8,012	7,939	5,720	3,618	6,502	35,582	2,990	9.927	2,127	28,768	9,673	12,752	10,990	185

N	151,832
Other fields and fields not reported	51,505
NA	5,119
Total N	208,456

By the master's level, not only do the tendencies reported for elementary and secondary education and engineering in the case of lower degree levels still hold, but new concentrations also emerge. Specifically, 62 per cent of those who had studied chemistry were in physical science occupations, as were 41 per cent of former physics students and 40 per cent of those studying other physical sciences. Of those who had specialized in mathematics, 49 per cent were now classified as mathematicians. Table 3.18 also reveals that secondary school teaching counted among those employed in this fashion around 20 per cent of those whose field of specialized study was psychology, social sciences, elementary teaching, or mathematics and statistics.

In most fields the congruence between field of specialized study and occupational category had increased even more by the doctorate. In addition, we find that 83 per cent of holders of the doctorates who studied humanities were now employed as college presidents and deans or professors of nonscientific subjects. Some deviations from this overall pattern occur, but these are of questionable validity. Here we would include the 73 per cent of those trained in elementary education who, at the doctoral level, were classified under other (that is, unspecified) professional, technical, and kindred occupations; 64 per cent of the secondary education specialists who were service workers; and the 29 per cent of those whose field of specialized study was chemistry but who were employed as craftsmen.

Fields of Work Specialization

Work Specialization, 1960

Data available on field of work specialization in 1960 for those in the labor force in this year indicated that fields most often specified, aside from the 30 per cent whose fields were classified as "other," were engineering, elementary and secondary education, and health fields. Table 3.19 indicates how work field was affected by sex and degree. For men, ignoring those in other, unspecified specialties, engineering was the main

TABLE 3.19

COLLEGE DEGREE POPULATION: FIELD OF WORK SPECIALIZATION (1960), BY SEX, AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Field of Work Specialization (1960)	Men					Women				
	Total	Bachelor's	Bachelor's Plus	Master's	Doctorate	Total	Bachelor's	Bachelor's Plus	Master's	Doctorate
Elementary teaching . . .	4	2	5	10	1	35	38	32	30	25
Secondary teaching	9	3	14	20	1	17	14	17	28	5
Education . . .	1	*	1	3	4	1	*	1	2	4
Engineering . .	22	30	23	14	8	1	1	*	*	0
Mathematics and statistics . .	1	1	1	2	2	1	1	1	1	1
Physics	1	*	1	1	3	*	*	0	0	*
Chemistry . . .	3	3	3	2	18	1	1	*	*	10
Other physical sciences . . .	1	1	1	2	2	*	1	0	*	1
Biological sciences	2	1	*	2	8	1	1	*	1	5
Agriculture . .	2	3	1	2	2	*	*	0	0	1
Health fields .	11	3	5	8	16	16	11	17	15	9
Psychology. . .	1	1	2	2	4	2	1	3	3	11
Social sciences	2	*	3	2	6	3	3	3	3	6
Humanities. . .	5	1	9	7	12	4	3	4	4	7
Technical specialty	1	2	1	*	*	1	1	1	*	0
Other specialty	34	49	32	25	13	19	24	22	13	16
Total. . .	100[a]	100	100	100	100	100	100	100	100	100
Base N . . .	4,213,750	1,393,838	1,051,006	641,449	171,202	1,598,377	552,059	428,496	303,260	20,927

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

field of work specialization to the master's degree, but at the master's level, elementary and particularly secondary teaching became important. Doctorates were quite broadly distributed by field, but of those designated, almost one-half were found in chemistry, health, and humanities. Women at all degree levels were concentrated in elementary teaching. They, too, were frequently found in secondary teaching at the master's level. But their diversification was not as great as that of men, and especially at the doctoral level, 25 per cent were still in elementary teaching. Of the remainder, relatively sizable proportions were also in chemistry, health, and psychology.

Comparing fields of specialized study with fields of work specialization in 1960, some conception of the holding power of various fields emerged. Two main generalizations can be made from Table 3.20. The first of these is that the congruence between study and work increased with education. Thus while only four out of fourteen fields of study[8] at the bachelor's level had more than 50 per cent of their members in related work fields, by the doctoral level this had risen to thirteen fields. This is, of course, not surprising, since in the case of those with bachelor's degrees, their field of study noted for 1960 may not represent their destined field.

With less specialization given at lower degree levels, employment in fields related to those studied will be difficult to obtain. The opposite is the case of those with doctorates. After prolonged training, they have made a major commitment to some field and the probability that they will be employed in it becomes exceedingly high.

Our second generalization relates to the degree of congruence between particular fields of study and related fields of work specialization. At all degree levels, at least 85 per cent of those who studied engineering or health sciences were working at these fields in 1960. Although not approaching this level of consistency, elementary education was also relatively

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[8]Technical specialties and "other" have been omitted.

TABLE 3.20

1960 COLLEGE DEGREE POPULATION: PROPORTION WITH SAME FIELD OF WORK SPECIALIZATION AS FIELD OF STUDY FOR HIGHEST DEGREE, BY EDUCATIONAL ATTAINMENT (1960)

Field of Specialization (1960)	Bachelor's	Bachelor's Plus	Master's	Doctorate
Elementary teaching	82 (141,716[a])	66 (122,842)	69 (107,960)	76 (6,725)
Secondary teaching	40 (119,040)	66 (125,159)	74 (103,452)	9 (7,983)
Other education	* (97,869)	9 (93,101)	10 (103,240)	67 (7,187)
Engineering	85 (353,012)	84 (190,516)	85 (62,327)	92 (5,611)
Mathematics and statistics	14 (39,695)	19 (19,938)	61 (7,677)	80 (3,213)
Physics	18 (6,679)	50 (15,799)	55 (6,532)	76 (6,405)
Chemistry	47 (49,645)	36 (62,692)	45 (14,824)	90 (34,297)
Other physical sciences	32 (12,836)	49 (18,486)	87 (11,063)	79 (2,939)
Biological sciences	20 (43,466)	7 (39,271)	35 (29,868)	84 (9,414)
Agriculture	52 (64,684)	49 (8,009)	50 (17,949)	67 (2,037)
Health fields	93 (55,845)	88 (76,792)	98 (49,855)	97 (28,741)
Psychology	1 (26,919)	42 (19,190)	43 (27,491)	53 (14,583)
Social sciences	5 (149,230)	12 (166,678)	33 (35,518)	80 (11,681)
Humanities	14 (71,782)	43 (144,011)	55 (87,921)	85 (10,574)
Technical speciality	29 (3,238)	9 (7,718)	4 (5,566)	24 (185)
Other speciality	81 (542,925)	71 (237,776)	82 (138,048)	93 (20,668)

*Less than one-half of 1 per cent.

[a]Number reporting field of study.

congruent at each degree level. At least until the doctorate, fields displaying a low level of congruence were mathematics and statistics, biological sciences, psychology, social sciences, and the unspecified education category. Those studying mathematics most frequently moved to engineering, biological sciences moved to health, and education to elementary and secondary school teaching.[9] Psychology and social science majors entered a greater variety of work fields. In general, engineering was the field picking up most recruits from other fields of training. Secondary teaching also attracted those from other fields at the bachelor's plus and master's level. The drawing power of engineering, both for those trained in it and for those trained in other fields, reflects the rich work opportunities it affords, especially without the necessity of prolonged formal academic training compared with other professions. It also permits some convertibility of skills, such as from mathematics or physics into engineering. Similar interpretations are true for teaching at the elementary and secondary levels. Jobs are readily available, lengthy training is not required, and in the case of secondary teaching, prior training in some other field can be a positive asset.

For many other fields, until the student has acquired considerable skill and background, which (unlike engineering and teaching) cannot be done on the job, but must come through formal education, the tie-in between education and subsequent field of work is much more tenuous.

Viewing men and women separately in Table 3.21 reveals some differences. Across degree lines, the fields where there was strongest loyalty in respect to study and work were engineering and health for men but elementary education and health again for women. In addition, the progression of congruence between field of study and work from B.A. to Ph.D. was clearest for men. There are several possible explanations for these sex differences. For one thing, the high frequency with which women chose elementary education meant that they were both equipped to work in a specialized field and

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[9] A table giving details of the interchange between fields of study and work has been omitted because of the unknown extent of sampling variability.

TABLE 3.21

1960 COLLEGE DEGREE POPULATION: PROPORTION WITH SAME FIELD OF WORK SPECIALIZATION AS FIELD OF STUDY FOR HIGHEST DEGREE, BY EDUCATIONAL ATTAINMENT AND SEX, 1960

Field of Specialization	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Elementary teaching.	34 (19,962)[a]	47 (47,491)	60 (54,068)	0 (1,135)	90 (12,754)	78 (75,351)	79 (53,892)	92 (5,590)
Secondary teaching .	35 (50,666)	76 (64,010)	70 (63,727)	7 (7,034)	44 (68,374)	58 (61,149)	81 (39,725)	20 (949)
Other education. . .	1 (51,531)	13 (47,582)	11 (61,157)	67 (6,240)	0 (46,338)	4 (45,519)	9 (42,083)	69 (947)
Engineering.	85 (352,933)	85 (189,991)	85 (61,919)	92 (5,611)	0 (79)	9 (525)	10 (408)	0 (0)
Mathematics and statistics	10 (27,863)	19 (16,667)	64 (6,324)	85 (2,810)	22 (11,832)	18 (3,271)	44 (1,353)	46 (403)
Physics.	15 (6,352)	52 (15,084)	56 (6,311)	76 (6,329)	82 (327)	2 (715)	23 (221)	88 (76)
Chemistry.	46 (43,659)	37 (57,791)	42 (13,685)	89 (32,250)	54 (5,986)	26 (4,901)	80 (1,139)	94 (2,047)
Other physical sciences	32 (12,542)	49 (18,391)	87 (10,890)	78 (2,850)	24 (294)	63 (95)	65 (173)	86 (134)
Biological sciences.	25 (25,723)	7 (24,242)	39 (22,928)	84 (8,495)	13 (17,743)	8 (15,029)	23 (6,940)	82 (919)
Agriculture.	50 (63,047)	49 (8,003)	55 (16,296)	67 (2,037)	100 (1,637)	0 (6)	0 (1,653)	0 (0)
Health fields. . . .	89 (17,944)	87 (23,176)	98 (27,615)	99 (26,319)	95 (37,901)	89 (53,616)	99 (22,240)	72 (2,422)
Psychology	1 (17,747)	66 (69,625)	34 (14,595)	47 (12,570)	1 (9,172)	18 (9,565)	54 (12,890)	94 (2,013)
Social sciences. . .	* (104,530)	12 (141,020)	32 (21,854)	82 (10,266)	15 (44,700)	14 (25,658)	33 (13,664)	68 (1,415)
Humanities	4 (34,110)	55 (99,747)	66 (63,707)	87 (9,307)	24 (37,672)	17 (44,264)	25 (24,214)	74 (1,267)
Technical specialty.	26 (3,062)	10 (5,980)	3 (5,522)	40 (110)	76 (176)	6 (1,738)	100 (44)	0 (75)
Other.	85 (463,891)	74 (196,269)	79 (113,317)	93 (18,642)	54 (79,034)	60 (41,507)	93 (24,731)	98 (2,026)

*Indicates less than one-half of 1 per cent.

[a]Base (number reporting field of study).

prepared to do so after a relatively short period of training. This contrasts with men, whose studies were much more varied and who, unless they continued their education, were faced with work areas less directly connected with their training. Men also had a more diverse field of work selection available. It should be noted that some of these sex differences are probably due to the relatively small numbers of women sampled, increasing the likelihood of sampling variability.

Within age groups the congruence between fields of study and work also tended to increase with education. However, among age groups, there was a greater degree of congruence at the twenty-five to thirty-four-year age group as compared with the older. This was especially true at the bachelor's plus level. Without reading too much into these findings, they may indicate two seemingly contrary trends. On the one hand, they may simply mean that the younger have not yet had an opportunity to change their field. On the other, they reflect the younger age composition of engineering and physics, fields associated with a high level of commitment. Other fields where there was both a high level of congruence and a large proportion of young were secondary education and humanities, and to a lesser extent health.[10]

Work Specialization, 1962

The most frequently cited fields of work specialization in 1962 for those in the 1960 labor force were identical with those for 1960: engineering, elementary and secondary school teaching, and health fields. Similarly, 30 per cent were classified under "other" fields. When Table 3.22, giving field of work specialization in 1962 by 1960 degree level and sex, is compared with Table 3.18, which gives the same information for the 1960 work specialties, almost no change appears. That is, in both years

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[10]Tables have not been included here to avoid the spurious impression of accuracy which the necessarily detailed findings might give.

TABLE 3.22

FIELD OF WORK SPECIALIZATION (1962) OF THE COLLEGE DEGREE POPULATION, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Field of Work Specialization (1962)	Men					Women				
	Total	Bachelor's	Bachelor's Plus	Master's	Doctorate	Total	Bachelor's	Bachelor's Plus	Master's	Doctorate
Elementary school teaching	4	1	4	10	1	35	38	31	31	25
Secondary school teaching	9	3	14	21	1	17	15	17	27	6
Other education	1	*	1	3	4	1	0	1	2	3
Engineering	23	32	24	14	5	1	1	*	*	0
Mathematics and statistics	1	1	1	2	2	1	1	1	1	2
Physics	1	*	1	1	3	*	*	0	0	*
Chemistry	3	3	3	3	19	1	1	*	*	10
Other physical sciences	1	1	1	2	2	*	1	0	*	*
Biological sciences	1	1	*	2	8	1	1	*	1	5
Agriculture	2	3	1	2	2	*	0	0	0	1
Health fields	11	3	4	8	17	15	10	17	13	13
Psychology	1	*	2	2	4	2	1	2	2	11
Social sciences	1	*	2	2	6	2	3	3	3	6
Humanities	5	1	9	6	13	4	3	3	3	7
Technical specialty	1	2	1	*	*	1	1	1	*	0
Other specialty	35	49	31	24	13	20	25	23	17	12
Total	100[a]	100	100	100	100	100	100	100	100	100
Base N.	4,108,627	1,370,456	1,020,022	634,731	164,529	1,708,176	631,317	439,761	312,046	21,143

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

engineering was the most frequently mentioned work specialty for men with bachelor's degrees. The proportions employed in engineering declined sharply, however, with more advanced academic training. By the master's level, secondary school teaching, and to a lesser extent elementary school teaching, took over as significant work fields. Men with doctorates infrequently listed engineering or secondary or elementary teaching as their work specialties. Ph.D.'s had diversified work fields and, in particular, were most often found in chemistry, health fields, and the humanities. For women at all degree levels elementary and secondary teaching were the main fields, followed by health fields. While women with doctorates were also relatively more varied in work specialties, they were still most often found in elementary school teaching.

Table 3.23, reporting the proportion with the same field of study in 1960 and work specialization in 1962, is almost identical to Table 3.20, where this information is shown for work specialization in 1960. At both time periods, congruence between study and work increased with education, and fields with the highest degree of congruence were engineering, health, and elementary education.

Since the findings for the two years are so similar, we have not added more tables. But it can be reported that, in comparing men and women, it again emerges that the degree of congruence increased with more education most clearly for men but tended to be more compressed for women. Highly congruent fields were similar as well, with men most often both studying and working in engineering and health and women in elementary education and health.

Financial Rewards

Earnings, 1961

For those in the labor force in 1960, information was requested on estimated earnings from their major job in 1961. This was intended to encompass salary and commissions prior to taxes and other deductions and, in the case of those not employed for a full year, estimations of earnings if work

TABLE 3.23

1960 COLLEGE DEGREE POPULATION: PROPORTION WITH SAME FIELD OF WORK SPECIALIZATION (1962) AS FIELD OF STUDY FOR HIGHEST DEGREE (1960)

Field of Specialization	Bachelors	Bachelor's Plus	Master's	Doctorate
Elementary school teaching	82 (167,278)[a]	66 (120,745)	69 (111,072)	76 (6,768)
Secondary school teaching	50 (121,655)	68 (124,518)	73 (103,593)	9 (7,899)
Other education	* (111,011)	8 (90,444)	9 (105,412)	65 (7,203)
Engineering	87 (349,287)	88 (190,530)	85 (62,119)	91 (5,548)
Mathematics and statistics	14 (39,989)	21 (20,132)	61 (7,804)	83 (3,319)
Physics	21 (6,693)	49 (15,668)	56 (6,430)	73 (5,764)
Chemistry	46 (51,626)	35 (64,743)	46 (15,206)	90 (34,542)
Other physical sciences	32 (12,845)	49 (18,440)	88 (11,060)	77 (2,910)
Biological sciences	21 (44,498)	9 (34,273)	35 (29,901)	83 (9,429)
Agricultural sciences	50 (66,248)	47 (7,962)	50 (17,803)	69 (2,072)
Health fields	93 (60,230)	87 (71,243)	98 (48,250)	99 (28,746)
Psychology	1 (29,028)	40 (20,115)	35 (26,423)	52 (14,586)
Social sciences	3 (151,402)	8 (164,882)	32 (35,768)	80 (11,695)
Humanities	10 (80,423)	40 (141,973)	48 (86,198)	89 (10,246)
Technical specialties	34 (3,238)	5 (7,704)	7 (5,611)	24 (185)
Other fields	80 (533,802)	72 (237,296)	81 (138,420)	93 (20,711)

*Less than one-half of 1 per cent.

[a]Numbers with given field of study and represent bases for percentages.

TABLE 3.25

MEDIAN EARNINGS FROM MAJOR JOB (1961) OF THE COLLEGE DEGREE POPULATION, BY AGE AND EDUCATIONAL ATTAINMENT (1960)

Age	Bachelor's	Bachelor's Plus	Master's	Doctorate
20-24	$5,300[a] (153,285)	$5,500 (83,279)	$5,900 (15,693)	$10,400 (44)
25-34	7,100 (721,499)	6,000 (531,856)	7,500 (250,384)	9,700 (46,314)
35-44	8,200 (602,168)	8,500 (461,286)	8,200 (295,957)	10,700 (65,664)
45-54	7,100 (394,861)	7,600 (307,529)	8,000 (253,923)	12,900 (43,545)
55-64	7,800 (106,040)	6,900 (97,135)	7,100 (92,536)	11,000 (33,335)
65 and older	8,000 (16,394)	6,600 (13,182)	9,700 (13,494)	3,200 (9,157)

N. 4,608,560

Under 20 and NA. . . . 553,494

Total 5,162,054

[a]Amounts rounded to nearest $100.

TABLE 3.26

COLLEGE DEGREE POPULATION: MEDIAN EARNINGS FROM MAJOR JOB (1961) BY SEX AND EDUCATIONAL ATTAINMENT (1960)

Sex	Bachelor's	Bachelor's Plus	Master's	Doctorate
Men	$8,100[a] (1,463,281)	$8,000 (1,064,598)	$8,700 (637,293)	$10,800 (177,859)
Women	5,000 (530,966)	5,400 (429,707)	6,400 (284,694)	7,200 (20,293)

N.	4,608,691
NA	553,363
Total	5,162,054

[a]Amounts rounded to nearest $100.

doctoral degrees, women did not attain the earnings of men with only the bachelor's, remaining approximately $900 behind.

Considering the median earnings of different fields of study specialization, Table 3.27 reveals at all degree levels the high rewards given to those whose field of study was engineering or the physical sciences. While we have not separated these earnings by sex, we do know that these were largely masculine fields. Largely feminine fields revealed their disadvantages through low earnings. Thus students of the humanities, at each degree level, earned at least $1,000 less than the median for that degree. This was also true of those who had studied biological sciences up to the master's level, psychology from the bachelor's plus onward, and to some extent, elementary and secondary school education at all levels.

Annual Salary, 1962

Current annual salary rate in 1962 was asked only of those employed in private business or government, including those in the public school system. Excluded were the self-employed working for profit or fees or unpaid family workers. But despite some lack of comparability with the question on 1961 earnings, medians for each degree did not shift more than $200, and this in favor of the 1962 salary. The same general trends then emerged with a downward move for the bachelor's plus but otherwise a rise in salary with education, documented in Table 3.28. Relative advantage of various fields was similar, as were the unfavorable positions of women, regardless of education, and fluctuations in amount of salary by age.

Professional Involvements

Membership in Professional Organizations, 1962

While not directly a part of the employment of this population, the nature of its professional activities is an important part of overall professional status and with it, employment and career opportunities. For some, indeed, membership in professional organizations may be almost a prerequisite for employment. But for all it should be an indicator of professional

TABLE 3.27

COLLEGE DEGREE POPULATION: MEDIAN EARNINGS FROM MAJOR JOB (1961) BY FIELD OF SPECIALIZED STUDY AND EDUCATIONAL ATTAINMENT (1960)

Educational Attainment	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
Bachelor's	$5,400[a]	$5,900	$5,900	$9,800	$8,500	$9,700	$8,200	$7,000	$6,100	$6,700	$7,400	$6,500	$7,000	$6,100	$8,800
N . .	137,063	120,013	103,160	349,460	44,472	7,146	55,145	12,813	41,795	68,610	54,668	27,299	150,603	86,659	3,171
Bachelor's plus	6,000	5,700	6,500	9,700	11,100	9,200	9,500	10,500	4,100	7,300	5,800	5,400	8,100	5,100	5,400
N . .	123,439	118,202	92,706	190,845	19,265	15,657	63,987	18,360	38,808	7,930	71,919	19,004	155,834	146,570	7,717
Master's	7,100	7,200	7,200	11,100	8,400	10,300	12,100	15,200	8,400	8,700	9,700	6,800	7,700	5,800	12,500
N . .	106,183	96,136	100,535	63,626	8,039	6,595	15,347	10,969	29,539	16,229	49,570	26,715	34,595	82,676	6,021
Doctorate. .	6,600	3,000	11,600	12,900	10,800	14,000	12,800	11,800	9,600	10,900	9,900	8,400	9,800	8,800	10,700
N . .	6,982	7,715	7,455	5,503	3,495	6,380	34,951	2,896	9,295	2,048	23,624	14,492	11,988	10,543	185

N.	3,152,657
Other fields (NEC) and NA.	2,009,397
Total.	5,162,054

[a]Amounts rounded to nearest $100.

TABLE 3.28

MEDIAN YEARLY SALARY (1962) OF THE COLLEGE DEGREE POPULATION, BY EDUCATIONAL ATTAINMENT (1960)

Educational Attainment	Median Yearly Salary (1962)
Bachelor's	$ 7,400[a] (1,803,083)
Bachelor's plus	7,000 (1,311,515)
Master's	8,000 (830,978)
Doctorate	10,600 (147,379)
N	4,092,955
NA	1,069,099
Total	5,162,054

[a]Amounts rounded to nearest $100.

commitment and status, involving as it does the establishment of organizational ties with professional peers. This question was asked of the total college-educated population. About one-half reported no memberships, and the remainder were equally divided among those with one, two, or three or more memberships.[12]

The relation between membership in professional associations and employment is suggested by data in Table 3.29. Considering the three categories of labor force, labor reserve, and neither labor force nor labor reserve as progressively declining indicators of involvement in the occupational world, then at each degree level, the less the involvement in work, the lower the frequency of belonging to associations.

Education had some bearing on memberships, with increased education associated with membership in more associations. For those reporting at least one membership slightly less than two-thirds of the Ph.D.'s belonged to three or more groups compared with under one-quarter of the B.A.'s. The extent of these differences among educational levels appears even more sharply when data on no memberships are taken into account. That is, 67 per cent of those with a bachelor's degree, 40 per cent of those with bachelor's pluses, 25 per cent of the holders of a master's degree, and 13 per cent of the Ph.D.'s did not belong to any organizations.

At each degree level, men were more likely to report belonging to at least one organization than were women. But, as Table 3.30 shows, for those with some organizational affiliation, women more frequently reported belonging to three or more associations and this difference was true for all degree levels except the master's, where men and women were alike.

Some fields of study are associated with a low level of professional organizational involvement. These include mathematics and statistics,

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[12] "The number of professional societies not reported and no professional societies are in same column. Hand tallies of the questionnaires revealed a reported rate of less than 0.5 per cent" (Technical Notes on the Postcensal Study of Professional and Technical Manpower College Degree Population Tables, Bureau of the Census, May 27, 1964).

TABLE 3.29

COLLEGE DEGREE POPULATION: NUMBERS OF PROFESSIONAL MEMBERSHIPS (1962) BY EDUCATIONAL ATTAINMENT AND LABOR FORCE STATUS, (1960)

(Per Cent)

Number of Professional Societies	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither
None	57	86	90	35	58	79	21	62	55	12	34	33
One	20	7	6	25	24	14	19	14	31	17	28	33
Two	12	4	2	18	12	4	23	13	7	17	0	0
Three or more	10	2	2	22	6	2	37	11	7	54	38	33
Total	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	2,287,601	655,141	431,284	1,657,883	213,860	122,645	1,008,114	85,103	39,084	208,456	7,627	4,044
	N 3,374,026			N . . . 1,994,388			N. . . 1,132,301			N 220,127		

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 3.30

COLLEGE DEGREE POPULATION: NUMBER OF PROFESSIONAL MEMBERSHIPS (1962) BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Number of Professional Societies	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
None . . .	61	36	21	12	72	46	32	19
One. . . .	22	29	20	19	11	17	18	12
Two. . . .	10	17	24	18	9	15	17	5
Three or more	7	17	35	51	8	23	34	65
Total. .	100[a]	100	100	100	100	100	100	100
Base N .	1,576,766	1,224,220	684,135	194,261	1,797,260	770,168	448,166	25,866
	Total. 3,679,382				Total 3,041,460			

[a]Actual variations from 100 per cent are caused by rounding.

agriculture, humanities, and psychology. Whether this is due to the nature of the fields themselves is not clear. It could also be due to the fact that the data have been reported in Table 3.31 without regard to degree level, thus obscuring the preponderance of those with bachelor's degrees in these fields. The three teaching categories, fields in which women were prominently represented, were also more often associated with three or more memberships. Probably as a reflection of the special requirements of the occupations associated with them, those who had studied health fields reported the highest percentage with three or more professional memberships.

Professional Productivity

Membership in professional associations, as we have noted, is often a critical concomitant of being employed in a professional occupation. Less directly apparent is the connection between such employment and other active professional participation. Yet professional status is measured increasingly not just in terms of passive memberships but in such activities as the publication of books and articles and the reading of papers at professional meetings.[13] Not only do these serve to enhance one's status among one's peers, but they often also increase employment opportunities and the chances for promotion. But productivity as illustrated by these activities is more demanding than simply membership, and this is apparent from the fact that only 20 per cent reported engaging in such activities compared to 36 per cent who belonged to three or more associations.

It is when we turn to degree levels in Table 3.32 that the major differences emerge. The progression upward with degree level is the sharpest yet seen. While only 8 per cent of those with bachelor's degrees can be classified as productive in the terms described, this contrasted with

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[13]Among the academic professions, for example, careers often are evaluated in terms of "publish or perish" (see Theodore Caplow and Reece J. McGee, The Academic Marketplace [New York: Basic Books, 1958], pp. 82-85).

TABLE 3.31

COLLEGE-EDUCATED POPULATION: NUMBER OF PROFESSIONAL MEMBERSHIPS (1962) BY FIELD OF SPECIALIZED STUDY (1960)

(Per Cent)

Number of Professional Societies	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties
None	41	52	45	41	60	43	35	28	49	67	21	67	56	62	44
One	13	15	11	31	15	24	30	31	29	20	19	9	19	17	38
Two	17	10	18	16	11	14	20	25	5	6	22	8	10	11	5
Three and more.	29	23	26	12	14	18	15	16	17	7	38	16	15	11	14
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N . . .	687,837	633,851	474,070	671,733	103,362	40,309	214,066	51,792	191,036	103,051	579,921	151,477	544,739	564,827	20,769

N	5,032,840
Other fields and fields not reported .	3,378,089
Total	8,410,929

TABLE 3.32

COLLEGE DEGREE POPULATION: PROFESSIONAL PRODUCTIVITY (1962) BY EDUCATIONAL ATTAINMENT AND FIELD OF SPECIALIZED STUDY (1960)

(Per Cent)

Educational Attainment	Professional Productivity (1962)	Elementary School Teaching	Secondary School Teaching	Other Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties	All Fields
Bachelor's	Percentage with publication, etc. . . .	4	4	6	16	4	26	20	12	4	11	16	3	6	4	25	8
	Base N .	370,216	291,100	190,088	362,244	61,168	7,049	76,034	12,899	77,995	72,634	95,386	66,169	256,216	226,626	3,596	3,186,748
Bachelor's plus	Percentage with publication, etc. . . .	16	12	21	23	15	56	41	29	21	18	8	28	24	22	13	21
	Base N .	151,481	184,352	121,550	203,103	25,243	7,151	19,266	51,587	8,313	118,156	30,605	213,808	188,196	8,883	298,282	1,923,364
Master's	Percentage with publication, etc. . . .	26	32	38	67	53	59	67	29	79	79	66	25	54	27	5	41
	Base N .	125,415	115,153	118,876	64,062	11,411	6,493	19,405	13,129	34,842	17,882	50,618	37,139	42,518	108,206	5,817	1,093,287
Doctorate	Percentage with publication, etc. . . .	21	38	86	89	90	97	97	94	98	84	64	59	92	91	100	76
	Base N .	7,047	8,644	7,917	5,714	3,612	7,025	33,522	2,935	10,026	2,108	28,768	14,607	15,233	12,852	185	210,397

76 per cent of those holding doctorates.[14] In those fields where participation was high, in particular engineering, physics, and chemistry, it was relatively high at all degrees. Elementary and secondary education, however, increased moderately up to the master's degree, but the doctoral level was not much different than the master's, and in all cases productivity remained below average for the degree group. Psychology also was noticeably below average in productivity at all levels.

An examination of sex differences in Table 3.33 helps supply some explanation for differences by field of specialization. At each degree level, men were consistently more likely to display this form of productivity than were women. While close to 80 per cent of men with doctorates had published or read papers, only 55 per cent of the women with doctorates had done so.

Table 3.34 shows that, for all degrees except the Ph.D., productivity tended to go up with age. The most productive years for holders of doctorates were those under fifty-five. From fifty-five on, in fact, those with master's degrees were about as productive as the Ph.D.'s. This presumably reflects the changing circumstances of the educated population, where there is now both a greater premium placed on higher degrees, especially the doctorate, and on productivity through research activities manifested through published and unpublished articles.

The relation between productivity and employment is further demonstrated by taking into account labor force status, as has been done in Table 3.35. While the relation between degree and productivity continues to hold true, the further removed the college graduates were from active employment, the lower the frequency with which they produced. One exception to this pattern was holders of doctorates in the labor reserve, who displayed the highest rate of productivity. It should be noted that the size of this group was small, while nonreporting was relatively high. The possibilities then of sampling error could be considerable.

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[14] A high nonresponse rate was found for these data, but this was mainly due to the proportions who belonged to no professional organizations, since productivity is associated with such memberships.

TABLE 3.33

COLLEGE DEGREE POPULATION: PROFESSIONAL PRODUCTIVITY (1962) BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Professional Productivity	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Percentage with publication, etc.	13	24	45	79	4	17	34	55
Base N.	1,502,560	1,180,825	660,830	184,843	1,684,188	742,539	432,457	25,504
	N. . . . . 3,529,058 NA . . . . . 150,324 Total 3,679,382				N . . . . . 2,874,588 NA. . . . . 166,872 Total. 3,041,460			

TABLE 3.34

COLLEGE DEGREE POPULATION: PROFESSIONAL PRODUCTIVITY (1962)
BY AGE AND EDUCATIONAL ATTAINMENT (1960)

Educational Attainment	Professional Productivity	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65 Years and Older
Bachelor's	Percentage with publication, etc.	3	5	9	12	17	13
	Base N	221,234	1,220,424	927,052	541,510	190,554	85,974
Bachelor's plus	Percentage with publication, etc.	13	15	24	22	39	47
	Base N	129,967	669,871	571,082	374,054	129,642	48,710
Master's	Percentage with publication, etc.	14	38	35	44	55	55
	Base N	18,448	298,672	333,507	288,970	119,249	34,167
Doctorate	Percentage with publication, etc.	100	83	81	85	51	58
	Base N	105	48,160	63,632	48,794	34,677	14,936

TABLE 3.35

COLLEGE DEGREE POPULATION: PROFESSIONAL PRODUCTIVITY (1962), BY EDUCATIONAL ATTAINMENT AND LABOR FORCE STATUS (1960)

Educational Attainment	Professional Productivity	Labor Force	Labor Reserve	Neither in Labor Force Nor in Reserve
Bachelor's	Percentage with publication, etc.	11	4	3
	Base N	2,178,697	619,900	388,151
Bachelor's plus	Percentage with publication, etc.	22	17	12
	Base N.	1,598,262	207,847	117,255
Master's	Percentage with publication, etc.	42	33	29
	Base N.	974,915	80,636	37,736
Doctorate	Percentage with publication, etc.	76	93	33
	Base N.	199,358	6,995	4,044

Summary

Most of those with college degrees in 1960 were employed in that year. For women, however, the likelihood of working was related to amount of education, with those with advanced degrees having a greater probability of employment. They did not enter the labor force mainly because of their housekeeping responsibilities, and these appeared to be greatest during the twenty-five to forty-four age span. Looking at those not in the labor force because of retirement, we found that holders of doctorates had a longer work history, and this was true for both men and women. Findings on 1962 employment were similar to those on the preceding period. Information available only for 1962 indicated that full-time employment was more frequent among those with higher degrees and that women were more likely to work part time.

While the proportion of the college degree population in the labor force remains the same for 1960 and 1962, there is evidence of movement in and out during this time span. This movement is affected by age, sex, and amount of education, as we could anticipate from results reported in the preceding paragraph. For example, women move out of the labor force when they begin caring for children but return when these duties are no longer required.

Work status was related to degree level, with holders of bachelor's degrees mainly in private industry and those with bachelor's pluses divided between business and government. Reflecting the numbers in teaching, holders of a master's degree were largely government employees, but private business returned as a major employer of those with doctorates. Since women were so often employed as teachers, the main sex difference here was the larger proportion of men in private business and women in government.

The likelihood of employment in professional, technical, and kindred occupations increased with advanced degrees. When occupational categories are treated individually, it was only at the doctoral level that we find noticeable proportions in the scientific occupations. Belying their

otherwise disadvantaged situation, women were more likely to be found in professional and allied occupations, regardless of degree. But this is a result of the large numbers of female teachers, and rather than reflecting clearcut advantages, this points up their lack of occupational diversification.

For both 1960 and 1962, fields of work specialization most often mentioned were engineering, elementary and secondary school teaching, and health fields. Men below the master's degree were most often in engineering, at the master's level teaching was most often selected, while those at the doctoral level were diversified but mainly in chemistry, health, and humanities. Women were occupationally much less differentiated and were concentrated in elementary and secondary school teaching.

In looking at the congruence between fields studied and worked in, this increased with increased education. But regardless of degree, engineering and health were the most congruent fields. These findings held true whether fields studied were compared with those worked in either in 1960 or in 1962. Work fields picking up recruits from other study fields, especially at the intermediate degree levels, were most often engineering and education. All these findings were, as usual, affected by sex, and the ones summarized here were most marked for men.

Whether we look at total earnings in 1961 or slary in 1962, findings are similar. Financial rewards tend to rise with education. Despite fluctuations associated with age and field of study, sex remains the best single discriminating factor in evaluating earning capacity. Women at all degree levels earn considerably less than do their male counterparts.

Accompanying college education and the kinds of employment which generally go along with it are memberships in professional associations. Both membership in at least one association and multiple memberships increased with more education. Men belonged to organizations more often than women, but women, once they joined, tended to have more multiple memberships. The likelihood of professional memberships was also higher with active employment status.

The most striking instance of differences among degree groups appeared in relation to professional productivity. That is, the frequency of writing papers or books is appreciably higher with advanced degrees, especially the doctorate. Such productivity is also predominantly a masculine activity, to some extent independent of degree level. Like multiple memberships, it has some relation to employment status and field of specialized study.

CHAPTER 4

DEMOGRAPHIC AND PERSONAL CHARACTERISTICS OF THE COLLEGE DEGREE POPULATION

Demographic Characteristics

Marital Status

The great majority of the college degree population were married and living with their spouses. Of the degree groups, persons holding a bachelor's degree were most likely to be married and living with their marital partners. The highest proportion of those never married were among the bachelor's plus and master's groups, approximately one-sixth in each case. While not markedly large, the 6 per cent of the holders of doctorates who were either separated or divorced nevertheless represent a greater proportion than was found for any other degree groups.

In the case of the bachelor's pluses and master's, there is reason to believe that the proportion never married reflects the very real existence of spinster schoolteachers. For example, without controlling for sex, an average of about 20 per cent of those whose field of specialization was education have never married. In addition, as Table 4.1 shows, men were more likely to have married than women, and this was especially true of those who went beyond the bachelor's level.

A further examination of sex differences shows that, for women, the probability of spinsterhood increased with more education, from 10 per cent for the bachelor's degree to 35 per cent for the master's. The relatively small number of women with a Ph.D., however, were more likely to have married than those with a master's degree.[1] Women at all degree

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[1] In Seymour Warkov, with the assistance of Sanford Abrams and John Marsh, America's 1960 Scientists and Engineers: Employment Conditions, 1960 and 1962 (Washington, D.C.: National Science Foundation in press), Chap. II, the increase in those never married progressed to the Ph.D., so that the findings for Ph.D.'s for this report may not be totally accurate.

TABLE 4.1

COLLEGE DEGREE POPULATION: MARITAL STATUS (1962)
BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Marital Status (1962)	Bachelor's		Bachelor's Plus		Master's		Doctorate	
	Men	Women	Men	Women	Men	Women	Men	Women
Never married	9	10	12	24	9	35	6	26
Married	90	84	86	63	90	53	87	64
Separated or divorced	1	3	2	5	1	5	6	9
Widowed	1	4	1	7	0	6	1	1
Total	100[a]	100	100	100	100	100	100	100
Base N	1,568,105	1,789,236	1,221,834	767,368	683,134	446,363	194,169	25,860

N	6,696,069
NA	24,773
Total N	6,720,842

[a]Actual variations from 100 per cent are caused by rounding.

levels were more likely than men to have broken marriages, through either death, divorce, or separation. While these statuses are more often found for women than men in the population generally, college-educated women displayed them to a much greater extent. Looking only at the divorced and separated, the 1960 Census reported that 3.5 per cent of all men fourteen years of age and older and 5 per cent of all women were in these categories.[2] However, considering our total sample, 2 per cent of the men and 10 per cent of the women were divorced or separated. We would hesitate to attribute any causal sequence to these phenomena, for instance, that women with college degrees make poorer wives, but some other types of explanation are possible. For example, the later age of marriage of women with college degrees and the tendency for women to marry men older than themselves, coupled with the greater longevity of women, increases the probability that more women than men will be widowed. However, it does not help to account for the higher proportions of separated and divorced at all degree levels (although the doctorates of both sexes are more similar and both have the highest rates of such marital instability). It may be that a broken marriage encourages women to pursue higher education in order to be better fit for competition in the labor market. Some clue to the validity of this latter assumption is provided by evidence from Table 4.2, undifferentiated by sex, that the separated or divorced were, at all degree levels, more likely to be in the labor force in 1960.

With the exception of the relatively small number of those under twenty-five years of age sampled, the percentage who have never married tends to increase with education to the master's at each age group. This is again a likely reflection of the greater incidence of spinsterhood for

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[2]United States Census of Population: 1960, Final Report PC(1)-1D (Washington, D.C.: U. S. Government Printing Office), pp. I-424-I-425.

TABLE 4.2

COLLEGE DEGREE POPULATION: MARITAL STATUS (1962), BY EDUCATIONAL ATTAINMENT AND LABOR FORCE STATUS (1960)

(Per Cent)

Marital Status (1962)	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	Labor Force	Labor Reserve[a]	Neither[b]	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither	Labor Force	Labor Reserve	Neither
Never Married .	13	2	1	18	12	7	20	15	28	9	0	0
Married . .	84	95	93	76	81	87	76	79	66	84	83	100
Separated or divorced	2	1	1	4	2	1	3	2	0	7	0	0
Widowed . .	2	2	5	3	6	6	2	4	7	0	17	0
Total .	100[c]	100	100	100	100	100	100	100	100	100	100	100
Base N.	2,277,295	652,806	427,240	1,653,566	212,991	122,645	1,005,547	84,866	39,084	208,358	7,627	4,044
	N 3,357,341			N 1,989,202			N 1,129,497			N 220,029		
	NA 16,685			NA 5,186			NA 2,804			NA 98		
	Total N . 3,374,026			Total N . 1,994,388			Total N . 1,132,301			Total N . . 220,127		

[a]The "Labor Reserve" consists of persons who are not currently in the labor force, but worked at some time between 1950 and April, 1960.

[b]"Neither" represents all those currently in neither the labor force nor the labor reserve.

[c]Actual variations from 100 per cent are caused by rounding.

women, especially at the older ages,[3] and the greater proportion of women making up these degree groups compared with the doctorate. Another difference related to age derived from Table 4.3 was the relative youth of persons holding the Ph.D. with marriages dissolved by separation or divorce.

Number of Children

While those who did not report on the number of children they had were combined with those who had no children, a check of responses indicated that the "no responses" for the total sample were less than one-half of 1 per cent.[4] We are reasonably safe then in treating this category as simply one with no children. The median number of children for the college population was 2.5, and this was similar *in toto* for men and women for all degree levels. However, when men and women were separated by degree attained, Table 4.4 clearly shows that that the likelihood of women reporting no children increased substantially with more education. Women holding doctorates who have no children made up 54 per cent of their group, compared to 14 per cent of their educational counterparts among men. This proportion of women holding doctorates who are without children outweights the proportion unmarried so that this in itself is

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[3] In the study of the college population sponsored by *Time*, it was similarly found that college-trained women were both less likely to marry than the total population of women and that spinsterhood was more likely among those who graduated earlier in the century than it was for those of marriageable age in the 1940's. This increase in the likelihood that college women will marry is related by the authors to the decline in militant feminism and increased acceptability of education for women (Ernest Havemann and Patricia Salter West, *They Went to College* [New York: Harcourt, Brace, 1952], pp. 60-63).

[4] *Technical Notes on the Postcensal Study of Professional and Technical Manpower, College Degree Population Tables* (Washington, D.C.: U. S. Department of Commerce, Bureau of the Census, May 27, 1964).

no children were in the labor force in 1960 than were in the labor reserve (that is, employed between 1950 and 1960, but not in the labor force in 1960) or had been employed in the decade preceding 1950.

TABLE 4.6

COLLEGE-EDUCATED POPULATION: NUMBER OF CHILDREN (1962) FOR PERSONS EVER MARRIED, BY AGE AND SEX (1960)

Age	Men			Women		
	No Children[a] (Per Cent)	Median Number of Children	Base N	No Children[a] (Per Cent)	Median Number of Children	Base N
20-24 . . .	28	1.6	176,430	45	1.2	189,437
25-34 . . .	16	2.5	1,517,713	9	2.8	920,322
35-44 . . .	9	2.9	1,338,600	10	2.8	810,037
45-54 . . .	13	2.6	776,573	24	2.1	639,350
55-64 . . .	17	2.3	331,345	43	1.3	309,332
65 and older . .	20	2.3	197,097	30	1.6	96,597
	N		4,337,758	N		2,965,075
	Under 20 and never married		473,950	Under 20 and never married		634,146
	Total N . .		4,811,708	Total N . . .		3,599,221

[a]This column combines "no children" and "not reported."

TABLE 4.7

COLLEGE DEGREE POPULATION: NUMBER OF CHILDREN (1962) FOR PERSONS EVER MARRIED, BY EDUCATIONAL ATTAINMENT AND LABOR FORCE STATUS (1960)

Labor Force Status	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	No Children[a] (Per Cent)	Median Number of Children	Base N	No Children[a] (Per Cent)	Median Number of Children	Base N	No Children[a] (Per Cent)	Median Number of Children	Base N	No Children[a] (Per Cent)	Median Number of Children	Base N
Labor force	17	2.4	2,000,745	18	2.4	1,365,032	21	2.4	812,327	18	2.6	189,970
Labor reserve[b]	5	2.9	640,368	13	2.7	188,601	13	2.7	72,474	8	2.8	7,627
Neither[c]	7	3.1	425,894	15	2.7	114,558	5	2.7	28,302	0	2.8	4,044
	N 3,067,007			N 1,668,191			N 913,103			N 201,641		
	Never married . 307,019			Never married . . 326,197			Never married . 219,198			Never married . . 18,486		
	Total N . 3,374,026			Total N . . 1,994,388			Total N . 1,132,301			Total N . . 220,127		

[a]This column combines "no children" and "not reported."

[b]The "labor reserve" consists of persons who are not currently in the labor force, but worked at some time between 1950 and April, 1960.

[c]"Neither" represents all those currently in neither the labor force nor the labor reserve.

Number of Dependents

In the case of dependents, the "not reported" were separated from "none" and made up over 8 per cent of the total sample, compared to less than 0.5 per cent for the question on children. The "not reported" were especially high for women, consisting of 19 per cent of all women compared to 4 per cent of all men. Still, finding that women had fewer dependents than men despite these discrepancies in reporting seems reasonable. Thus 19 per cent of all women in the sample were classified as having no children, but 80 per cent of those responding had no dependents. This contrasts with men, where 14 per cent had no children and 10 per cent no dependents.

The likelihood of having dependents increased with higher degree and was strongly associated with sex. Such relationships appear in Table 4.8. For example, men were quite similar in this regard at all degree levels, although those with the doctorates were slightly more likely to have dependents than were others. However, women having doctorates were most likely of their sex to be lacking in dependents.

TABLE 4.8

COLLEGE DEGREE POPULATION: NUMBER OF DEPENDENTS (1962), BY SEX AND EDUCATIONAL ATTAINMENT (1960)

Degree	Men			Women		
	No Dependents (Per Cent)	Median Number of Dependents	Base N	No Dependents (Per Cent)	Median Number of Dependents	Base N
Bachelor's	8	3.5	1,537,759	83	0.6	1,516,248
Bachelor's plus . .	10	3.3	1,204,548	80	0.6	698,901
Master's .	9	3.4	678,816	72	0.7	413,027
Doctorate	4	3.4	190,619	89	0.6	24,846
	N		3,611,742	N		2,653,022
	NA		67,640	NA		388,438
	Total N . . .		3,679,382	Total N . . .		3,041,460

According to Table 4.9, the relation between degree level and age was not as clear-cut. Up to age fifty-five, the likelihood of having dependents tended to increase with education for each age group. From fifty-five onward, there was more fluctuation, possibly due to sampling variations. In addition, decline in dependents no doubt occurred since those in the older ages were more likely to have no children living at home or lack their marriage partner through death or other separation. These latter reasons would help account for the greater similarities at these ages between men and women seen in Table 4.10.

Father's Occupation

In giving information on their father's occupation at about the time they were sixteen years of age, respondents clearly indicated their middle-class origins.[5] Over 40 per cent had fathers who were in professional or technical occupations or in the upper echelons of the business world. An additional 10 per cent had lower-level white-collar backgrounds (e.g., clerical), and 12 per cent had fathers who were farm owners or managers. Less than one-quarter could be classified as growing up in blue-collar households. (The remaining percentages were of unspecified occupational origin.)

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[5]Social scientists concerned with the empirical study of social class have found that the best single indicator of social class position is that of occupation. See, for example, J. A. Kahl and J. A. Davis, "A Comparison of Indexes of Socio-Economic Status," American Sociological Review, 20 (June, 1955) 317-25; Gosta Carlson, Social Mobility and Class Structure (Lund: Hakan Ohlssons Boktryckeri, 1958), pp. 46-49; Ely Chinoy, "Social Mobility Trends in the United States," American Sociological Review, 20 (April, 1955) 180-86. In the following discussion on father's occupation, then, these origins of the college degree population will be used interchangeably with social class origins. Implicit here is the view that occupations can be placed in a hierarchy analogous to a social class hierarchy. See Robert W. Hodge, Paul M. Siegel, and Peter H. Rossi "Occupational Prestige in the United States, 1925-63," American Journal of Sociology, 70 (November, 1964) 286-302.

TABLE 4.9

COLLEGE DEGREE POPULATION: NUMBER OF DEPENDENTS (1962)
BY AGE AND EDUCATIONAL ATTAINMENT (1960)

Age (1960)	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	No Dependents (Per Cent)	Median Number of Dependents	Base N	No Dependents (Per Cent)	Median Number of Dependents	Base N	No Dependents (Per Cent)	Median Number of Dependents	Base N	No Dependents (Per Cent)	Median Number of Dependents	Base N
20-24 . .	63	0.8	216,584	44	1.3	132,916	53	0.9	19,859	59	0.8	105
25-34 . .	47	1.4	1,168,861	31	2.2	664,560	29	2.4	291,995	9	3.4	48,714
35-44 . .	42	2.5	889,546	29	3.3	562,685	23	3.3	334,966	16	3.8	69,294
45-54 . .	35	2.0	510,202	39	2.0	362,772	36	1.8	287,666	9	3.6	48,653
55-64 . .	54	0.9	188,041	60	0.8	129,485	48	1.1	121,732	22	1.8	34,881
65 and older .	42	1.2	80,773	56	0.9	50,993	51	1.0	35,388	11	1.5	13,725
	N		3,054,007	N		1,903,411	N		1,091,606	N		215,372
	NA		320,019	NA		90,939	NA		40,421	NA		4,755
	Total N .		3,374,026	Under 20 . .		38	Under 20 . .		274	Under 20 .		93
				Total N . .		1,994,388	Total N . .		1,132,301	Total N		220, 127

TABLE 4.10

COLLEGE EDUCATED POPULATION: NUMBER OF DEPENDENTS (1962), BY SEX AND AGE (1960)

Age (1960)	Men			Women		
	No Dependents (Per Cent)	Median Number of Dependents	Base N	No Dependents (Per Cent)	Median Number of Dependents	Base N
20-24 . .	27	2.1	251,451	83	0.6	229,620
25-34 . .	9	3.5	1,659,453	88	0.6	904,505
35-44 . .	7	4.0	1,442,307	79	0.6	777,218
45-54 . .	4	3.4	788,641	69	0.7	703,405
55-64 . .	11	1.8	341,788	77	0.6	364,750
65 and older .	21	1.4	203,331	89	0.6	121,895
	N		4,686,971	N		3,101,393
	Under 20 and NA .		116,966	Under 20 and NA .		496,168
	Total N		4,803,937	Total N		3,597,561

Some variations emerge in Table 4.11 by degree levels, with more Ph.D.'s coming from professional and technical homes and master's having the relatively least advantaged backgrounds. The data do not suggest any reasons for these findings.

At any degree level, female graduates were more likely than men to have had professional-technical fathers and less likely to have had fathers who were craftsmen or operatives. As Table 4.12 shows, however, the more advantaged origins of women were not consistently demonstrated in the case of those from urban owner-managerial homes. There the difference between the sexes held true only for those holding bachelor's and bachelor's plus degrees. Men and women were similar at the master's level but at the doctorate level there was a sharp drop in women whose

TABLE 4.11

1960 COLLEGE DEGREE POPULATION: OCCUPATION OF FATHER WHEN RESPONDENT WAS AGE 16, BY EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Father's Occupation	Bachelor's	Bachelor's Plus	Master's	Doctorate
Professional-technical . .	17	22	18	26
Owner-managerial .	25	23	21	24
All others . .	58	56	62	49
Total . . .	100[a]	100	100	100
	N . . . 3,296,168	N . . . 1,916,602	N . . . 1,107,262	N 216,460
	NA . . 77,858	NA . . 77,786	NA . . 25,039	NA . . . 3,667
	Total N . 3,374,026	Total N . 1,994,388	Total N . 1,132,301	Total . 220,127

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.12

1960 COLLEGE DEGREE POPULATION: OCCUPATION OF FATHER WHEN RESPONDENT WAS AGE 16, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Father's Occupation	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Professional-technical . . .	13	21	17	26	18	25	20	29
Owner-managerial . .	22	21	21	25	28	27	21	10
Craftsmen, foremen and kindred workers	15	16	13	14	11	13	10	9
Operatives and kindred workers	12	8	11	5	5	4	7	2
All others . . .	38	34	48	30	36	31	42	50
Total . . .	100	100	100	100	100	100	100	100
Base N . . .	1,538,117	1,174,504	675,625	190,987	1,758,051	742,098	431,637	25,473

N	3,579,233	N	2,957,259
NA	100,149	NA	84,201
Total N	3,679,382	Total N	3,041,460

fathers had owner-managerial occupations. But it is still highly probable that female graduates had higher social class origins than men, despite this last finding, since this proportion was affected by the fact that 29 per cent of the female Ph.D.'s reported that their fathers were not living at the time they were sixteen.[6] In general, these findings reflect the greater importance attached to education for men, so that a higher education must be gained even if it involves sacrifice by the family and outside work by the male student.

Father's occupation appears to be related to offsprings' choice of specialized field of study. From details given in Table 4.13, the most apparent was the high percentage of those studying agricultural sciences who were the children of farm owners and managers. Though not as pronounced, other tendencies include the relatively high incidence of farm backgrounds for those in teaching specialties; proprietorial and managerial backgrounds for those who studied physics and to a lesser extent psychology; professional-technical background for those in the biological sciences; and fathers who were craftsmen and foremen for engineering students.

The most interesting questions to be asked of these data concern the nature of mobility patterns over time. That is, while in toto the majority of the college degree population clearly come from relatively privileged backgrounds, how has this been affected by the passage of time? In response to the demands for more trained personnel, has the class structure become more open or not? This question can be examined by separating our population by age group. In order to handle fathers' occupations, it is necessary to compare these with their place in the occupational structure at the relevant time period.[7] Using the closest

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[6]This latter finding is a distortion probably introduced by the weighting techniques.

[7]Relevant data were derived from U. S. Bureau of the Census, Historical Statistics of the United States: Colonial Times to 1957. (Washington, D. C.: U. S. Government Printing Office, 1960), p. 74, Series D72-122.

TABLE 4.13

1960 COLLEGE-EDUCATED POPULATION: OCCUPATION OF FATHER WHEN RESPONDENT WAS AGE 16, BY FIELD OF SPECIALIZED STUDY FOR HIGHEST ACADEMIC DEGREE (1960)

(Per Cent)

Father's Occupation	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties	Other Fields
Professional-technical	13	16	16	21	14	21	20	24	33	11	23	25	28	29	12	14
Farm owner or manager	18	15	18	8	8	6	8	4	10	48	12	4	6	5	3	9
Manager and proprietor	22	20	20	21	25	38	26	13	21	11	23	31	24	25	9	31
Craftsmen, foremen	13	12	10	23	14	14	15	10	8	4	16	10	11	13	35	11
Operatives and kindred workers	9	11	9	7	15	4	9	26	5	7	7	4	4	6	3	9
Sales	5	6	5	5	9	5	4	4	5	6	3	5	11	7	5	10
Labor	3	2	3	2	1	4	4	1	1	1	4	5	2	3	0	2
Others	17	18	19	13	14	8	14	18	17	12	12	16	14	12	33	14
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N	670,537	617,911	454,518	656,251	101,653	39,745	210,094	51,282	187,336	102,524	560,168	145,075	529,841	553,423	17,371	1,231,235

N	6,129,124
NA	166,416
Field not reported	2,115,389
Total N	8,410,929

Census year for this information, we estimated, for example, that about the time our twenty-five to thirty-four-year-old group was sixteen, 7 per cent of the male labor force were in professional, technical, and kindred occupations. The control for time is important in order to take into account the changes which have taken place in the occupational structure. For example, there are many more people engaged in clerical occupations at present than was true even ten years ago. With these items of information, an index of advantage can be constructed according to the ratio of the percentage of fathers in a particular occupational category to the percentage of all males for that category at the relevant time. A result of greater than one using this method would mean that our population came from a particular category in a greater proportion than the category was represented in the population at large. A result of less than one would indicate underrepresentation of an occupational category. In order that we might continue to deal with reasonably large categories, this kind of analysis was confined to the three largest age groups between twenty-five and fifty-four and four occupational categories: professional-technical, owner-managerial, craftsmen and foremen, and operatives. The former two can be regarded as indicators of high social class position, the latter two of lower.

Using this technique indicates (with some unevenness) that for each degree level, the likelihood of having a professional-technical background increased with age. As Table 4.14 indicates, differences in owner-managerial backgrounds were fairly small, as were those from the underrepresented blue-collar occupations. There may be some slight signs, however, that blue-collar parents are sending proportionately more of their offspring to college than was formerly the case. One consistent exception to the privileged position of all age and degree groups were Ph.D.'s between thirty-five and forty-four years of age. They were less likely than their age and especially their degree cohorts

TABLE 4.14

1960 COLLEGE DEGREE POPULATION: INDEX OF ADVANTAGE BY EDUCATIONAL ATTAINMENT AND AGE (1960)

Father's Occupation	Bachelor's			Bachelor's Plus			Master's			Doctorate		
	25-34	35-44	45-54	25-34	35-44	45-54	25-34	35-44	45-54	25-34	35-44	45-54
Professional and technical . . .	2.4	2.8	3.2	2.9	3.5	4.0	2.3	3.3	2.6	5.0	3.2	6.4
Managers and proprietors . .	2.6	2.8	2.8	2.2	2.6	2.3	2.3	2.1	2.4	2.2	1.4	2.8
Craftsmen	0.7	0.9	0.6	1.0	0.9	0.7	0.6	1.0	0.5	1.0	1.4	0.4
Operatives	0.4	0.4	0.5	0.4	0.4	0.2	0.6	0.7	0.5	0.1	0.6	0.2

Note: Index was computed from a ratio of the percentage of fathers in the occupational category to percentage of males in that occupation at the relevant time period. The higher the index number, the greater the representation of the occupation relative to its place in the occupational structure.

to come from high-status homes and more likely to come from low-status ones.[8]

As we could anticipate from our earlier discussion of sex differences, controlling for age and the influences of the then current occupational structure does not dispel the image of women as coming from more advantaged backgrounds than men. However, there is some slight evidence in Table 4.15 more consistent for men than for women, that the significance of initial advantage from father's occupation in obtaining a college degree has declined somewhat.

TABLE 4.15

1960 COLLEGE-EDUCATED POPULATION: INDEX OF ADVANTAGE, BY SEX AND AGE (1960)

Father's Occupation	Men			Women		
	25-34	35-44	45-54	25-34	35-44	45-54
Professional and technical . .	2.9	3.0	3.0	3.0	3.5	3.4
Manager and proprietor	2.0	2.2	2.6	2.8	2.9	2.8
Craftsmen, foremen	0.9	1.2	0.7	0.6	0.8	0.6
Operatives and kindred workers.	0.5	0.6	0.6	0.3	0.3	0.3

Note: Index was computed from a ratio of the percentage of fathers in the occupational category to percentage of males in that occupation of the relevant time period. The higher the index number, the greater the representation of the occupation relative to its place in the occupational structure.

Our conclusions are that the majority of the college degree population had come from higher-status homes to a consistently higher

[8]This age group was also more likely to be made up of veterans and to have received some financial aid in completing their high-school education. Evidence for the latter is shown in Table 4.22.

proportion than was the case of the population generally. The importance of this type of advantage in affecting the likelihood of obtaining a degree was greater for women than for men and seemed to have declined over time, albeit slightly.

Citizenship

Although the United States is training increasingly large numbers of students from foreign countries in its colleges,[9] it would appear that the majority of these either return to their homeland on the completion of their studies or become citizens of this country. Thus virtually the total population of those with either bachelor's or bachelor's plus degrees were citizens, and this was the case of 98 per cent of those with master's degrees and 96 per cent of those with doctorates.[10]

Region of Residence, 1962

The regions in which the college degree population were residing in 1962 tell something about which regions make greatest use of college graduates.[11] To do this a rough index was computed, giving a

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[9] For example, in the fall of 1963 over 70,000 foreign students were enrolled in institutions of higher learning in the United States (Kenneth A. Simon and W. Vance Grant, Digest of Educational Statistics, 1964 Edition [Washington, D.C.: U.S. Government Printing Office, 1964], p. 151). Between 1920 and 1961, under 15,000 persons who had earned their baccalaureates in foreign countries received their doctorates from universities in this country (Lindsey R. Harmon and Herbert Soldz [comps.], Doctorate Production in United States Universities: 1920-1962 [Washington, D.C.: National Academy of Sciences-National Research Council, 1963], Publication 1142, p. 209).

[10] The question on citizenship was not asked of those in technical occupations, but this probably did not affect the overall results.

[11] Despite discrepancies between the regional distributions reported here and those published in the 1960 Census for those with four or more years of college, we present our data as meaningful in its overall outlines. We base our judgment on the coincidence between patterns of these findings and those found in Warkov et al., op.cit.

a ratio of the percentage in each degree level in a region to the percentage of the total population in that region according to the 1960 Census. Where the ratio exceeded one, this indicated that the region had a favorable share of the degree population; where it was less than one, the region had an unfavorable share.[12] Using this procedure in Table 4.16, it appears that the Northeast and North Central states were in a more advantaged position than either the South or West. In particular, the Middle Atlantic states had the largest ratio of doctorates while the New England states in which doctorates were underrepresented, had the highest ratio of holders of master's degrees.

The North Central states had their advantage concentrated at the doctoral level. The South had a relatively small share of the college degree population. In the West, however, the Mountain states did not

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[12]The classification of states into regions follows the usage employed by the Bureau of the Census.

Northeast

New England: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island

Middle Atlantic: New York, Pennsylvania, New Jersey

North Central

East North Central: Wisconsin, Michigan, Illinois, Indiana, Ohio

West North Central: North Dakota, South Dakota, Minnesota, Iowa, Missouri, Nebraska, Kansas

South

South Atlantic: Maryland, Delaware, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida

East South Central: Kentucky, Tennessee, Mississippi, Alabama

West

Mountain: Montana, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico

Pacific: Washington, Oregon, California

appear disadvantaged until beyond the bachelor's plus level, while the Pacific states had a favorable share of all degree groups up to the master's degree, and even at the doctorate level had a ratio of one.

TABLE 4.16

RATIO OF PERCENTAGE OF THE 1960 COLLEGE DEGREE POPULATION RESIDING IN REGION TO PERCENTAGE OF TOTAL POPULATION IN THAT REGION, 1960

Region	Bachelor's	Bachelor's Plus	Master's	Doctorate
Northeast				
New England	1.17	1.17	1.50	.83
Middle Atlantic	1.05	1.16	1.21	1.32
North Central				
East North Central	1.00	1.00	.95	1.25
West North Central	1.00	.78	.67	1.22
South				
South Atlantic	1.00	.71	.93	.86
East South Central	.71	.43	.57	.43
West South Central	.80	.80	.90	.60
West				
Mountain	1.00	1.50	.75	.50
Pacific	1.08	1.42	1.25	1.00

If we regard these findings as indicating some measure of advantage or disadvantage to a region, assuming that the utilization of those with college degrees brings with it social and economic benefits to the region as a whole, then some further insights can be obtained by looking at the distribution of those elements of the degree population who are most utilized in the work world: men, between the ages of twenty-five and fifty-four and the more highly educated. A brief examination of regional distributions of degree groups separated by sex in Table 4.17 further confirms the relative advantage of the Middle Atlantic and North Central

TABLE 4.17

COLLEGE DEGREE POPULATION: REGION OF RESIDENCE (1962) BY EDUCATIONAL ATTAINMENT AND SEX (1960) COMPARED WITH DISTRIBUTION OF TOTAL POPULATION BY REGION (1960)

(Per Cent)

Region	Men				Women				U. S. Population Distribution (1960)
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate	
Northeast									
New England	7	7	10	5	7	6	9	6	6
Middle Atlantic	22	23	23	26	18	21	24	18	19
North Central									
East North Central	21	19	20	26	20	21	18	22	20
West North Central	7	6	6	12	11	8	5	3	9
South									
South Atlantic	12	10	12	10	15	10	14	27	14
East South Central	6	4	2	2	5	3	7	8	7
West South Central	7	9	8	6	8	7	9	1	10
West									
Mountain	4	5	4	2	3	6	1	1	4
Pacific	14	17	15	11	12	18	14	15	12
Total	100[a]	100	100	100	100	100	100	100	100
Base N	1,556,972	1,210,525	682,246	193,534	1,788,795	762,395	442,887	25,760	179,325,671
	N			3,643,277	N			3,019,837	
	NA			36,105	NA			21,623	
	Total N			3,679,382	Total N			3,041,460	

[a]Actual variations from 100 per cent are caused by rounding.

states, since not only did they have a disporportionate share of the doctorates, but also a disproportionate share of the male doctorates. The New England states as well were not only relatively high on master's, but also on male masters. The South Atlantic states had an unusually large share of the female doctorates, but this was probably only a moderate advantage.

There is considerable variation in the distribution of degree groups according to region and age, as shown in Table 4.18, but the most noteworthy is the large share of those thirty-five years of age and older among holders of doctorates residing in the Middle Atlantic states.

All these data then build up a picture of the Middle Atlantic states as especially favorably located in respect to their share of the college educated.

High-School Backgrounds

Type of School

The sampled population was requested to indicate whether they had attended public, private, or parochial elementary or high schools. However, the answers have not been tabulated in a way which would make it possible to determine how many attended only one type of school. Information from Table 4.19 indicates attendance at the various types of schools by degree groups. The proportion attending parochial schools, about one in eight, was similar for all degree groups. However, other private school attendance goes up with education, ranging from 7 per cent for the bachelor's degree holders to 17 per cent for the doctorates.

Variations by sex in Table 4.20 reveal that, of the holders of doctorates, men were more likely to have attended private schools and women parochial ones. Sex differences for other degree groups were much slighter.

TABLE 4.18

COLLEGE DEGREE POPULATION: REGION OF RESIDENCE (1962), BY EDUCATIONAL ATTAINMENT AND AGE (1960), COMPARED WITH DISTRIBUTION OF TOTAL POPULATION BY REGION (1960)

(Per Cent)

Region	Bachelor's						Bachelor's Plus						U.S. Population Distribution (1960)
	20-24	25-34	35-44	45-54	55-64	65 and over	20-24	25-34	35-44	45-54	55-64	65 and over	
Northeast													
New England	9	7	7	5	9	15	6	6	9	7	3	4	6
Middle Atlantic	18	23	17	21	18	17	26	23	22	22	20	18	19
North Central													
East North Central	22	20	23	16	26	16	13	21	18	18	32	17	20
West North Central	9	9	8	9	15	22	10	7	6	7	5	2	9
South													
South Atlantic	18	14	12	14	12	10	14	10	8	10	11	20	14
East South Central	2	5	5	8	5	3	7	2	5	2	1	3	7
West South Central	6	9	9	7	4	5	5	9	8	8	5	6	10
West													
Mountain	4	4	5	2	3	1	3	5	7	7	3	10	4
Pacific	13	10	16	19	10	12	15	17	17	18	21	21	12
Total	100[a]	100	100	100	100	100	100	100	100	100	100	100	100
Base N	231,116	1,272,865	980,288	560,426	210,921	90,151	134,731	686,131	584,718	379,020	134,733	53,549	179,325,671
	N					3,345,767	N					1,972,882	
	NA					28,259	Under 20 and NA					21,506	
	Total N					3,374,026	Total N					1,994,388	

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.18--Continued

Region	Master's						Doctorate						U.S. Population Distribution (1960)
	20-24	25-34	35-44	45-54	55-64	65 and Over	20-24	25-34	35-44	45-54	55-64	65 and Over	
Northeast													
New England	10	16	7	8	6	4	32	4	6	6	2	3	6
Middle Atlantic	46	22	26	23	18	10	9	11	35	23	24	36	19
North Central													
East North Central	10	18	18	19	24	26	50	44	14	19	24	36	20
West North Central	1	6	6	5	3	14	0	13	4	26	4	2	9
South													
South Atlantic	4	9	16	12	17	11	0	5	16	8	19	11	14
East South Central	1	2	2	7	7	11	0	2	4	3	2	2	7
West South Central	1	8	7	12	8	5	0	2	5	3	17	1	10
West													
Mountain	27	2	2	2	3	2	0	2	3	3	1	1	4
Pacific	1	17	16	12	15	16	10	17	13	8	9	7	12
Total	100[a]	100	100	100	100	100	100	100	100	100	100	100	100
Base N	19,893	304,629	338,102	301,447	124,345	36,717	105	49,073	69,515	49,746	34,824	15,938	179,325,671

N	1,125,133	N	219,201
Under 20 and NA	7,168	Under 20 and NA	926
Total N	1,132,301	Total N	220,127

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.19

1960 COLLEGE DEGREE POPULATION: TYPE OF ELEMENTARY AND HIGH SCHOOLS ATTENDED, BY EDUCATIONAL ATTAINMENT, (1960)

(Per Cent)

Type of School	Bachelor's	Bachelor's Plus	Master's	Doctorate
Public	91	93	93	88
Parochial	13	12	11	13
Other private . . .	7	8	10	17
Total[a]	111	113	114	118
Base N	3,374,026	1,994,388	1,132,301	220,127

[a]Total exceeds 100 per cent because of multiple answer.

Those under twenty-five at all levels, except for the relatively few doctorates, were least likely of their degree cohorts to have attended public schools. While the greatest majority still had attended public schools, as Table 4.21 shows, this age group was most likely to have received some part of its elementary or secondary education at parochial schools.[13] Less easy to account for is the comparatively large proportion of doctorates forty-five years of age and older who had attended private schools. (This also applies to those under twenty-five, but the sample

[13]This tends to be in support of findings from a survey of American Catholics which noted that the twenty to twenty-nine-year-olds were the one age group most likely to have had some Catholic (parochial) schooling. The authors related this to the expansion of Catholic education since World War II (Andrew M. Greeley, Peter H. Rossi, and Leonard J. Pinto, The Social Effects of Catholic Education: A Preliminary Report [Chicago: National Opinion Research Center, September, 1964], Report No. 99-A, p.12 [multilithed]).

TABLE 4.20

1960 COLLEGE DEGREE POPULATION: TYPE OF ELEMENTARY AND HIGH SCHOOLS ATTENDED, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Type of School	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Public . . .	90	92	94	88	92	94	92	90
Parochial .	15	13	12	12	12	10	11	21
Other Private	7	9	9	18	8	7	11	14
Total[a] .	112	114	115	118	112	111	114	125
Base N	1,576,766	1,224,220	684,135	194,261	1,797,260	770,168	448,166	25,866
	N 3,679,382				N 3,041,460			

[a]Total exceeds 100 per cent because of multiple answers.

TABLE 4.21

1960 COLLEGE DEGREE POPULATION: TYPE OF ELEMENTARY AND HIGH SCHOOLS ATTENDED, BY AGE AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Type of School	Bachelor's						Bachelor's Plus					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Public	84	90	92	94	95	90	86	91	94	97	92	90
Parochial	25	15	15	6	5	3	17	14	11	9	8	12
Other private	3	9	6	7	7	11	11	7	8	8	9	7
Total[a]	112	114	113	107	107	104	114	112	115	114	109	109
Base N	231,978	1,292,760	981,216	563,978	213,067	91,027	136,135	692,747	591,231	384,695	135,030	54,512
	N 3,374,026						N 1,994,350					
							Under 20 38					
							Total N 1,994,388					

[a]Total exceed 100 per cent because of multiple answers.

TABLE 4.21--Continued

Type of School	Master's						Doctorate					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Public . . .	88	90	96	93	94	96	91	86	96	82	82	97
Parochial .	13	16	9	9	11	17	50	17	16	17	2	2
Other private .	6	11	10	8	11	14	58	9	6	27	34	19
Total[a] .	107	117	115	110	116	127	199	112	118	126	118	118
Base N .	19,938	305,578	339,956	303,312	124,901	38,342	105	49,185	69,737	49,862	35,152	15,993
	N 1,132,027						N 220,034					
	Under 20 274						Under 20 93					
	Total N 1,132,301						Total N 220,127					

[a]Total exceed 100 per cent because of multiple answers.

size is too small to be treated with the same degree of confidence.) This finding may have some relation to our previous discussion of father's occupation, where the advantages of high initial class positions were more pronounced for older age groups and those at the highest degree levels. It is not unreasonable to assume that such groups would also have the benefits of private schooling during their elementary or secondary education.

Financial Aid from Veterans Administration during High School

No more than 6 per cent of any degree group received financial assistance through the G.I. Bill or vocational rehabilitation during high school. At each degree level, the thirty-five to forty-four-year-old group most frequently had obtained aid, and according to Table 4.22, the likelihood of their having done so increased slightly with more education. Of course, this is the age group most likely to have used such aid since this is the age group in which most World War II veterans are concentrated. Financial aid was also more likely to have been received by men. Of the total sample, 4 per cent of the men were recipients of such aid compared to 1 per cent of the women.

TABLE 4.22

1960 COLLEGE DEGREE POPULATION: FINANCIAL AID RECEIVED FROM THE VETERANS ADMINISTRATION DURING HIGH SCHOOL ATTENDANCE, FOR THOSE 35 TO 44 YEARS OF AGE, BY EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Aid	35-44 Age Group			
	Bachelor's	Bachelor's Plus	Master's	Doctorate
Received financial aid	4	6	7	10
Base N	955,057	558,759	327,777	68,901
N			1,910,494	
NA			71,646	
Total N			1,982,140	

High-School Curriculum

About 70 per cent of all those replying to the survey (i.e., the college-educated population) had taken an academic program at the senior high-school level. More than one-fifth had studied under a general program, while the remaining possibilities of technical, vocational and commercial programs were infrequent choices. Table 4.23 indicates how curriculum was related to specialized study. Within fields of specialization, an academic program had preceded the college careers of at least 75 per cent of those who had studied psychology, social sciences, humanities, health, biological sciences, physics, and secondary education. This same program was followed by no more than one-half of those in engineering, agriculture, and physical sciences not otherwise classified.

In general, the likelihood of having taken an academic curriculum increased with level of degree.[14] This was true for both men and women, although women were consistently more likely to have followed an academic course, and the increase in academic curricula with more education was consequently not as sharp for women as it was for men. This relationship is shown in Table 4.24.

This same tendency appears when comparing age cohorts at different degree levels in Table 4.25. In addition, the proportion of general high school backgrounds is usually greatest for those sixty-five and older. Among Ph.D.'s, however, such backgrounds are most often found for those between thirty-five and forty-four and between fifty-five and sixty-four. A composite picture from a variety of data emerges for these thirty-five to forty-four-year-olds. They were more likely to have come from less socially and economically advantaged homes and to have obtained financial aid at the high school level. The relatively greater frequency with which they followed general high school curricula may be a further correlate of

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[14] Over 80 per cent of those with professional degrees had taken academic programs, compared to over one-half of those with less than bachelor's.

TABLE 4.23

1960 COLLEGE-EDUCATED POPULATION: CURRICULUM OF SENIOR YEAR IN HIGH SCHOOL, BY FIELD OF SPECIALIZED STUDY FOR HIGHEST ACADEMIC DEGREE (1960)

(Per Cent)

Curriculum	Elementary School Teaching	Secondary School Teaching	Education	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Sciences	Biological Sciences	Agricultural Sciences	Health Fields	Psychology	Social Sciences	Humanities	Technical Specialties	Other Fields
Academic . .	72	78	69	50	70	78	72	50	78	38	80	87	84	83	63	65
General . .	22	17	25	23	17	13	13	34	18	50	15	7	13	15	30	23
Technical .	1	1	2	21	6	6	11	15	1	6	2	*	1	1	5	4
Vocational .	1	1	1	3	*	1	3	1	*	6	1	4	*	*	2	1
Commerical .	3	2	2	1	6	*	*	*	4	*	2	1	2	*	1	7
Other . . .	1	1	*	2	1	1	1	1	*	*	1	1	1	*	*	1
Total .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Base N .	681,684	629,497	464,917	656,426	102,773	40,022	213,308	51,003	189,469	102,003	562,366	150,833	528,435	555,993	20,366	1,238,312

N	6,187,407
NA	108,133
Field not represented	2,115,389
Total N	8,410,929

*Less than one-half of 1 per cent.

TABLE 4.24

1960 COLLEGE DEGREE POPULATION: CURRICULUM OF SENIOR YEAR IN HIGH SCHOOL, BY SEX AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Curriculum	Men				Women			
	Bachelor's	Bachelor's Plus	Master's	Doctorate	Bachelor's	Bachelor's Plus	Master's	Doctorate
Academic . . .	54	69	71	81	76	81	88	87
General	30	18	20	15	19	15	10	7
Technical . . .	9	9	5	2	*	1	0	5
Vocational . .	2	2	1	1	1	1	*	*
Commerical . .	4	1	3	*	3	3	1	1
Other	1	1	*	*	1	1	1	*
Total . . .	100	100	100	100	100	100	100	100
Base N . .	1,530,637	1,199,687	674,117	187,435	1,771,888	758,946	443,718	25,735

N	3,591,876	N	3,000,287
NA	87,506	NA	41,173
Total N	3,679,382	Total N	3,041,460

*Less than one-half of 1 per cent.

TABLE 4.25

1960 COLLEGE DEGREE POPULATION: CURRICULUM OF SENIOR YEAR IN HIGH SCHOOL BY AGE AND EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Curriculum	Bachelor's						Bachelor's Plus					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Academic . .	70	69	66	66	60	45	81	72	75	71	78	63
General . .	18	24	24	24	29	38	9	16	15	21	16	34
Technical .	5	3	4	6	6	14	8	7	5	5	2	1
Vocational .	*	1	1	1	3	2	0	2	3	1	*	0
Commercial .	5	3	4	3	1	2	1	2	2	2	0	*
Other . . .	2	1	2	1	*	0	2	1	*	*	4	*
Total .	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N .	227,426	1,271,188	959,042	560,590	198,970	85,309	130,522	688,825	581,762	372,769	133,009	51,708

N	3,302,525	N	1,958,595
NA	71,501	Under 20 and NA	35,793
Total N	3,374,026	Total N	1,994,388

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.25--Continued

Curriculum	Master's						Doctorate					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Academic . .	70	79	77	79	80	70	100	91	72	89	76	88
General . .	28	15	16	15	17	29	0	4	23	7	21	11
Technical .	1	4	2	3	1	2	0	4	3	2	1	*
Vocational .	0	1	1	*	*	0	0	*	1	1	*	*
Commercial .	2	1	4	1	2	*	0	1	*	*	1	0
Other . . .	0	*	1	1	1	0	0	1	*	*	1	0
Total .	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N .	19,929	304,134	333,360	302,336	122,231	35,571	105	48,724	69,481	44,470	34,802	15,495

N	1,117,561	N	213,077
Under 20 and NA	14,740	Under 20 and NA	7,050
Total N	1,132,301	Total N	220,127

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

their initial disadvantages. No explanation suggests itself for the older group, and that finding itself may merely reflect sampling variations. The greater frequency of general backgrounds among older persons generally is presumably related to the greater variety of high school curricula which have become more recently available, accompanying the concentration of an increased high school population in urban centers.

Size of Graduating Class

Approximately one-half of the total college-educated population attended high schools in which their graduating class consisted of less than one hundred students. Table 4.26 gives this by degree level and shows a range from 41 per cent of those with bachelor's pluses to 51 per cent of doctorates.

Harmon, in a study of all doctorates received in 1958, found a direct relation between size of graduating class and the production of doctorates. The larger classes produced more doctorates, especially in the physical and social sciences. There was little relation between class size and doctorates in education while those in agriculture derived more frequently from small high school classes.[15] The movement to larger high school classes is, however, a relatively recent phenomenon and, in absolute terms, there are still many more small than large classes.[16] But the findings reported here have some relation to those of Harmon in two respects. According to fields of specialization, holders of doctorates

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[15] Lindsey R. Harmon, "High School Backgrounds of Science Doctorates," Science, 133, No. 3454 (March 10, 1961), p. 688.

[16] Using as the dividing point classes of less or greater than ninety (in contrast to Harmon's and our own dividing point of one hundred), in 1958, 79 per cent of the high schools in the United States had less than ninety students in their graduating classes (U. S. Department of Health, Education, and Welfare, Office of Education, Statistics of Education in the United States: 1958-59 Series, No. 1, Public Secondary Schools [Washington, D. C.: U. S. Government Printing Office, 1961], p. 50).

in elementary and secondary education were most likely to have graduated from high school classes of less than one hundred. They were followed by those in agriculture. In contrast, the various physical science specialties were least likely to have graduated from classes of such size as shown in Table 4.27.

TABLE 4.26

COLLEGE DEGREE POPULATION: SIZE OF HIGH SCHOOL GRADUATING CLASS ATTENDED, BY EDUCATIONAL ATTAINMENT (1960)

(Per Cent)

Class Size	Bachelor's	Bachelor's Plus	Master's	Doctorate
Less than fifty persons	30	24	30	31
50-99	17	17	15	20
100-199	19	21	21	14
200-299	12	12	9	13
300-399	9	8	9	4
400-499	5	7	6	7
500 and over	7	11	11	11
Total	100[a]	100	100	100
Base N	3,269,861	1,932,371	1,108,750	211,939
NA	104,165	62,017	23,551	8,188
Total N	3,374,026	1,994,388	1,132,301	220,127

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.27

1960 COLLEGE DEGREE POPULATION: PROPORTION OF THE 1960 DOCTORATES IN SELECTED FIELDS WHOSE GRADUATING HIGH SCHOOL CLASSES HAD BEEN LESS THAN 100

(Per Cent)

Class Size	Elementary School Teaching	Secondary School Teaching	Engineering	Mathematics and Statistics	Physics	Chemistry	Other Physical Science	Agricultural Science
Less than 100 .	83	81	40	45	47	45	38	65
100 or more . .	17	19	60	55	53	55	62	35
Total . . .	100	100	100	100	100	100	100	100
Base N . .	7,047	8,644	5,619	3,498	6,998	35,815	2,853	2,127

Age differences given in Table 4.28 also substantiate the relevance of Harmon's findings. Not only did the likelihood of having attended smaller classes increase with age, but (although the progression was not as even) at each age cohort this likelihood tended to decrease with more education. That is, while the total proportion coming from small classes increased with education, when controlling for age, the adverse effects of small classes on advanced degrees began to emerge at the younger age groups.

A Summary Portrait

Continuing the contrast between men and women in characteristics associated with educational attainment, women were also more likely to be unmarried, either as a result of never having married or through the dissolution of marriage through separation, divorce, or death. Related to this, women were more frequently childless and had fewer dependents in general. These variations interacted to some extent with educational attainment, so that spinsterhood, divorce, and childlessness tended to be more frequent for women with more education and tended to have the opposite relation for men.

An examination of parental occupational origin showed that the college degree population was characteristically one with high social class background. Higher degrees were more strongly associated with higher class. Women of all degree levels had even higher class origins than men.

Other characteristics of the degree population included its relative youth and the disproportionately large share of those with doctorates residing in the Middle Atlantic states.

Turning to educational background prior to college, we found that the great majority had counted public schools as at least part of their educational experience. Parochial schooling was more prominent among women and those in the youngest ages, but had little relation to degree

TABLE 4.28

1960 COLLEGE DEGREE POPULATION: SIZE OF HIGH SCHOOL GRADUATING CLASS ATTENDED, BY EDUCATIONAL ATTAINMENT AND AGE (1960)

(Per Cent)

Class Size	Bachelor's						Bachelor's Plus					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Less than 50	15	27	26	39	48	57	23	16	26	29	37	56
50-99	25	16	17	14	19	21	11	13	19	18	22	23
100-199	21	19	22	17	18	7	19	28	15	20	21	12
200-299	18	13	12	14	7	5	11	11	11	16	11	2
300-399	7	10	11	8	6	7	11	10	9	7	2	4
400-499	5	7	5	4	1	2	10	9	7	3	1	1
500 and over	9	9	8	4	3	2	16	13	14	6	6	1
Total	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	229,524	1,271,265	945,344	547,905	190,493	85,330	135,909	678,961	571,681	366,762	133,166	45,854

N	3,269,861	N	1,932,333
NA	104,165	NA	62,055
Total N	3,374,026	Total N	1,994,388

[a]Actual variations from 100 per cent are caused by rounding.

TABLE 4.28--Continued

Class Size	Master's						Doctorate					
	20-24	25-34	35-44	45-54	55-64	65 and Older	20-24	25-34	35-44	45-54	55-64	65 and Older
Less than 50 . . .	14	24	23	35	44	73	10	22	20	51	19	70
50-99 . .	9	15	14	16	20	13	0	8	12	22	51	21
100-199 .	6	18	20	27	18	11	9	18	19	9	8	7
200-299 .	4	9	9	8	10	3	82	19	11	8	19	*
300-399 .	7	15	7	6	5	*	0	4	5	4	1	*
400-499 .	3	8	10	3	1	*	0	13	12	2	1	*
500 and over . .	57	11	17	6	2	*	0	16	21	4	1	1
Total	100[a]	100	100	100	100	100	100	100	100	100	100	100
Base N	19,929	301,782	332,088	301,763	120,327	32,587	105	48,606	63,998	49,205	34,581	15,351

N	1,108,476	N	211,846
Under 20 and NA	23,825	Under 20 and NA	8,281
Total N	1,132,301	Total N	220,127

*Less than one-half of 1 per cent.

[a]Actual variations from 100 per cent are caused by rounding.

attained. In contrast, other private schooling increased with education and was especially frequent among the oldest.

Financial aid from the Veterans Administration at the high school level was slight, but was most often received by men, by those between thirty-five and forty-four, and by those with higher degrees.

Despite the variety of high school curricula presently available, the large majority of this population had followed an academic program. The likelihood of doing so increased with level of education, especially for men, since women at all degree levels were already concentrated in academic programs.

Finally, we found that the majority had graduated from small high school classes since these are by far the most common. When this was compared with Harmon's study on the relation between class size and doctorate production, some parallel interpretations could be made. Thus, like Harmon, we noted that holders of doctorates in the physical sciences were more likely than those in education to have come from large high school classes. Large high school classes were also associated with younger age of the college degree population, and when age was controlled some tendency for larger classes to be associated with higher degrees began to emerge for the younger ages.

APPENDIX 1

THE QUESTIONNAIRE

Budget Bureau No. 41-6249; Expires December 31, 1962

This inquiry is authorized by Act of Congress (13 U. S. C.). The report you submit to the Census Bureau is confidential and may be seen only by sworn Census employees. It may not be used for purposes of taxation, investigation, or regulation.

Control No. (60)

FORM 1-60 (5-1-62)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

POSTCENSAL STUDY OF PROFESSIONAL AND TECHNICAL MANPOWER

Section I - CURRENT EMPLOYMENT

In this section we are interested in finding out about your work, the people you work with, and your attitudes toward work.

A. YOUR WORK STATUS

1. What were you doing last week? *(Check one)*

1 ☐ Working full time
2 ☐ Working part time
3 ☐ With a job but not at work (on vacation, sick leave, etc.)

(Skip to Question 3)

4 ☐ Not employed, but looking for work
5 ☐ Not in labor force (retired, housewife, student, etc.)

(Go to Question 2)

2. If you were not working last week, when did you last work? *(Answer and go to Section II beginning on Page 4)* . . . . . Month | Year

OR 0 ☐ Never worked *(Skip to Page 6, Section III)*

ANSWER QUESTIONS 3–7 IN TERMS OF YOUR MAJOR CURRENT EMPLOYMENT ONLY

DO NOT WRITE HERE

3. YOUR JOB OR BUSINESS

a. For whom did you work last week? *(Name of company, business, organization or other employer.)*

b. In what kind of business, industry, or organization were you working? (For example: city hospital, state university, road construction firm, county junior high school.)

c. Were you working - - *(Check one)*

1 ☐ **For a PRIVATE employer for wages, salary, commission or tips?**
2 ☐ **For GOVERNMENT?** (Federal, State, local, public school system, etc.)

(Go to Question d)

3 ☐ **In OWN business or profession or farm for profit or fees?**
4 ☐ **WITHOUT PAY on family farm or business?**

(Skip to Question e)

(If 1 or 2 checked in Question c):

d. What is your current yearly salary rate? *(Omit cents)* . . . . . Salary rate $ .00

e. What kind of work were you doing? (For example: civil engineer, nuclear physicist, professor of economics, 9th grade social studies teacher.)

f. In what field of specialization was this? *(Fill in the code number from the enclosed list which best describes your field.)* Code

g. If you were working in a subspecialty within this field, what was it called?

h. Describe what you did in your job. (For example: "Designer of electronic mechanisms in the industrial instrument industry; supervise six other engineers whom I have hired for my unit; prepare reports on the work of my unit.")

i. What was the formal title of your job?

4. How many hours a week do you work in this job or business? . . . . . Hours per week

5. How many years have you been working in this company, business or organization? . . . . . No. of years

OR 0 ☐ Less than one year

(Section I continued)

6. How many weeks did you work in 1961 at all jobs, either full-time or part-time?
(Count paid vacation, paid sick leave, and military service as weeks worked.) (Check one)

1 ☐ 13 weeks or less
2 ☐ 14 to 26
3 ☐ 27 to 39
4 ☐ 40 to 47
5 ☐ 48 to 49
6 ☐ 50 to 52

OR 0 ☐ Did not work in 1961

7. YOUR EARNINGS IN 1961:

a. How much did you earn in 1961 in salary and commissions from your major position (before taxes and other deductions)? If you did not work the entire year at this job, give what would have been your yearly salary.

OR - - IF YOU ARE SELF-EMPLOYED:

How much did you earn in 1961 in profits or fees from working in your own business, professional practice or partnership (net income after business expenses)?

Amount
$ .00
(Estimate to the nearest hundred dollars) (Omit cents)

OR 0 ☐ None

b. **In addition to your major position, did you receive any earnings in 1961 from any of the following sources?**
(Check as many as apply)

1 ☐ Consulting
2 ☐ Publications
3 ☐ Lectures
4 ☐ Other professional activities
5 ☐ Other secondary job

Estimate to the nearest hundred dollars the amount you received from all of these sources in 1961 (before taxes and other deductions but after deducting any business expenses).

Amount
$ .00
(Omit cents)

OR 0 ☐ None

B. YOUR ACTIVITIES

8. Here is a list of activities which may be part of your work in your major current position.

(Please check all activities which you perform in this position.)

Code No.

01 ☐ Teach courses
02 ☐ Recruit, train people in the organization
03 ☐ Engage in basic research
04 ☐ Engage in applied research, or product development
05 ☐ Administering or supervising research or development
06 ☐ Consult or advise clients or customers on technical matters
07 ☐ Make drawings, blueprints, models
08 ☐ Make forecasts, estimate markets
09 ☐ Exploration; or field work
10 ☐ Design or modify equipment, machinery, processes of production
11 ☐ Supervise the work of assistants or subordinates
12 ☐ Quality control; set precision standards
13 ☐ Public relations, publicity work, speeches
14 ☐ Budgeting, costing, controlling, allocating expenditures
15 ☐ Test new or experimental equipment

Code No.

16 ☐ Travel
17 ☐ Constructing equipment, apparatus, prosthetic devices
18 ☐ Treating patients
19 ☐ Counseling clients, students
20 ☐ Supervising production or construction
21 ☐ Writing technical and general reports on projects
22 ☐ Coordinating activities of professionals at my level in the organization
23 ☐ Keep records
24 ☐ Statistical analysis
25 ☐ Technical sales
26 ☐ Negotiating contracts or raising funds
27 ☐ Briefing superiors on my work
28 ☐ Plan future operations
29 ☐ Compile and annotate bibliography; search and select literature
30 ☐ Other. **What?** _____

9. Of all those you checked above, which TWO do you spend the most time doing?

(Fill in their code numbers and write in the approximate percent of total time spent in each of these activities.)

Activity	Code number	Percent of time
FIRST		%
SECOND		%

C. PEOPLE YOU WORK WITH

10. **About how many people work in the smallest organizational unit to which you belong in the business, industry, or organization in which you work?**
Elementary and secondary teachers: check the number of teachers in your school. *(Check one)*

1 ☐ Less than 10
2 ☐ 10 to 24
3 ☐ 25 to 49
4 ☐ 50 to 99
5 ☐ 100 to 249
6 ☐ 250 to 499
7 ☐ 500 or more

11. **How many employees are DIRECTLY responsible to you?** *(Include both professional and nonprofessional.)*

Number of people

OR 0 ☐ None

12. **Are you - -** *(Check one)*

1 ☐ An administrator (concerned mainly with policy making, planning, overall supervision)
2 ☐ A supervisor (concerned mainly with technical matters)
3 ☐ A coordinator (concerned mainly with liaison)
4 ☐ Other (not mentioned)

13a. **Do you - -** *(Check as many as apply)*

Code No.

1 ☐ Work with other specialists in your field
2 ☐ Work individually, with little or no consultation with others
3 ☐ Work as an individual consultant to others
4 ☐ Work as a member of a team made up of specialists from your field and other fields
5 ☐ Work as a member of a team made up of specialists in other fields
6 ☐ Other. **What?** _____

b. **Of all those you checked above, which ONE do you spend the most time doing?** *(Write in the box the code number from 13a.)* Code

14. This question is about your immediate supervisor. If you have no immediate supervisor check here ☐ 0 and skip to Question 15

DO NOT WRITE HERE

a. **What kind of work does he do?** (For example: civil engineer, nuclear physicist, professor of economics, junior high school principal.)

b. **In what field of specialization does he work?** *(Fill in the code number from the enclosed list.)* Code

D. ATTITUDES TOWARD WORK

15. Listed below are some characteristics which occupations may have.

a. Please indicate by checking the appropriate box how important each one is to you.

b. Also check the appropriate box to indicate how well your current major employment satisfies you with respect to each characteristic.

Occupational Characteristics		a. Importance to you			b. Degree of satisfaction		
		Very (1)	Somewhat (2)	Little or none (3)	Very (4)	Somewhat (5)	Little or none (6)
Opportunity to be original and creative	1						
Opportunity to be helpful to others or useful to society	2						
Relative independence in doing my work	3						
A chance to exercise leadership	4						
A nice community or area in which to live	5						
Opportunity to work with things	6						
Social standing and prestige in my community	7						
A chance to earn enough money to live comfortably	8						
Pleasant people to work with	9						
Freedom from pressures to conform in my personal life	10						
Opportunity to work with people	11						
Freedom to select areas of research	12						
Opportunity to work with ideas	13						

E. CURRENT ADDITIONAL JOR OR BUSINESS

(Defined as a job not with your primary employer)

16. Did you have a second regular job or business last week? *(Exclude any work with your major current employer.)*

1 ☐ Yes 2 ☐ No *(Skip to Section II)*

DO NOT WRITE HERE

17. In your second regular job or business:

a. What kind of business, industry, or organization were you working in?
(For example: city hospital, state university, road construction firm, retail drug store.)

b. Were you working - - *(Check one)*

1 ☐ For a PRIVATE employer for wages, salary, commission or tips?
2 ☐ For GOVERNMENT? (Federal, State, local, public school system, etc.)
3 ☐ In OWN business or profession or farm for profit or fees?
4 ☐ WITHOUT PAY on family farm or business?

c. What kind of work were you doing?
(For example: medical technician, research assistant in chemistry, civil engineer, sales clerk.)

d. In what field of specialization did you work? *(Fill in the code number which best describes your field from the enclosed list.)* Code

18a. Does your additional job involve - - *(Check one)*

1 ☐ Year-round employment 2 ☐ Seasonal employment only

b. How many hours a week do you usually work in this job or business? Hours per week

Section II - PAST EMPLOYMENT

In this section we are interested in your past work history, especially your work situation in April 1960 (when the Decennial Census was taken) and your first full-time job after reaching age 24.

A. APRIL 1960

1. What were you doing in April 1960? *(Check one)*

1 ☐ Working (include part-time work) *(Skip to Question 3)*
2 ☐ With a job but not at work (on vacation, sick leave, etc.) *(Skip to Question 3)*
3 ☐ Looking for work *(Go to next question)*
4 ☐ Retired (i.e., on pension, annuity, etc.) *(Go to next question)*
5 ☐ Keeping house *(Answer next Questions)*
6 ☐ Student *(Answer next Questions)*
7 ☐ Unable to work *(Answer next Questions)*
8 ☐ Other *(Specify)* *(Answer next Questions)*

DO NOT WRITE HERE

2. When did you last work full time before April 1960 in your most recent field of specialization? Month Year

3. YOUR JOB OR BUSINESS:

a. In April 1960, or on date you indicated in Question 2, for whom did you work?
(Name of company, business, organization or other employer.)

b. What kind of business or industry were you working in? (For example: city hospital, state university, road construction firm, county junior high school.)

c. Were you working - - *(Check one)*

1 ☐ For a PRIVATE employer for wages, salary, commission or tips?
2 ☐ For GOVERNMENT? (Federal, State, local, public school system, etc.)
3 ☐ In OWN business or profession or farm for profit or fees?
4 ☐ WITHOUT PAY on family farm or business?

d. What kind of work were you doing? (For example: civil engineer, nuclear physicist, professor of economics, 9th grade social studies teacher.)

e. In what field of specialization did you work? *(Fill in the code number which best describes your field from the enclosed list.)* Code

(Section II continued)

3. f. **Describe what you did in your job.** (For example: "Designer of electronic mechanisms in the industrial instrument industry; supervise six other engineers whom I have hired for my unit; prepare reports on the work of my unit.")

DO NOT WRITE HERE

g. **How many years did you work in this company, business, or organization?** — No. of years

B. WAS YOUR FULL-TIME CIVILIAN JOB HELD UPON REACHING AGE 24 OR IF NOT WORKING, THEN THE FIRST ONE HELD THEREAFTER THE SAME AS YOU DESCRIBED IN QUESTION 3?

☐ Check here if you are now under age 24 and skip to Part C, General Employment

☐ Yes *(Skip to Part C, General Employment)*

☐ No *(Go to Question 4)*

4. **In what year did you enter this job (the job held upon reaching age 24 or the first one held thereafter)?** — Year

DO NOT WRITE HERE

5. a. **What kind of business, industry, or organization were you working in?** (For example: city hospital, state university, road construction firm, county junior high school.) — Kind of business

b. **Were you working at that time - - *(Check one)***

1 ☐ **For a PRIVATE employer for wages, salary, commission or tips?**

2 ☐ **For GOVERNMENT?** (Federal, State, local public school system, etc.)

3 ☐ **In OWN business or profession or farm for profit or fees?**

4 ☐ **WITHOUT PAY on family farm or business?**

c. **What kind of work were you doing?** (For example: civil engineer, nuclear physicist, professor of economics, 9th grade social studies teacher.) — Kind of work

d. **In what field of specialization was this?** *(Fill in the code number which best describes your field from the enclosed list.)* — Code

e. **Describe what you did in your full-time job at that time:**

6. **How many years did you work in this company, business, or organization?** — No. of years

C. GENERAL EMPLOYMENT

(If you are presently working (either full-time or part-time) please answer Questions 7 to 10.)
(If you are not now working please answer only Questions 9 and 10.)

7. **How many years have you ever worked either full-time or part-time in your present field of specialization?** — No. of years

8. **How many different employers have you ever had in your present field of specialization?** — No. of employers

9. **Are there any other fields of specialization in which you worked for at least one year besides those you have already listed?**

(Fill in their code numbers from the enclosed list.) →

Field	Code
FIRST	
SECOND	

10. **Did you ever work full-time for at least six months in any of the following?** *(Check as many as apply)*

01 ☐ Federal Government (includes all civilian employees of Federal Government agencies; also Federal hospitals. Does not include military service.)
02 ☐ State or local government (includes state or municipal hospitals, but excludes public schools or universities)
03 ☐ Public college or university
04 ☐ Private college or university
05 ☐ Public elementary or secondary school
06 ☐ Private elementary or secondary school
07 ☐ Research organization or institute (except government or university)
08 ☐ Hospital, clinic, welfare organization (except government)
09 ☐ Professional partnership
10 ☐ Other private business or industry
11 ☐ Independent consulting work
12 ☐ Other self-employment
13 ☐ Foreign government or international agency
14 ☐ Career in Armed Forces
15 ☐ Other (not mentioned) *(Specify)*

Section III - YOUR TRAINING

1. How many years of education and formal training have you had? *(Check the highest year completed)*

Never attended school . . . . . ☐ 0

Elementary and high school . . . . . ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

All schools attended beyond the high school level, including college, technical institute, etc. (academic years) . . . . . ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more

2. Which of the following types of elementary and high schools did you attend? *(Check as many as apply)*

1 ☐ Public 2 ☐ Parochial 3 ☐ Other private

3. While you attended high school, did you receive any G.I. Bill or Vocational Rehabilitation financial aid from the U.S. Veterans Administration?

1 ☐ Yes 2 ☐ No 3 ☐ Never attended high school *(Skip to 6)*

4. During your senior year in high school, was your curriculum - - *(Check one)*

1 ☐ Academic
2 ☐ General
3 ☐ Technical
4 ☐ Vocational
5 ☐ Commercial
6 ☐ Other *(Specify)* _____
7 ☐ Did not attend through senior year *(Skip to 6)*

5. How large was your high school graduating class? *(Check one)*

1 ☐ Less than 50
2 ☐ 50 to 99
3 ☐ 100 to 199
4 ☐ 200 to 299
5 ☐ 300 to 399
6 ☐ 400 to 499
7 ☐ 500 or more
8 ☐ Did not graduate

6. List below in order of attendance, each institution from which you obtained or are currently obtaining formal training beyond the high school level, and give the other information as requested.

NOTE: If training was taken abroad, enter the name of the foreign country under "Location".

Use a separate line for each degree granted, worked for, or for any change in major field of specialized study. Refer to the enclosed list for the code numbers of fields of specialized study.

Institution		Major field of study (Code)	Year work ended	Type of degree granted (if any)	No. of months of study completed		
Name	Location (State)				Total number of months	With G.I. Bill or Voc. Rehab. aid from VA	
						Yes (No. of months)	No (Check)
1.			19__				
2.			19__				
3.			19__				
4.			19__				

7. How did you finance this post-high school training? *(Check as many as apply)*

Source		Undergraduate (1)	Graduate or professional (2)
A scholarship or fellowship* from:			
College or university	01	☐	☐
Federal agency:			
National Science Foundation	02	☐	☐
Public Health Service - National Institutes of Health	03	☐	☐
Office of Education	04	☐	☐
Other *(Specify)* _____	05	☐	☐
A research or teaching assistantship	06	☐	☐
Loans	07	☐	☐
Own earnings from employment while attending school (excluding assistantship)	08	☐	☐
Own savings from previous employment (including that earned between school terms)	09	☐	☐
Employer paid for the training	10	☐	☐
Aid from my parents, relatives, spouse, or spouse's parents	11	☐	☐
Veterans Administration Benefits: G.I. Bill or Vocational Rehabilitation	12	☐	☐
Other sources	13	☐	☐
(WRITE IN THE BLANKS THE CODE NUMBER OF THE SINGLE MOST IMPORTANT SOURCE.)		_____	_____

* Defined as a financial grant for which no services are required; does not include loans which require repayment.

(Section III continued)

8. Which of the following items listed below contributed most significantly to your becoming qualified for your present job? *(Check as many as apply)*

V ☐ Check here if you are not currently employed

1 ☐ Experience in present or related field of employment

2 ☐ Course work at a college or university without a degree

3 ☐ Acquired a B.A., B.Sc., etc.

4 ☐ Acquired a graduate or professional degree

5 ☐ Course work at a technical institute

6 ☐ Course work at Junior or Community College

7 ☐ Post-high school courses at a vocational or technical high school

8 ☐ Correspondence courses

9 ☐ Special training or courses given by employer

0 ☐ Other *(Please specify)* _____

_____

9. Do the qualifications for your present job require a license or a certificate?

1 ☐ Yes → 2 ☐ No *(Skip to Question 11)*

10a. Do you presently have such a license or certificate?

1 ☐ Yes → 2 ☐ No *(Skip to Question 11)*

b. Is this a standard license or certificate representing full qualifications?

1 ☐ Yes 2 ☐ No

11. Have you ever received or are you currently receiving any of the following types of training?

1 ☐ Yes

2 ☐ No *(Skip to Question 12)*

Code No.

01 Apprenticeships

02 Company training programs (other than apprenticeships)

03 Military training applicable to civilian occupations

04 On-the-job training

05 High school extension courses

Code No.

06 Home study correspondence courses

07 Agricultural training courses

08 United States Armed Forces Institute courses

09 Work-Study Programs

10 Workshops, Seminars, etc.

(If "Yes," give the name of the organization or institution providing this training received and enter the other information as requested. Do not repeat the training listed in Question 6, Page 6.)

Name of sponsoring institution or organization	Type of training *(Code No. from above list)*	Subject of training	Weeks of training	Year ended	Did you complete this course?		With G.I. Bill or Voc. Rehab. aid from VA	
					Yes	No	Yes	No
				19___				
				19___				
				19___				
				19___				
				19___				
				19___				

12. This question is for United States Veterans of World War II or the Korean Conflict.

☐ Not a veteran of either *(Check here and go to Section IV)*

a. Did you receive any formal vocational counseling, including aptitude testing, from - - *(Check one)*

1 ☐ Veterans Administration or VA Guidance Center

2 ☐ A source other than VA

3 ☐ Both VA and other source

(Please answer "b")

4 ☐ Never had any such vocational counseling *(Please skip to Section IV)*

b. Was this counseling significantly useful to your career?

1 ☐ Yes 2 ☐ No

Section IV - BACKGROUND INFORMATION

In order to aid us in interpreting the information elsewhere in the questionnaire, we need now to know something about your background and personal characteristics.

1. Age (at last birthday) . . . . . Years

2. Sex — 1 ☐ Male 2 ☐ Female

3. Citizenship: *(Check one)*

1 ☐ Citizen of the United States

2 ☐ Not a citizen of the United States but have taken out first citizenship papers

3 ☐ Not a citizen of the United States and have not taken out papers for citizenship

4. Where is your residence? . . . . . State County

5. Where did you grow up? *(Where did you live most of the time before age 16?)*

1 ☐ In a large city (100,000 population or more)

2 ☐ In a suburb near a large city

3 ☐ In a small or middle-sized city or town (under 100,000 population) but not in a suburb of a large city

4 ☐ Open country (not on a farm)

5 ☐ On a farm

DO NOT WRITE HERE

6. What kind of work did your father do when you were about 16 years old?
(For example: 8th grade English teacher, paint sprayer, farm hand, civil engineer.)

7. How many people (including your spouse, children or other relatives, as applicable) are now financially dependent upon you? Number of people

8a. What is your present marital status?

1 ☐ Never married *(Skip to Question 9)*

2 ☐ Married

3 ☐ Separated or divorced

4 ☐ Widowed

b. How many children do you have?
(Enter the number in the appropriate spaces.)

If none, check here . . . . . 0 ☐

Children	Boys	Girls
1. Under 5 years		
2. 5 through 10 years		
3. 11 through 18 years		
4. Over 18 years		

9. Are you currently a member of any professional society or association?
(For example: American Physiological Society, Michigan Engineering Society, New Orleans Academy of Sciences.)

1 ☐ Yes — Please list the names of all these organizations.

2 ☐ No *(Go to Question 10)*

10. Have you published any professional articles or books OR have you delivered any papers at professional meetings?

1 ☐ Yes 2 ☐ No

Please use this space to further explain any of the preceding answers.

FOR CENSUS USE ONLY	A.	B.	C.

APPENDIX 2

NUMBER OF CASES AND WEIGHTS ASSIGNED, BY SAMPLE GROUP

TABLE A-2.1

NUMBER OF CASES AND WEIGHTS ASSIGNED BY SAMPLE GROUP FOR THE POSTCENSAL STUDY OF PROFESSIONAL AND TECHNICAL MANPOWER

Sample Number	Occupation	Age Group[a]	Number of Cases	Weights Assigned
Total Number of Cases -- 49,082				
1	Chemists	1	126	58
		2	1,539	44
		3	158	43
2	College presidents, deans, etc.	1	35	51
		2	667	43
		3	193	42
3	Professors, natural science	1	126	33
		2	1,454	21
		3	274	19
4	Professors, social science	1	34	39
		2	910	29
		3	191	32
5	Professors, engineering	1	83	9
		2	1,203	6
		3	224	7
6	Professors, subject not specified	1	58	92
		2	636	60
		3	159	54
7	Engineers, aeronautical	1	79	43
		2	1,274	36
		3	33	61
8	Engineers, chemical	1	60	56
		2	858	40
		3	60	47
9	Engineers, civil	1	64	159
		2	1,040	116
		3	223	128
10	Engineers, electrical	1	129	92
		2	2,167	70
		3	210	83

[a]Age groups, 1960: 1, under 25; 2, 25 to 54; 3, 55 and over.

TABLE A-2.1--Continued

Sample Number	Occupation	Age Group[a]	Number of Cases	Weights Assigned
11	Engineers, industrial	1	44	88
		2	1,272	66
		3	127	71
12	Engineers, mechanical	1	60	138
		2	1,176	112
		3	148	132
13	Engineers, metallurgical	1	35	41
		2	611	25
		3	69	25
14	Engineers, mining	1	20	29
		2	607	16
		3	72	21
15	Engineers, sales	1	22	85
		2	567	88
		3	81	89
16	Engineers, NEC[b]	1	66	60
		2	1,616	43
		3	265	44
17	Foresters	-	801	14
18	Librarians	-	1,223	22
19	Agricultural scientists	1	88	9
		2	1,178	5
		3	201	5
20	Biologists	1	190	7
		2	2,101	5
		3	203	4
21	Geologists	1	31	24
		2	1,202	15
		3	114	12

[a]Age groups, 1960: 1, under 25; 2, 25 to 54; 3, 55 and over.

[b]NEC = not elsewhere classified.

TABLE A-2.1--Continued

Sample Number	Occupation	Age Group[a]	Number of Cases	Weights Assigned
22	Mathematicians	1	177	8
		2	1,105	5
		3	31	9
23	Physicists	1	110	10
		2	1,505	8
		3	76	9
24	Miscellaneous natural scientists	1	32	9
		2	697	4
		3	55	5
25	Economists	1	29	38
		2	655	23
		3	103	25
26	Psychologists	1	57	11
		2	1,367	7
		3	125	8
27	Statisticians	1	66	37
		2	566	27
		3	65	43
28	Miscellaneous social scientists	1	36	5
		2	459	6
		3	103	5
29	Elementary teachers	-	1,966	426
30	Secondary teachers	1	151	326
		2	1,653	235
		3	378	219
31	Managers, selected industries	-	569	662
32	Experienced civil labor force, remaining females, age 20 to 54	-	462	1,632

[a]Age groups, 1960: 1, under 25; 2, 25 to 54; 3, 55 and over.