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Household Economic Studies
Series P–70, No. 21

by
Robert Kominski

What's it Worth?

Educational Background and Economic Status: Spring 1987

U.S. Department of Commerce
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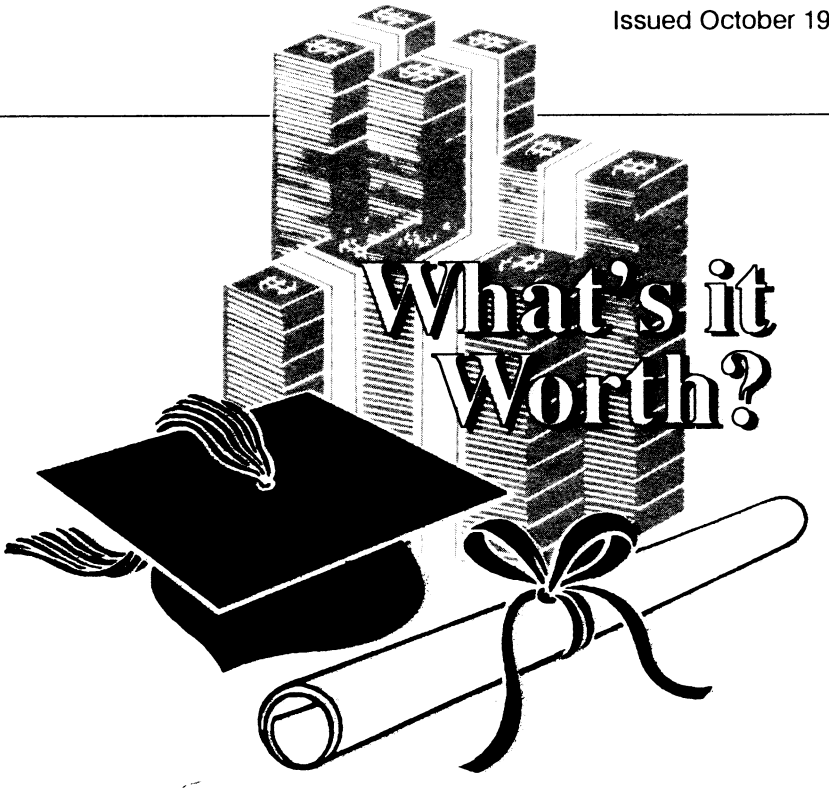

Educational Background and Economic Status: Spring 1987

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Contents

APPENDIX TABLES

What's It Worth? Educational Background and Economic Status: Spring 1987

HIGHLIGHTS

- About 23.3 percent (±.5) of the adult population has obtained a degree beyond the high school level; this is a significant increase over the level of 20.7 percent (±.4) in 1984.[1]
- 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 are reported by persons with professional degrees $4,323 (±358) or doctorates $4,118 (±555).
- The greatest concentration of degrees are in business. Of all individuals reporting postsecondary degrees, 19 percent (± 1.0) were in the field of business.
- While 15 percent (±1.2) of highest earned degrees held by men are in the field of engineering, only 1 percent (±.3) of degrees held by women are in this field.
- The average monthly income for persons with a bachelor's degree is $2,109 (±47). Variation by field ranges from $3,459 (± 535) for economics majors to $1,291 (±149) for home economics majors.
- While the average monthly earnings for persons holding master's, bachelor's or associate degrees significantly increased from 1984 to 1987 (after adjusting for inflation), persons with no postsecondary degree, along with vocational degree holders, experienced no real increase in monthly earnings.
- 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 (28 percent (±1.1)) had obtained the training on their current job.

INTRODUCTION

This report presents tabulations from the Survey of Income and Program Participation (SIPP) regarding the educational attainment and background of the population of the United States. Often, education is 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 and employment status. Another tabulation provides information about the amount and type of work-related training individuals have experienced.

The analysis in this report is based on data collected as part of the second wave (interview) of the 1987 panel of the Survey of Income and Program Participation, gathered in the 4 month period from June to September 1987. An earlier report in this series, also titled *What's It Worth?* (P-70, No. 11), detailed the same tabulations for the spring of 1984. The text of this report follows the text and table format of the 1984 report, and some estimates of significant changes for the 3-year period are reported here.

DEGREE ATTAINMENT OF THE POPULATION

Table 1 presents data on degree status by sex, race, and age for the population aged 18 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 and nothing more, persons who 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 some other scale (e.g., years to complete the degree).)

The data show that the largest proportion of the population has a high school diploma as its highest degree. About 54 percent of the adult population reported that they had only a high school diploma or had a diploma and had attended, but not received a degree from, a post-secondary institution. While a large proportion of the population (22.5 percent) reported they had

[1]Figures shown in parentheses define 90-percent confidence intervals. For details of calculation, see "Appendix C, Source and Accuracy of the Estimates."

not completed high school, this figure was less than in 1984, when it was 26.0 percent. The remainder, 23.3 percent, had obtained a degree of some type beyond high school; this was an increase over the 20.7 percent observed in 1984.

Figure 1 summarizes the distribution of attainment categories for some demographic subgroups in 1987 and 1984. While 25.1 percent of men held degrees beyond high school, only 21.6 percent of women had a degree. The difference between Whites and Blacks was quite substantial: 24.2 percent of Whites held degrees above the high school level as compared with 15.1 percent of Blacks. In addition, a much larger proportion of Blacks than Whites did not have a high school diploma (33.2 vs. 21.0 percent).

Examining the data by age groups (figure 2) shows the change in the education of the population that has transpired over the last half-century, as well as in the past three years. (The 18-24 age group has lower levels of completion than might be expected because this group has not finished its schooling.) While about 12.6 percent of persons age 65 and older have a degree beyond high school, 31.2 percent of those 25-34 years old have already obtained a degree. In terms of basic education 11.7 percent of persons 25 to 34 have not completed high school, compared with 23.4 percent of persons 45 to 54 and 47.6 percent of individuals 65 and older.

Figures 1 and 2 also show the educational attainment levels as estimated in the 1984 SIPP. The general pattern across all groups shown is one of an increase in the proportion of persons with a degree beyond high school, and a decrease in the proportion who have not completed high school. While there are still clear differences between groups in terms of their levels of educational attainment, increases are evident for all groups shown.

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 some positive economic return associated with the attainment of higher education. In some instances, for example, a specific degree may be a formal requirement for a job or a promotion.

Table 2 shows three basic measures of economic status for the degree categories already elaborated. The first of these is mean monthly income, defined as the total income received by the person during the four observation months of the survey, divided by 4. 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. This is done 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 for 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, 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".

Figure 1.

Educational Attainment, by Race and Sex: 1984 and 1987

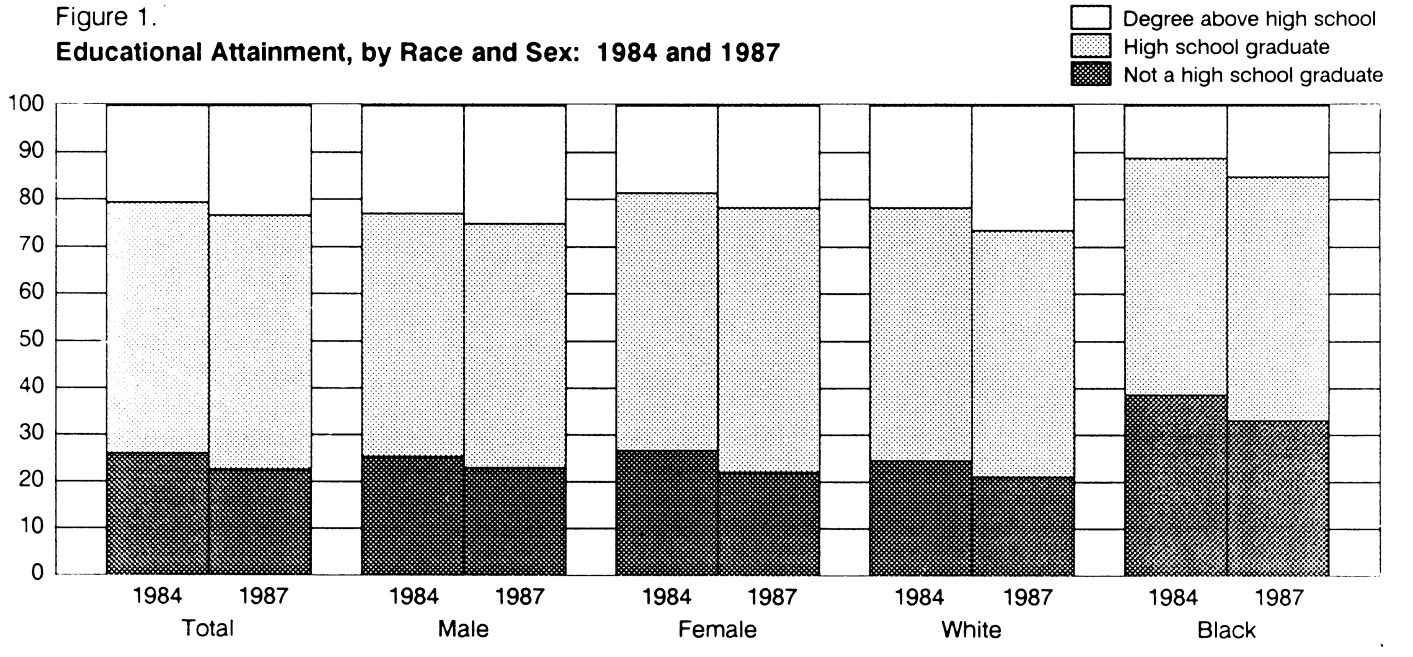

Figure 2.
Educational Attainment, by Age Group: 1984 and 1987

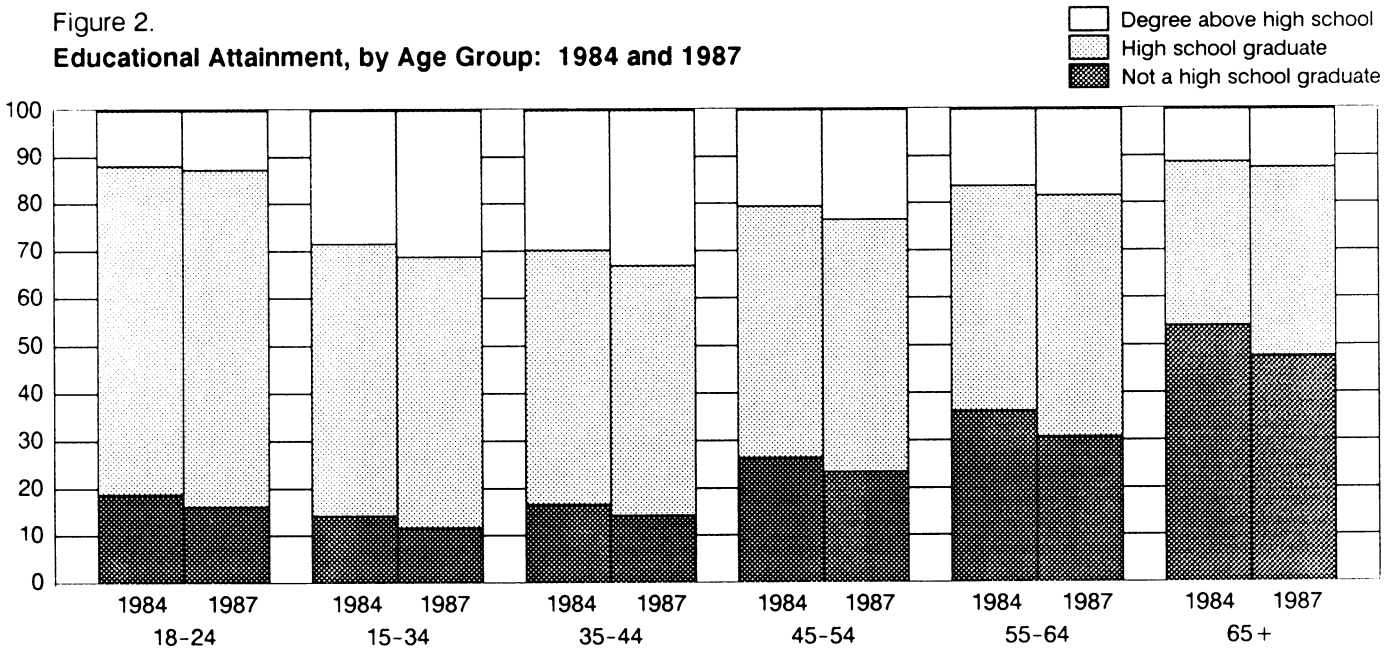

Table 2 shows the estimates of these three measures for each of the degree groups for all persons 18 and older. The data show that there are substantial differences, both in terms of income and earnings, between some of the degree levels beyond high school. The highest value for mean monthly income is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

Most degrees beyond high school have significantly higher income and earnings associated with them than the next lower degree (except for the contrast of Ph.D. and professional degrees). In addition, the mean income and earnings measures for persons with only a high school diploma are in turn substantially larger 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 usefulness 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 employment. On the average, persons with associate degrees or higher held jobs in 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 between men and women at each degree level in earnings, with the mean amount for males always higher than that for females (except for the Ph.D. level where no comparison is made because of the small sample size). Comparisons between Whites and Blacks can be made at four degree levels: master's, bachelor's, associate, and vocational. In all cases the mean monthly income of Whites is significantly larger than for Blacks.

Table A shows the average monthly earnings in each degree category for 1984 and 1987. Earnings for 1984 have been adjusted to constant 1987 dollars using a factor of 1.09 based on the Consumer Price Index-Urban series for the relevant months of 1984 and 1987. Comparison of the adjusted 1984 and 1987 amounts shows that significant increases occurred for persons with master's, bachelor's and associate degrees. Apparent large increases for persons with doctorate and professional degrees do not meet statistical significance. Persons with no postsecondary degree, along with vocational degree holders, experienced no real increase in monthly earnings after adjusting to 1987 dollars.

DEGREES AND FIELDS OF STUDY

As the data in table 2 illustrate, there are clear economic advantages in the attainment of post-secondary degrees. These degrees, however, 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 post secondary degrees.

The first panel of the table shows the diversity of the fields of training for the various degrees. Some fields are

Table A. **Average Monthly Earnings, by Educational Level: 1984 (Adjusted) and 1987**

Educational attainment	1984 earnings			1987 earnings	
	Original mean	Adjusted[1] mean	Standard error	Mean	Standard error
Total	$917	$1,000	$13	[2] $1,075	$14
Doctorate	2,747	2,994	231	3,637	557
Professional	3,439	3,749	252	4,003	369
Master's	1,956	2,132	79	[2] 2,378	73
Bachelor's	1,540	1,679	46	[2] 1,829	41
Associate	1,188	1,294	42	[2] 1,458	54
Vocational	990	1,079	60	1,088	65
Some college	965	1,052	30	1,088	23
High school graduate only	848	924	21	921	14
Not a high school graduate	415	452	11	452	15

[1]1984 dollars adjusted to 1987 using inflation factor of 1.09 derived from the Consumer Price Index-Urban.
[2]Indicates 1987 amount is significantly greater than 1984 amount.

clearly associated with one or two degree types—law and medicine—for example; while others such as business and education are represented at several different degree levels. The largest single field is business, representing nearly 1 in 5 highest degrees; education accounts for 14 percent. The short list of 20 fields provides a reasonable number of options, with only 7 percent of all respondents choosing the "other" category as the field of their degree. About 56 percent of all professional and doctorate degrees were in just two fields: law and medicine/dentistry; 28 percent of all master's degrees were in education.

There are several notable differences between the sexes with respect to degree fields. While 23 percent of men with degrees held them in business, only 14 percent of women held their degree in this field. About 15 percent of all degrees held by men were in engineering, but just 1 percent of women with a degree were in this field. A large share of women's degrees were in other fields; for example, 16 percent were in nursing, pharmacy or technical health, but these account for only 2 percent of men's degrees. While 22 percent of all highest degrees for women were in education, this field represented just 7 percent of the degrees held by men. In general, these patterns are very similar to those observed in the 1984 data.

FIELDS OF STUDY AND ECONOMIC STATUS

Every 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, while for other students the choice may be motivated by the path of least apparent academic resistance. 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, the field of one's training has some bearing on these factors, and 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 fields for all persons aged 18 and above with a degree beyond high school. Variations specific to degree levels are not controlled in these data, but field-specific variations are still evident. Degrees in the field of medicine are associated with the highest average monthly incomes and earnings, while those in home economics are the lowest. Regardless of field, persons with a degree beyond high school had average monthly incomes that were substantially larger than those of persons with a high school diploma only ($2,201 vs. $1,135).

Adding specificity in terms of the type of degree gives a better picture of the economic value of specific fields. The second and third panels of table 4 show the various economic measures by fields for all advanced degrees (i.e., master's, professional and doctorate) and bachelor's only. The data for advanced degrees show that several of the largest monthly incomes are associated with the fields of medicine and physical/earth sciences ($5,933 and $4,587 per month, respectively). Other fields with monthly incomes greater than $3,500 include business, engineering and law. Persons with advanced degrees in the field of liberal arts and humanities have the lowest income of all advanced degree holders.

Among bachelor's degree holders the pattern is somewhat different, because there are relatively few such degrees in law and medicine. The results show that some of the largest average monthly incomes for

bachelor's degree fields are reported by persons with training in economics, engineering and mathematics and statistics, while those with degrees in home economics, education and English have some of the lowest monthly averages. It should be noted, however, that persons with training in a given field may not hold an occupation specifically related to that field. In addition, some variability in income is due to the age of the individual, which is not controlled for in this table.

Table B compares the average monthly earnings of various fields of bachelor's degrees for 1984 and 1987. As in table A, 1984 values have been adjusted to 1987 dollars. While there was an overall increase in the monthly earnings of all Bachelor's degree holders, Table B shows that very few specific fields experienced a significant increase. Only those persons with degrees in home economics and psychology have significantly higher earnings relative to 1984 adjusted earnings. The estimates for these fields in 1984 indicate they were relatively low-paying fields. Only one field, physical and earth sciences, showed a significant decrease between 1984 and 1987.

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 5.

About 1 in 4 adults between the ages of 18 and 64 reported that they had received work related training at some time. Men were slightly more likely than women to have received training, and individuals with less than 9 years of education were far less likely to have received training than persons with 9 or more years of schooling. A large proportion of those persons who had received work training said they used this training on their current job (65 percent). Use of training in the current job was most frequent for persons with more than 12 years of education (73 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., 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 persons receive in the course of beginning and learning about a new job, and about 28 percent of all respondents who received training said 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.

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 (29 percent) of all persons with

Table B. **Average Monthly Earnings for Bachelor's Degree Holders, by Field: 1984 (Adjusted) and 1987**

Field of degree	1984 earnings			1987 earnings	
	Original mean	Adjusted[1] mean	Standard error	Mean	Standard error
Total	$1,540	$1,679	$46	[2] $1,829	$41
Agriculture/Forestry	1,559	1,699	220	2,154	277
Biology	1,201	1,309	191	1,640	158
Business/Management	2,179	2,375	169	2,330	96
Economics	2,280	2,485	332	2,756	416
Education	1,012	1,103	55	1181	68
Engineering	2,282	2,487	129	2,670	117
English/Journalism	1,095	1,194	221	1,431	159
Home Economics	525	572	119	[2]1,079	134
Liberal Arts/Humanities	1,072	1,168	81	1,346	90
Mathematics/Statistics	1,809	1,972	286	2,548	318
Nursing/Pharmacy/ Technical Health	1,196	1,304	95	1,367	93
Physical/Earth Science	2,068	2,254	337	[2] 1,467	143
Psychology	1,166	1,271	169	[2] 2,067	268
Social Science	1,371	1,494	128	1674	120
Other	1,656	1,805	189	1,617	143

[1]1984 dollars adjusted to 1987 using inflation factor of 1.09 derived from Consumer Price Index-Urban.
[2]Indicates 1987 amount is significantly different from 1984 amount.

training said they had received it at some time since 1986. This finding should be viewed with some caution, 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 20 weeks, but many programs (21 percent) lasted a week or less.This figure is somewhat higher than that reported in P-70, No. 11 for 1984). This is because estimates of average program length in that report are in error. Table C shows the revised 1984 estimates.

Payment for work training generally came from the employer (42 percent). About 27 percent of the training was paid for by government (Federal, State, or local), and 31 percent was paid for by the individual or their family. Data about training that had occurred in the context of specific Federally sponsored programs (i.e., JTPA, CETA, WIN, Trade Adjustment Assistance, and Veteran's Training) indicate that these programs together accounted for about 12 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, with training received at work accounting for the largest share.

Table C. **Average Program Length: Revised 1984 Estimates**

Characteristic	Average program length (weeks)
Total	12.8
Male	12.4
Female	13.3
White	12.5
Black	15.9
Other	10.4
Education:	
Less than 9 years	15.3
9 to 12 years	14.5
Greater than 12 years	11

Note that the 1984 estimates do not include participants of government-sponsored programs, but that the 1987 estimates do. This may account for the difference between the 1987 and revised 1984 estimates.