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What's it Worth?



**Educational
Background and
Economic Status:
Spring 1990**

by Robert Kominski and
Rebecca Sutterlin

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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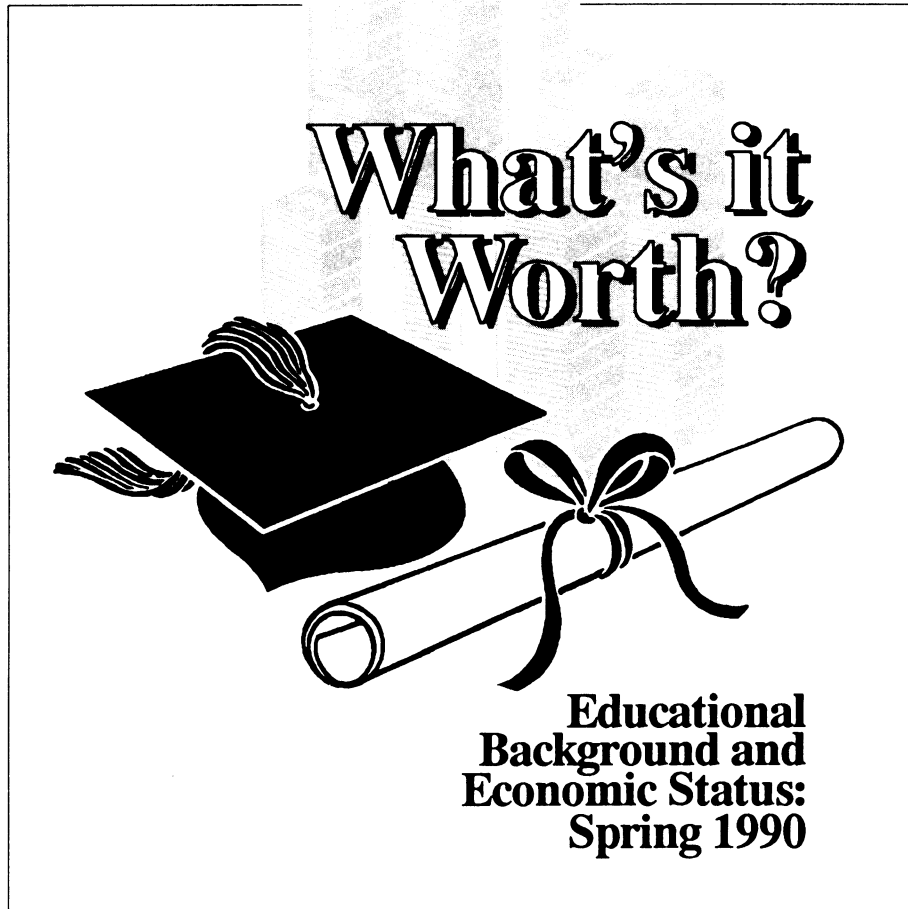
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Contents

	Page
Highlights	1
Introduction	1
Degree Attainment of the Population	2
Degree Level and Economic Status	2
Degrees and Fields of Study	4
Fields of Study and Economic Status	5
Time Spent to Earn a Degree	6
Degrees, Fields, and Occupations	7
Work-Related Training	10

TEXT TABLES

A. Average Monthly Earnings by Educational Level, Sex, and Race: Spring 1987 (Adjusted) and Spring 1990	5
B. Average Monthly Earnings for Bachelor's Degree Holders, by Field: Spring 1987 (Adjusted) and Spring 1990	6
C. Average Time Spent Earning Advanced Degrees by Gender: Spring 1990	7
D. Percentage in Primary Occupation by Degree for Persons 18 to 64: Spring 1990	9

FIGURES

1. Educational Attainment, by Race, Sex, and Hispanic Origin for Persons 18 Years and Over: Spring 1984 and Spring 1990	3
2. Educational Attainment, by Age Group for Persons 18 Years and Over: Spring 1984 and Spring 1990	3
3. Occupational Distribution of Advanced and Bachelor's Degree Holders: Spring 1990	8

DETAILED TABLES

1. Highest Degree Earned, by Sex, Race, Hispanic Origin, and Age: Spring 1990	13
2. Four-Month Average Income, Earnings and Work Activity, and Educational Attainment, by Sex, Race, Hispanic Origin, and Age: Spring 1990	14
3. Highest Degree and Field of Degree, by Sex, Race, Hispanic Origin, and Age for Persons with Post-Secondary Degrees: Spring 1990	17
4. Average Monthly Income, Earnings and Work Activity, by Level and Field of Degree: Spring 1990	21
5. Time Spent Earning Bachelor's Degree in Years by Field of Degree, Sex, Race, Hispanic Origin, and Age: Spring 1990	22
6. Primary Occupation by Degree and Field for Persons 18 to 64 Years: Spring 1990 ..	23
7. Characteristics of Persons Having Received Work-Related Training: Spring 1990 ...	27

APPENDIXES

A.	Overview of the SIPP Program	A-1
	Background	A-1
	Survey Content.....	A-1
	Sample Design	A-2
	Survey Operations	A-2
B.	Definitions and Explanations	B-1
C.	Source and Accuracy of Estimates	C-1
	Source of Data.....	C-1
	Weighting Procedure	C-2
	Accuracy of Estimates.....	C-2
	Uses and Computation of Standard Errors.....	C-3
D.	Data Quality.....	D-1
E.	Facsimiles of Questionnaires	E-1

APPENDIX TABLES

A-1.	Interview and Reference Periods for the Second Wave of the 1990 SIPP Panel	A-2
C-1.	Household Sample Size by Month and Interview Status	C-1
C-2.	SIPP Generalized Variance Parameters	C-4
C-3.	Standard Errors of Estimated Numbers of Persons.....	C-4
C-4.	Standard Errors of Estimated Percentages of Persons.....	C-5
D-1.	Imputation Rates for Selected Education and Training History Items	D-1

What's It Worth? Educational Background and Economic Status: Spring 1990

Highlights

- About 25.2 percent (± 4) of the adult population in 1990 had obtained a degree beyond the high school level; this is a significant increase over the levels of 20.7 (± 4) in 1984 and 23.3 percent (± 5) in 1987.
- While 19.4 percent (± 4) of Whites had not completed high school, 31.9 percent (± 1.0) of Blacks were not high school graduates. An even greater proportion of Hispanics, 43.8 percent (± 1.6), did not have a high school diploma.
- Across race and sex groups, since 1984, there was a general increase in the proportion of persons with a degree beyond high school, and a decrease in the proportion who had not completed high school.
- Of all persons with degrees beyond high school, the highest mean monthly incomes were reported by persons with professional degrees, \$5,554 (± 731).
- On average, Blacks earn significantly less than Whites at each educational level except at the Master's level where there is no significant difference. (There are not enough cases at the professional and doctorate levels to make a comparison.)
- The greatest concentration of degrees was in business. Of all individuals reporting post-secondary degrees, 19.2 percent (± 7) were in the field of business.
- A large proportion of all professional/doctorate degrees, about 56 percent (± 3.3), were composed of just two fields: law and medicine/dentistry. On the other hand, around 47 percent (± 2.1) of all master's degrees were in the fields of education and business/management.
- While 15 percent (± 9) of highest earned degrees held by men were in the field of engineering, only 2 percent (± 3) of degrees held by women were in this field.
- Controlling for inflation, no single educational level experienced a significant increase in average monthly earnings in the period from 1987 to 1990, despite a slight increase in the earnings for the total population.
- The average monthly earnings for persons with a bachelor's degree was \$2,116 (± 66). Variation by field ranged from \$906 (± 250) for home economics majors to \$2,953 (± 216) for engineering majors.
- While 3 out of 4 adults with a bachelor's degree completed their degree within six calendar years of high school graduation, only 43.2 percent (± 1.0) finished their degree in 4 years or less. The average time to complete a bachelor's was 6.21 (± 1.1) years after high school completion.
- The proportion completing a bachelor's degree within four years after completing high school varies by race and gender. About 44 percent (± 1.1) of Whites obtained a bachelor's degree within 4 years of high school graduation compared to around 33 percent (± 3.4) of Blacks. A higher proportion of women (49 percent, ± 1.5) completed the bachelor's within 4 years than did men (38 percent, ± 1.3).
- The majority of advanced degree holders held either a professional specialty occupation (57.3 percent, ± 1.9) or an executive, administrative, or managerial position (20.1 percent, ± 1.5).
- About one in four persons between the ages of 18 and 64 reported that they had, at some time, received training designed to help find a job, improve job skills, or learn a new job. A large proportion of these individuals (34.0 percent (± 9)) had obtained the training on their current job.
- Whites (26.2 percent, ± 5) were more likely to have received work-related training at some time than were Blacks (23.7 percent, ± 1.0). Only about 17.8 (± 1.3) percent of Hispanic persons had at some time received work training.

INTRODUCTION

This report presents tabulations from the Survey of Income and Program Participation (SIPP) regarding the educational attainment and associated social, economic, and demographic characteristics of the population of the United States. Education is often measured by the number of years of schooling an individual has completed. In this report, educational attainment is based on formal degrees received and the field of study in which the degrees were obtained. The primary tabulations in this report show numbers of persons by their highest attained degree and the field of the degree, along with some basic measures of their current economic status. Another tabulation provides information about the type

of work-related training programs in which individuals have been involved. This report also includes tabulations not available in previous versions. The new tabulations show the number of persons by highest degree, field, and current occupation, as well as some information on the average length of time spent in obtaining bachelor's and higher degrees.

This analysis is based on data collected as part of the second wave (interview) of the 1990 SIPP panel. These data were gathered in the 4-month period from June through September 1990. The text and several tabulations follow the same format as two previous reports of the same title in this series (P-70, No. 11; P-70, No. 21). Some comparisons between 1984, 1987, and 1990 are reported throughout the text.

DEGREE ATTAINMENT OF THE POPULATION

Table 1 presents data on degree status by sex, race, and age for the United States population 18 years and older. Degree status as discussed in this report has been defined to include the following mutually exclusive categories: persons who have not completed high school, those completing high school only, persons who have attended post-secondary school but did not receive a degree, persons with vocational degrees and certificates, associate degrees, bachelor's degrees, master's degrees, professional degrees, and doctorate degrees. [NOTE: Individuals were asked to identify their "highest" degree, and their implicit ordering of degrees was not examined. Whether one degree actually represents "more" education than some other degree is not at issue; while data may show the highest value on some scale (say, income) for one degree, the same degree could result in less than the highest score on another scale (e.g., years to complete the degree).]

Degree attainment is increasing among the adult population. In 1990, the largest proportion of the adult population reported a high school diploma as the highest degree (53.9 percent). One out of three people with a high school diploma as their highest degree had also attended, but not received a degree from, a postsecondary institution. A sizable proportion of the adult population, 20.8 percent, reported not completing high school. Figure 1 shows a decline since 1984 in the proportion of the population without a high school diploma. One adult in four, 25.2 percent, obtained a degree of some type beyond high school; this was an increase over the 20.7 percent and 23.3 percent observed in 1984 and 1987, respectively.

Figure 1 summarizes the distribution of attainment categories for some major demographic subgroups in 1984 and 1990. In 1990, while 27.0 percent of men held degrees above the high school level, only 23.7 percent of women held degrees. Women were less likely than men to have an advanced degree, but more likely to have an associate or vocational degree.

The difference between Whites and Blacks was substantial: 26.4 percent of Whites held degrees beyond high school, compared with 14.0 percent of Blacks. Furthermore, a much larger proportion of Blacks than Whites had not completed high school (31.9 percent vs. 19.4 percent). The proportion of the Hispanic population holding degrees beyond high school (11.6 percent) was below that of both the total White population and the total Black population. (NOTE: Persons of Hispanic origin may be of any race.) In addition, the proportion of Hispanics without a high school diploma (43.8 percent) was much greater than that of Whites (19.4 percent) or Blacks (31.9 percent).

Examining the data by age groups (figure 2) shows the change in the education of the adult population that has taken place over the last half-century, as well as in the last 6 years. (The 18 to 24 age group has lower levels than might be expected because this group has not completed its schooling.) While about 14.8 percent of persons over age 64 had a degree beyond high school, 31.3 percent of 25 to 34 year-olds had already obtained a degree. On the lower end of educational attainment, only 12.5 percent of persons 25 to 34 had not completed high school, compared with 28.6 percent of those aged 55 to 64 and 42.1 percent of persons 65 and older.

Figures 1 and 2 also show educational attainment levels as estimated in the 1984 SIPP. Comparing 1984 to 1990 for each of the groups age 25 and above, the data show a general pattern of increase in the proportion of persons holding degrees and a corresponding decrease in the proportion not completing high school. The same pattern is apparent for the race and gender groups shown. We have no comparable data from 1984 for persons of Hispanic origin.

DEGREE LEVEL AND ECONOMIC STATUS

Independent of the personal enrichment and value that one derives from additional schooling, it is often assumed that there is positive economic return associated with the attainment of higher education. For example, a specific degree may be a formal requirement for a job or promotion which in turn may lead to a financial gain.

Table 2 shows three basic measures of economic status for the degree categories previously described. The first of these is mean monthly income, defined as the total income received by the person during the 4 observation months of the survey, divided by four. Income includes wages and salary, as well as any other money income (i.e., pensions, paid benefits, interest, and dividends). The second measure, mean monthly earnings, is computed as the total of all earnings over the 4-month period divided by the number of months in which earnings were actually received. Earnings refers

Figure 1.
**Educational Attainment, by Sex, Race, and Hispanic Origin for Persons
 18 Years and Over: Spring 1984 and Spring 1990**

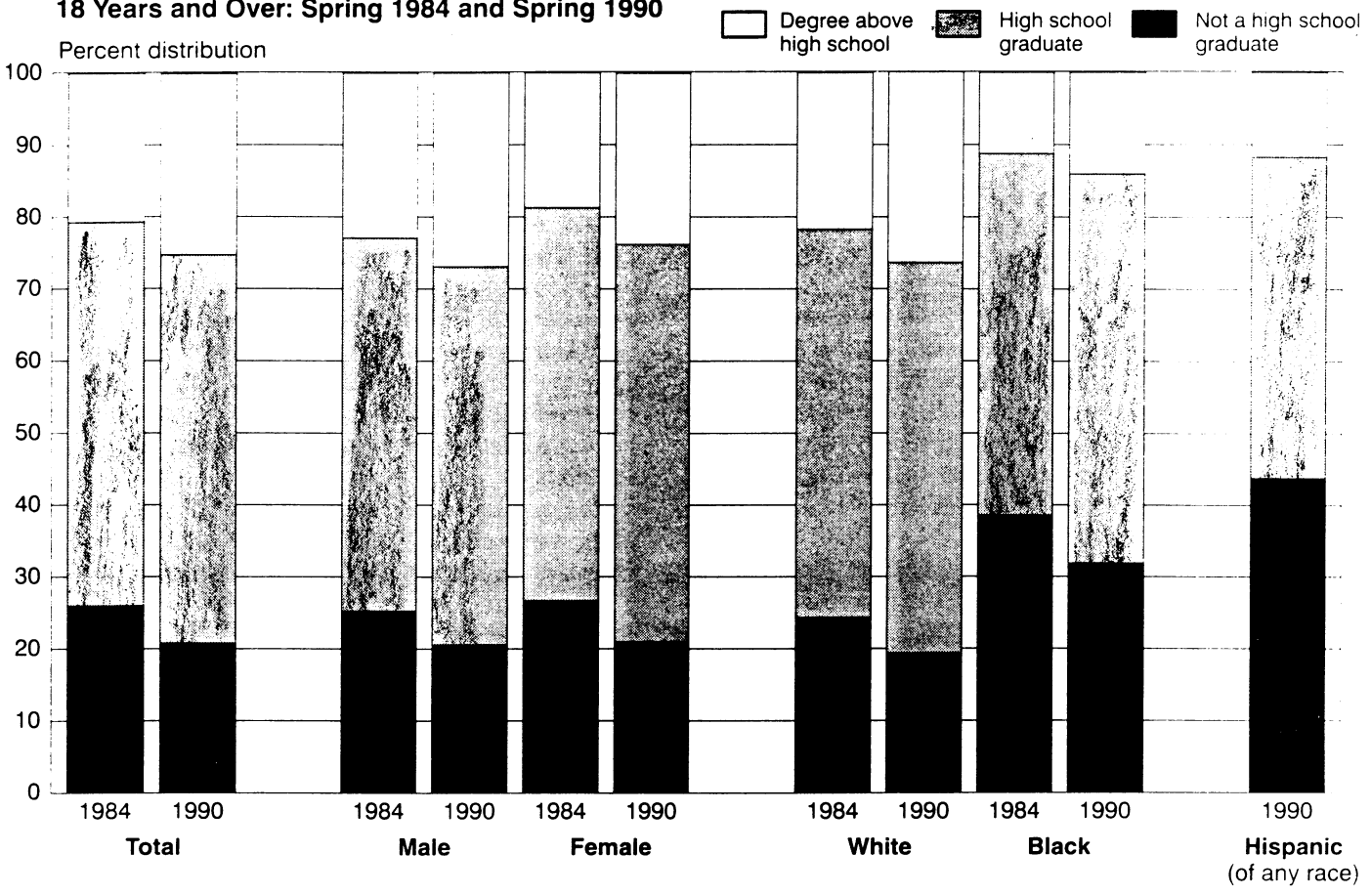
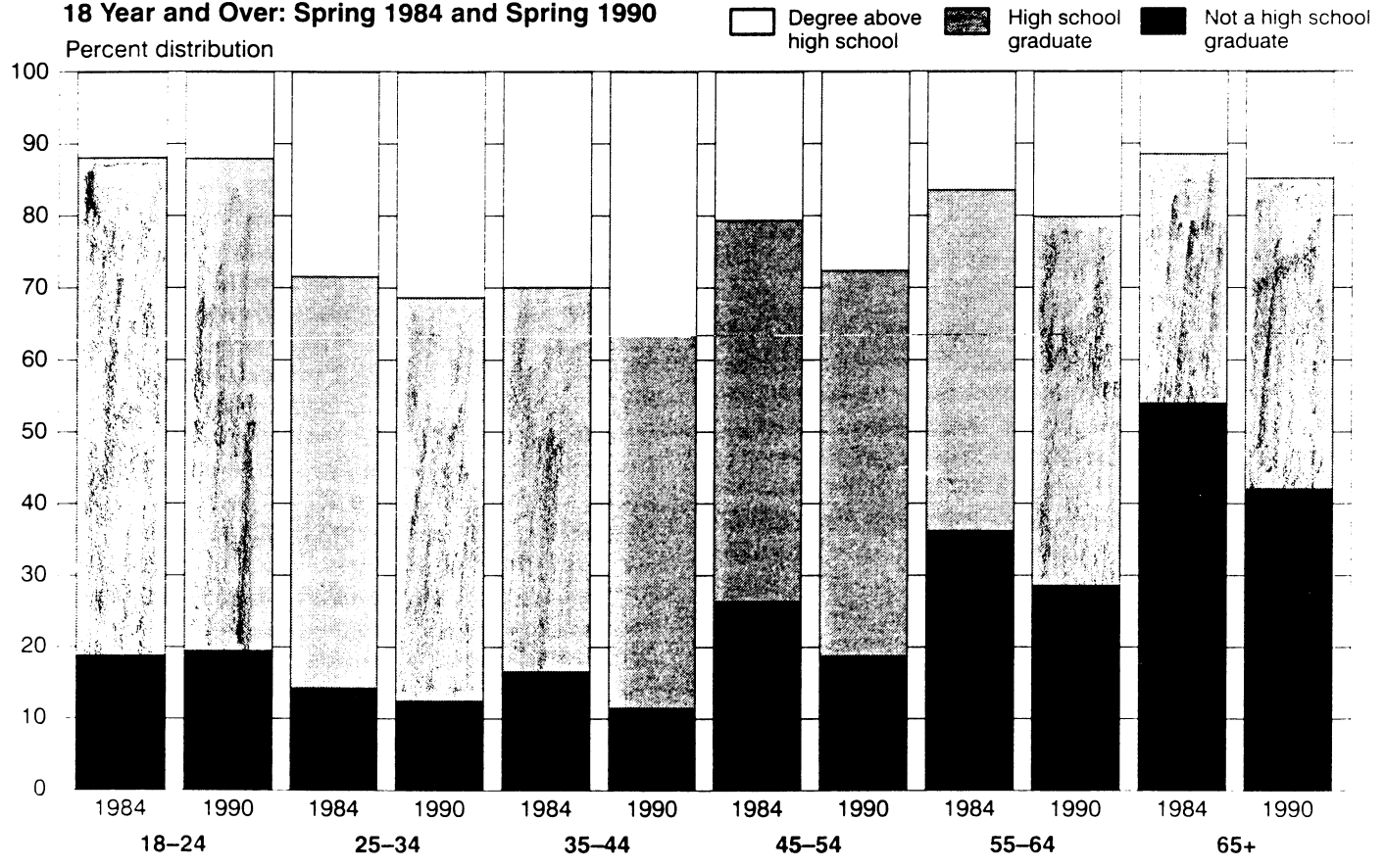


Figure 2.
**Educational Attainment, by Age Group for Persons
 18 Year and Over: Spring 1984 and Spring 1990**



to wages and/or salary from one or more jobs (includes earnings from self-employment). Mean monthly earnings are calculated this way because some jobs are seasonal, may not pay on a regular monthly basis, or because persons may have only recently begun or ended a job. The third measure, months with work activity, gives a general idea of the amount of employment during the 4-month period. For each month that the individual held a job, whether for the entire month or only a few days, a value of "1" is recorded. This includes persons who may have only had a job for a week or two and spent the remainder of the month looking for a different job, was on layoff, or who left the labor force (without a job and not looking). Persons who did not have a job at any time during the month, regardless of whether they were looking for one or not, receive a value of "0" for that month. Persons reporting a job in all 4 months would have a value of "4", while those who reported a job in no months have a value of "0".

Table 2 provides the estimates of these three measures for each of the degree groups for all persons 18 and older. The data show that there are substantial differences, both in terms of income and earnings, between some of the degree levels beyond high school. The highest value for mean monthly income and earnings was reported by persons with professional degrees, while the lowest was given by persons with vocational degrees.

Except for the comparison between doctorate and professional degrees, most degrees beyond high school had significantly higher income and earnings associated with them than the next lower degree. In addition, the mean income and earnings for persons with only a high school diploma (whether they have some college with no degree or only a high school diploma) were substantially higher than for those persons who did not complete high school. In short, the basic time-honored relationship between education and economic returns is verified by these data.

The utility of the third measure, months with work activity, should not be overlooked. Even with this gross measure it is possible to see that there are differences between some degree levels with regard to monthly employment. On the average, persons with associate degrees or higher held jobs in at least 3 of the 4 months observed, while persons who were not high school graduates held jobs in fewer than half the observed months.

There are substantial differences in earnings and income between men and women at each degree level, with the mean amount for males consistently higher than that for females. The work activity data show that on average men have more months with work activity than do women. This pattern in work activity holds true for each education level below the professional and doctorate degrees.

Differences in earnings and income also existed between race and ethnic groups. Due to the small sample size, comparisons between Whites, Blacks, and Hispanics cannot be made for two degrees: doctorate and professional.¹ The mean monthly earnings of Whites was significantly larger than that of Blacks at each level, except at the master's level where there is no statistically significant difference. Comparisons at each education level show that Hispanic earnings are lower than those for White persons at two levels: bachelor's degree and high school diploma as highest degree, but not significantly different from Blacks (except for persons who have not graduated high school where the earnings for Hispanics were significantly higher than those for Blacks).

Table A shows the average monthly earnings in each degree category for 1987 and 1990 and for each gender and race. Earnings for 1987 are adjusted to constant 1990 dollars using a factor of 1.15 based on the Consumer Price Index (CPI-U-X1 series) for 1987. Although total average earnings experienced a slight increase, none of the individual categories of degree holders saw a significant rise in earnings from 1987 to 1990. Apparent increases for persons with professional and master's degrees do not meet tests of statistical significance after adjusting to 1990 dollars. While monthly earnings for women rose slightly from 1987 to 1990, those for men were essentially unchanged. During the same period, Whites experienced an overall significant increase, but Blacks did not.

DEGREES AND FIELDS OF STUDY

As the data in table 2 illustrate, there are clear economic advantages in the attainment of post-secondary degrees. However, these degrees are granted in a wide variety of fields, and as demand for an area of expertise varies, so too should the number of persons who choose a given field of study and the rewards they receive. As part of the data collected, persons were asked to report the field of training in which their highest degree was received. Respondents were given a flashcard with 20 possible choices (see appendix E) and asked to choose the field which most closely matched the area of their own degree. Table 3 shows the field of degree by sex and race for all persons with postsecondary degrees, combining doctorate and professional degrees into one category.

The first panel of the table shows the diversity of the fields of training for the various degrees. The short list of 20 fields seems to provide a reasonable number of options, with only 7 percent of all respondents choosing the "other" category as the field of their highest degree.

¹In general, care should be taken in comparing mean estimates when sample bases are relatively small.

Table A. Average Monthly Earnings by Educational Level, Sex, and Race: Spring 1987 (Adjusted) and Spring 1990

Educational attainment	1990 earnings		1987 earnings		
	Mean	Standard error	Original mean	Adjusted mean ¹	Adjusted standard error
TOTAL, 18 YEARS AND OVER					
Both sexes.....	² \$1,284	\$15	\$1,075	\$1,237	\$15
Doctorate.....	3,855	304	3,637	4,184	597
Professional.....	4,961	455	4,003	4,606	396
Master's.....	2,822	202	2,378	2,736	78
Bachelor's.....	2,116	41	1,829	2,104	44
Associate.....	1,872	51	1,458	1,677	58
Vocational.....	1,237	50	1,088	1,252	70
Some college, no degree.....	1,280	31	1,088	1,252	25
High school graduate only.....	1,077	16	921	1,060	15
Not a high school graduate.....	492	12	452	520	16
Male, 18 years and over.....	1,792	24	1,540	1,771	27
Female, 18 years and over.....	² 819	17	652	750	11
White, 18 years and over.....	² 1,334	18	1,116	1,283	16
Black, 18 years and over.....	894	28	766	881	28

¹1987 dollars adjusted to 1990 using an inflation factor of 1.15 derived from the Consumer Price Index (CPI-U-X1 series).

²Indicates 1990 amount is significantly greater than 1987 amount.

Some fields are clearly associated with one or two degree types - law and medicine with doctorate/professional degrees, for example; while others such as business and education are represented at several different degree levels.

Different degrees are also associated with one or two fields. For instance, about 56 percent of all professional/doctorate degrees were in just two fields: law and medicine/dentistry. Around 31 percent of all master's degrees were in education with an additional 17 percent in business/management; these same two fields represent a large proportion of those with bachelor's degrees. Business/management pairs up with nursing/pharmacy/technical health to make up about 38 percent of all associate degrees; while the majority of all vocational degrees were in nursing/pharmacy/technical health and vo-tech studies (63 percent). Overall, the largest single field was business which accounted for 1 in 5 degrees.

There are several notable differences between the sexes with respect to degree fields. While 23 percent of men with degrees held them in business/management, only 15 percent of women held their degree in this field. Approximately 15 percent of men held an engineering degree, but just 2 percent of women with a degree were in this field. A large share of women's degrees were in other fields: 21 percent in education and 16 percent in nursing/pharmacy/technical health. In contrast, these same fields accounted for only 7 percent (in education) and 2 percent (in nursing/pharmacy/technical health) of degrees held by men. In general, these patterns are very similar to those found in 1984 and 1987.

FIELDS OF STUDY AND ECONOMIC STATUS

Each year, many college students are faced with one of the most difficult decisions in college — the choice of a major. For some students, the choice reflects a pattern of interest that has developed over time; for others, the choice may be motivated by other factors. One factor which enters into the choice of field of study for many students is the perceived economic rewards that may accrue from a degree in a chosen field. To a large extent, ultimate financial rewards may result more from the skills of the individual, the specific job they take, and the relative demand for the type of position they occupy. Nevertheless, one's field of training has some bearing on these factors and consequently on eventual economic outcomes. Table 4 shows the summary economic measures previously discussed by various fields and types of degrees. Because the SIPP is a sample survey, there are not always enough sample cases to provide statistically reliable estimates of every field and degree combination. The panels of table 4 have been chosen to produce tables where most cells have an estimated base of at least 200,000 persons.

The first panel of table 4 shows the average monthly income, earnings, and work activity by field for all persons age 18 and above with a degree beyond high school (average monthly income, earnings, and work activity are defined as those in table 2). Variations specific to degree levels are not controlled in these data, but field-specific variations are still evident. Degrees in the fields of law and medicine/dentistry are associated with the highest average monthly earnings, while

those in home economics are the lowest. Regardless of field, persons with a degree beyond high school had average monthly earnings that were substantially larger than those of persons with either a diploma only or some college and no degree (\$2231 vs \$1077 and \$1280, respectively).

Table B compares the average monthly earnings of various fields of bachelor's degrees for 1987 and 1990. The values for 1987 have been adjusted to 1990 dollars using the same factor as in table A. While the overall monthly earnings of all bachelor's degree holders for 1990 was comparable to 1987, table B shows several fields experienced significant changes between the given years. Persons with degrees in physical/earth sciences and nursing/pharmacy/technical health had significantly higher earnings in 1990 relative to 1987 adjusted earnings. The residual category of other fields also saw an increase in earnings. The average monthly earnings declined in the field of business/management.

TIME SPENT TO EARN A DEGREE

As these data indicate, a post-secondary degree quite often has positive economic outcomes associated with it. As the time taken to obtain a degree increases however, so too does the delay to future economic gain based on the degree credential. The data in table 5 describe the average time individuals spend to obtain a bachelor's degree. Two types of measures are used, the proportion completing a baccalaureate within a

given number of years and the mean duration from the end of high school to award of the baccalaureate. All measures in table 5 use the date of high school graduation as a starting point. The data include all persons who have a bachelor's degree regardless of whether or not they also have obtained an advanced degree. SIPP collects the dates of baccalaureate completion for both bachelor's and advanced degree holders. Readers should note that duration times estimated refer to real calendar time, not necessarily the amount of time spent in the enrolled status. Since the data are based on a cross-section, censored observations (i.e., persons who have begun a degree but have not yet finished it) are excluded from the estimates.

Overall, only 43.2 percent of all adults with a bachelor's completed their degree within 4 years of high school graduation. However, 3 out of 4 persons finished their degree in 6 years or less. The average time taken to complete a bachelor's degree is 6.21 years after high school completion. Readers should note that this average reflects not only the large proportion of people who complete their college education in a relatively short number of calendar years, but a significant minority of people who may not obtain their bachelor's degree until substantially later in life. These very large duration times (in calendar years) act to inflate the overall mean time.

Across demographic subgroups, there is some variation in the proportions receiving their bachelor's degree within 4 years. Although the sexes do not differ significantly in the average amount of time spent achieving

Table B. Average Monthly Earnings by Bachelor's Degree Holders, by Field: Spring 1987 (Adjusted) and Spring 1990

Field of degree	1990 earnings		1987 earnings		
	Mean	Standard error	Original mean	Adjusted mean ¹	Adjusted standard error
BACHELOR'S DEGREES					
Total	\$2,116	\$41	\$1,829	\$2,103	\$44
Agriculture/Forestry.....	2,537	708	2,154	2,477	297
Biology	2,409	308	1,640	1,886	169
Business/Management.....	² 2,447	92	2,330	2,680	103
Economics.....	2,528	395	2,756	3,169	446
Education.....	1,532	97	1,181	1,358	73
Engineering	2,953	135	2,670	3,070	125
English/Journalism	1,607	145	1,431	1,646	171
Home Economics.....	906	156	1,079	1,241	144
Liberal Arts/Humanities	1,592	101	1,346	1,548	97
Mathematics/Statistics	2,569	228	2,548	2,930	341
Nursing/Pharmacy/Technical Health.....	² 1,898	101	1,367	1,572	100
Physical/Earth Sciences.....	² 2,399	211	1,467	1,687	153
Psychology	2,021	186	2,067	2,377	287
Social Sciences	1,841	150	1,674	1,925	129
Other.....	² 2,369	163	1,617	1,860	153

¹1987 dollars adjusted to 1990 using an inflation factor of 1.15 derived from Consumer Price Index (CPI-U-X1 series).

²Indicates 1990 amount is significantly different from 1987 amount.

this degree, the proportion of women obtaining a bachelor's within 4 years of high school completion is greater than that of men (49 percent vs. 38 percent). The same holds true when comparing the proportions completing the degree within 6 years of high school (79 percent vs. 70 percent). The differences between Whites and Blacks are substantial. The average time to completion of the bachelor's was nearly 1 year higher for Blacks than for Whites (7.01 compared to 6.18) and only about a third of Blacks finished within 4 years (32.7 percent) compared to 44.2 percent of Whites. Persons of Hispanic origin do not differ significantly from either race group in terms of average completion time (6.58 years). However, within the Hispanic population, there is a difference between the sexes. Hispanic women, on average, spent 7.21 years to complete their bachelor's while Hispanic men averaged 6.05 years.

One interesting question is whether the length of time to obtain a degree varies by the field in which it is attained. For example, degrees in natural sciences may take longer to complete than those in social sciences. The data clearly show that persons in the field of home economics have the highest proportion finishing within 4 years of high school at 67.4 percent; the average duration time to degree is just 4.7 years. On the other hand, the fields of nursing/pharmacy/technical health and engineering have some of the smallest proportions completing a bachelor's degree within 4 years of leaving high school at 29.2 and 30.1 percent respectively.

For persons with a degree beyond the Baccalaureate, only the field of the highest degree is known. Table 5 shows that among people with an advanced degree the time to obtain the bachelor's was fairly short (5.71 years); 78 percent complete their bachelor's within 6 years of finishing high school.

Graduate degree programs often measure their success rates by the speed in which students finish their programs. Because SIPP is a sample survey, there are not enough observations to provide statistically reliable estimates for each degree. Table C gives the average time to completion for advanced degrees for the total population and by gender. Each duration is measured from the completion of the bachelor's to the completion of the advanced degree and reflects real calendar time rather than the actual amount of time the person is

enrolled. Censored observations are again excluded from the duration estimate since the data are based on a cross-section. On average, a doctorate took the longest to complete (8.97 years), followed by a master's (6.47 years), with a professional degree taking the shortest amount of time (5.07 years). The gender differences in completion times depend on the degree attained. Women take a substantially longer time to finish doctorate and master's programs than do men; however, the two sexes have comparable durations in achieving professional degrees.

DEGREES, FIELDS, AND OCCUPATIONS

Individuals choose a field of study in college with at least some anticipation of the kind of job that is desired after graduation. The relationship between one's field of training and the eventual field of employment is mediated by many other forces. Table 6 details the relationship between degrees, fields of training, and 15 occupational categories (including a category for those not working — not employed or not in the labor force) for the adult population between the ages of 18 and 64. Respondents were asked to provide information on employment during the 4-month period under observation. Information was collected about up to two employers for whom the respondent worked the most hours. For persons who were self-employed, additional information was collected for up to two self-employment businesses which produced the highest gross earnings. In table 6, the primary occupation of each individual was assigned to the job with the most hours.

The data indicate an association between the proportion of respondents in a given occupation and the highest degree held. Table D summarizes the detail of table 6 using level of the highest degree only. The majority of advanced degree holders held either an executive, administrative, or managerial position (20.1 percent), or a professional specialty occupation (57.3 percent). Only 8.5 percent of this group were not working. As figure 3 shows, holders of bachelor's degrees also had sizable proportions in executive, administrative, or managerial positions and professional specialty occupations (50.1 percent combined), but were less concentrated in these areas than those with advanced

Table C. Average Time Spent Earning Advanced Degrees by Gender: Spring 1990

(Numbers in thousands)

	Years from end of Bachelor's to:								
	Doctorate			Professional			Master's		
	Total	Mean	Standard error	Total	Mean	Standard error	Total	Mean	Standard error
Both sexes	1056	8.97	0.49	2054	5.07	0.32	7599	6.47	0.19
Male	833	8.36	0.54	1547	5.23	0.36	3996	5.78	0.23
Female	223	11.24	1.09	506	4.61	0.67	3603	7.24	0.30

Figure 3.
Occupational Distribution of Advanced and Bachelor's Degree Holders: Spring 1990

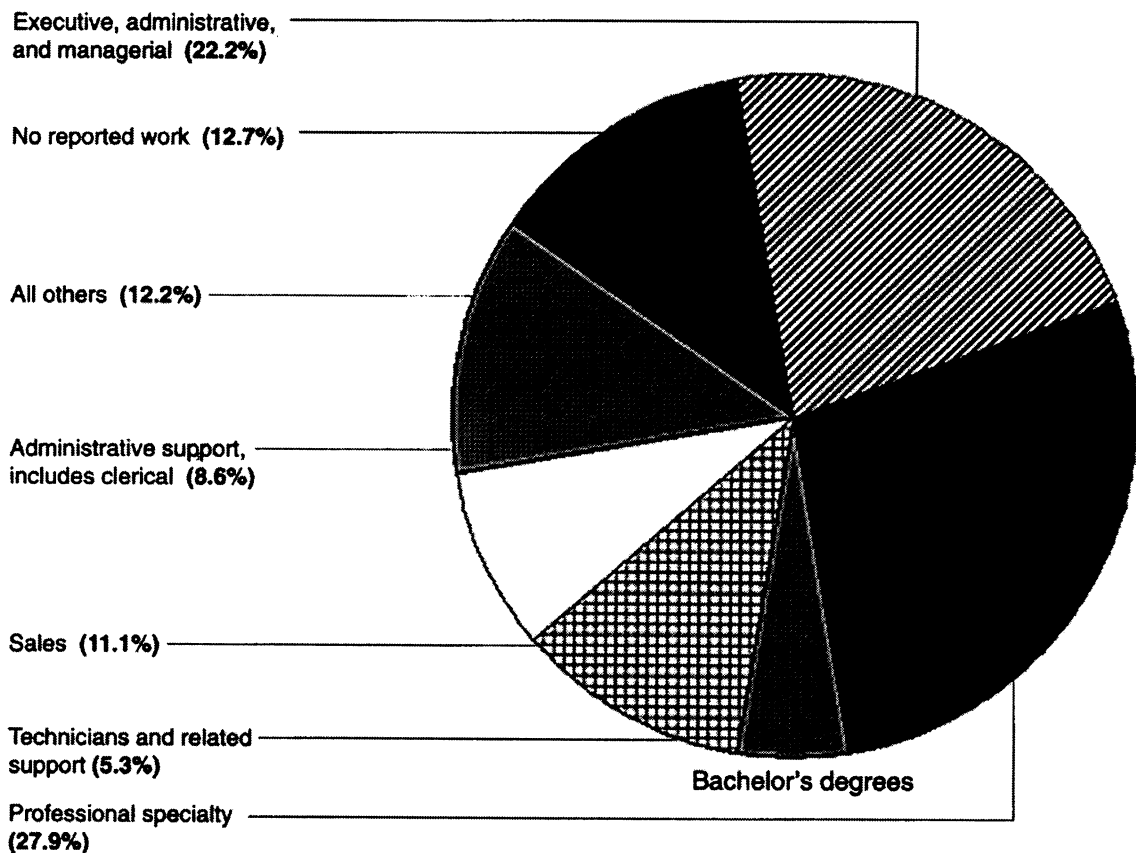
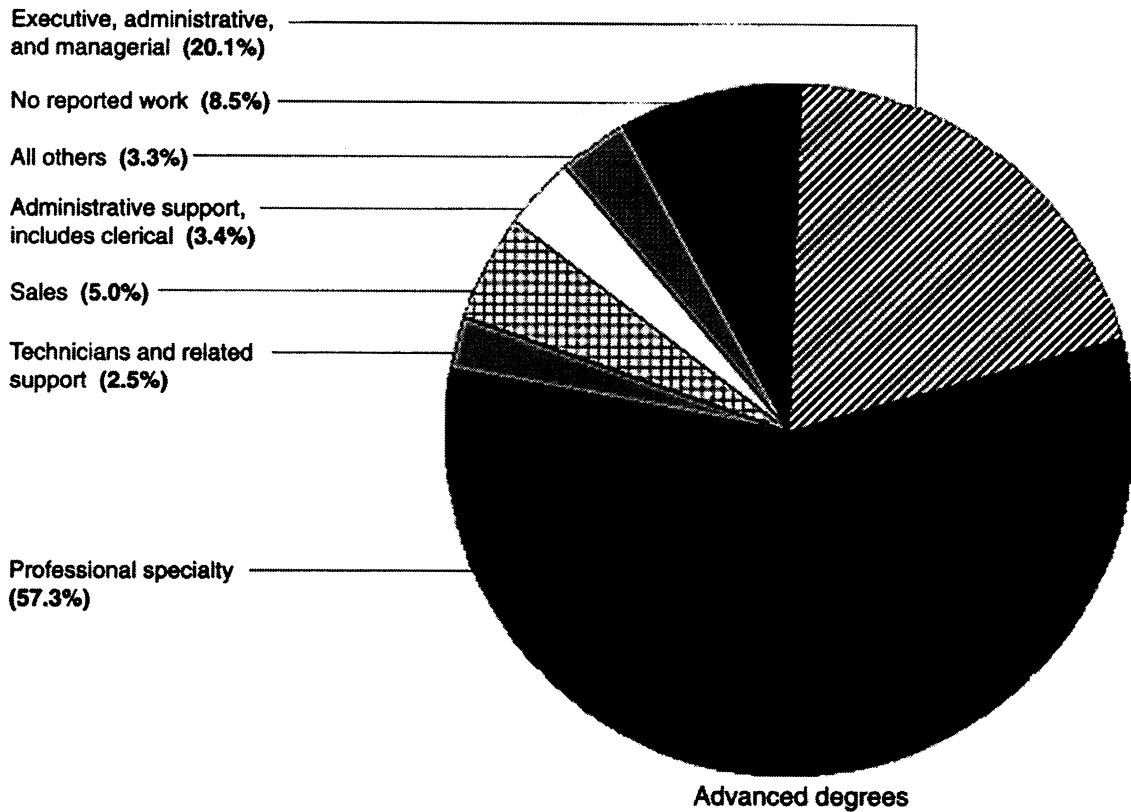


Table D. Percentage in Primary Occupation by Degree for Persons 18 to 64: Spring 1990

(Numbers in thousands)

Occupations	Total	Advanced	Bachelor's	Associate or vocational	High school graduate only	Not a high school graduate
TOTAL.....	152,815	9,584	20,690	11,413	85,653	25,474
Executive, administrative, and managerial.....	9.7	20.1	22.2	10.9	7.6	2.2
Professional specialty.....	10.3	57.3	27.9	12.7	3.4	0.4
Technicians and related support.....	2.7	2.5	5.3	7.3	2.2	0.4
Sales.....	8.7	5.0	11.1	9.1	9.7	4.5
Administrative support, includes clerical.....	12.3	3.4	8.6	17.2	16.2	3.5
Private household service.....	0.4	0.1	0.1	0.4	0.4	0.7
Protective service.....	1.4	0.4	1.2	2.1	1.6	0.6
Other service.....	8.5	0.9	3.3	8.5	9.8	11.2
Precision production, craft, and repair.....	9.0	0.6	3.3	9.4	10.9	10.3
Machine operators, assemblers, and inspectors.....	5.4	0.3	1.1	2.8	6.1	9.5
Transportation and material moving.....	3.5	0.1	0.9	1.9	4.2	5.1
Handlers, equipment cleaners, and laborers.....	3.4	0.1	0.7	1.5	3.9	5.8
Farming, forestry, and fishing.....	2.1	0.1	0.8	1.0	2.2	3.9
Armed forces.....	0.7	0.6	0.9	0.6	0.9	0.0
No reported work —(includes not in the labor force).....	22.0	8.5	12.7	14.6	20.9	41.8

degrees. Those with the baccalaureate had higher proportions in other jobs such as sales (11.1 percent) and administrative support (8.6 percent). The highest concentration of associate and vocational degree holders (17.2 percent) was found in the area of administrative support which includes clerical work. A similar proportion of persons with a high school diploma were also found in this occupational area (16.2 percent).

The proportion of persons in executive, administrative, and managerial and professional specialty occupations significantly decreased with decreasing levels of education. Just 11.1 percent of persons with a high school diploma and only 2.6 percent of those who had not graduated high school held jobs in these areas compared to 23.6 percent of those with an associate or vocational degree, one half of bachelor's degree holders, and 77.4 percent of persons with an advanced degree. There is also a relationship between educational level and the proportion of persons not working, ranging from a low of 8.5 percent for advanced degree holders to a high of 41.8 percent for non-high school graduates. This pattern in the not working category by degree generally holds true for both men and women; however, the proportion not working is higher for women than for men at each degree level.

There were gender differences in occupational distributions at the baccalaureate and advanced degree levels. Among advanced degree holders, men and women had similar proportions employed in professional specialty occupations (55.8 vs. 59.5 percent). However, a much larger proportion of men than women held executive, administrative, or managerial positions (23.7 vs. 14.9 percent).

At the bachelor's level, a much larger proportion of women than men held professional specialty jobs (33.8

vs. 22.4). However, with respect to executive, administrative, and managerial positions, men held proportionately more of these jobs than women, just as for advanced degree holders. Additionally, while twice as many men than women with bachelor's degrees were in sales (14.3 vs. 7.6 percent), the pattern was the reverse for administrative support (11.2 percent of female bachelor's vs. 6.1 percent of males).

There were also strong gender differences at lower degree levels. Even though a large proportion of persons with an associate or vocational degree held a job in administrative support (17.2 percent), only 7.4 percent of these men held such a job compared to one quarter of women. On the other hand, 1 in 5 men at this degree level were in a job involving precision production, craft, and repair; only 1.2 percent of women had this kind of job.

Within each degree type, there are certain fields of study that are highly concentrated in a given occupation. For example, while only 11.1 percent of all bachelor's degree holders had a sales occupation, nearly 1 in 5 persons with a degree in economics (19.4 percent) and 19.1 percent in business and management had jobs in sales.

Even though the majority of advanced degree holders were employed in one of two occupational categories (executive/administrative or professional specialty), there were variations between fields in the concentration for a particular type of occupation. The majority of those with degrees in "specialty" fields such as law and medicine were employed in a professional specialty. Those who studied business and management as an advanced degree were highly concentrated in executive, administrative, and managerial occupations (52.0

percent). While only 5 percent of advanced degree holders were in sales jobs, the fields of English/journalism and business/management had a higher concentration in the sales area (17.6 and 12.6 percent respectively).

Within field, the type of job also varies across degrees. The same field at different educational levels would be expected to require different skills and involve different levels of coursework. It follows that the variations in learned skills would result in eligibility for different job types. The data show that persons with a degree in business/management had a heavier concentration than average in executive, administrative, and managerial positions; however, the proportion decreases from one-half of the advanced degree holders in this field to 18.7 percent of those with an associate or vocational degree.

At the associate/vocational level, the largest proportion of persons with business and management degrees had jobs in administrative support (includes clerical work). The reduction in executive and administrative positions with decreased education is evident across gender; however, men did not contribute as much as women to the larger proportion of associate or vocational degree recipients in administrative support staff. Only 14.5 percent of male business/management majors with an associate or vocational degree held jobs in this area compared to 40.1 percent of women.

Persons with degrees in the fields of education and nursing/pharmacy/technical health had higher concentrations than average in professional specialties. This may not be surprising since the fields themselves are specialized and would lead to specialized occupations such as teacher and nurse. However, the proportion in professional specialties shrinks noticeably from advanced degrees to associate and vocational degrees (for example, a drop of 63.3 percent to 19.0 percent in the field of education). At both the advanced and bachelor's degree levels in the field of education, men were more likely than women to have held an executive or administrative position.

The data demonstrate the great variability that occurs in the match of fields of training, the level of the training, and the jobs people ultimately hold. While a large proportion of persons with a particular degree may be found in mainly one or two occupations, within degrees and between each level of degree the proportion of persons in different occupations varies by field.

WORK-RELATED TRAINING

In addition to the education and training individuals receive in pursuit of traditional degrees, learning also goes on in other contexts. One of the more organized forms is the learning individuals experience as part of their job or in preparation for one. Some training is provided by government-sponsored programs or by

courses offered in the workplace. Training may also be offered in a less formal context such as on-the-job seminars, short-term refresher courses, or computer-assisted instruction. All persons under 65 years old were asked in the SIPP if they had "ever received training designed to help find a job, improve job skills, or learn a new job." For those individuals responding affirmatively, additional questions were asked about the location and nature of the most recent training. These data are presented in table 7.

About 1 in 4 adults between the ages of 18 and 64 reported that they had received work related training at some time.² Blacks were slightly less likely than Whites to have received training (23.7 vs. 26.2 percent), and persons of Hispanic origin (17.8 percent) were less likely than either race group to have received training.

Those persons with less than 9 years of education were much less likely to have received training than those with 9 or more years of schooling (10.8 vs. 26.7 percent).

A large proportion of those persons who had received work training said they used this training on their current job (67.7 percent). Use of training in the current job was most common for persons with more than 12 years of education (75.0 percent). The high rates of both training and use of training for the highest education group might at first appear to be counter-intuitive, since work training is often perceived as being aimed at groups "in need," i.e., the less well-educated, unemployed. The questions in SIPP, however, ask about any work-related training, which would include the very general types of training that people receive in the course of beginning and learning about a new job. About 34.0 percent of all respondents who received training said that it was obtained at work. In this regard, it is not unreasonable that higher rates of training are reported by those persons with higher levels of education and greater likelihood of being employed. A larger proportion of the highest educational group reported receiving training at work than did the lowest (40.3 percent vs. 25.7 percent). On the other hand, of persons who received training, those who participated in government-sponsored training programs (e.g., Food Stamps Work Program) were more likely to be the less well-educated (19.6 percent of persons with fewer than 9 years of school as opposed to just 8.0 percent for those with more than 12 years of school).

While training was received in a wide variety of places, the workplace was the most frequently mentioned locale. (Respondents could report more than one location.) A large proportion (32 percent) of all persons with training said they had received it at some time since 1989. This finding should be viewed with some caution,

²The proportion of White persons receiving work training (26.2 percent) did not differ significantly from that of the total population (25.7 percent).

since the questions asked for the "most recent" training. In addition, the recall of training received even more than a few years ago may be difficult for many respondents, particularly if the training was short-term or of an informal nature. The average length of training programs was reported as about 22 weeks, but many programs (23 percent) lasted a week or less.

Payment for work-training programs generally came from the employer (45 percent). [Note: Respondents were asked to mark all sources of payment that apply.] Twenty-seven percent reported receiving funds from the government (federal, state, or local), and 29 percent reported training paid for by self or family. A larger proportion of men than women (50 vs. 41 percent) who

received training said their employer paid for it. On the other hand, women were more likely to pay for the program themselves or with the help of their family than were men (35 percent vs. 24 percent).

Federally-sponsored programs (i.e., JTPA, CETA, WIN, JOBS, Food Stamps Work Program, Veterans' Training Programs, and other programs sponsored by the Welfare Program or AFDC) accounted for about 11 percent of all persons' most recent training activity. In general, these data on work training provide a simple illustration of the magnitude and diversity of learning which goes on beyond "regular" education. While government-sponsored programs provide some of this training, many other forms also exist.