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ABSTRACT

A project studied the early labor market experiences of the high school graduates of the class of 1980 who attended proprietary schools. The analysis was based on the "High School and Beyond" survey that followed that class through January 1986. About 9 percent of the 1980 seniors attended proprietary schools, and more than half of them completed their programs. Many proprietary school students enrolled in colleges as well. The study found that the proprietary school students were more like students who attended community colleges or had no education beyond high school than they were like four-year college students. However, they often had higher family socioeconomic status and a stronger orientation toward work. Higher proportions were women and black. The analysis showed that men who attended proprietary schools were no more likely to be employed than men who attended only high school. Although their hourly earnings were higher, this appeared to be due to factors such as social status rather than to their training. Women who attended proprietary schools were more likely to be employed than women who only completed high school, and their hourly earnings were also higher. Although other factors could have affected their earnings, completing proprietary school was at least partly responsible. Students who attended proprietary schools had no more difficulty repaying their loans than college students. Three appendixes include (1) description of the methodology of the study (explaining use of the data from the High School and Beyond Survey, specifying models used for predicting labor market outcomes, and explaining how information on tuition, grants and loans was compiled); (2) a set of 18 tables; and (3) an annotated list of 14 other studies with findings about students who attended proprietary schools. (KC)

91-177 EPW

CRS Report for Congress

Early Labor Market Experiences of Proprietary School Students

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CRS

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EARLY LABOR MARKET EXPERIENCES OF PROPRIETARY SCHOOL STUDENTS

SUMMARY

This report presents findings about the early labor market experiences of proprietary school students who were members of the high school class of 1980. It is based upon Congressional Research Service (CRS) analysis of *High School and Beyond*, a U.S. Department of Education survey that followed that class through January 1986, 5½ years after the students left high school. As this survey did not include students from other high school classes, it is not representative of all who attended proprietary schools during that period.

About 9 percent of the 1980 seniors subsequently attended proprietary schools, and over half of them completed their programs. Many proprietary school students enrolled in colleges and other schools as well. In general, proprietary school students were more like students who attended community colleges or had no education beyond high school than they were like 4-year college students. However, they could also be distinguished from the former two groups by their family social-economic status, their high school record and educational expectations, and their stronger orientation toward work. Higher proportions were women and black. Proprietary schools thus serve a somewhat different group of students than other postsecondary institutions.

Considering only January 1986 labor market experiences, the analysis showed that men who completed proprietary schools were no more likely to be employed than men who only attended high school. While their hourly earnings were higher, this appeared to be due to factors other than their proprietary school education per se--particularly their orientation toward work, their higher family social-economic status, and access to jobs providing training.

Women who completed proprietary schools were more likely to be employed than women who only attended high school; their hourly earnings were higher as well. While the higher employment rate could be attributed to other characteristics of the women--particularly differences in academic ability, confidence in planning and attaining goals, and whether they had children--the higher hourly earnings may have been due, at least in part, to completing proprietary school. Postsecondary education in general seems important for women's early labor market success, perhaps because most would otherwise only find unskilled jobs at low pay.

Men who completed or even just attended proprietary school were more likely to have jobs providing training than men who only attended high school. No comparable difference was found for women. Both men and women who completed community or 4-year colleges were more likely to have such jobs.

Based on January 1986 earnings, it does not appear that students who attended proprietary schools (whether or not they completed their programs) would have more difficulty repaying their educational loans than students who completed community or 4-year colleges.

PREFACE

This report is one of a series of studies the Congressional Research Service has made of proprietary schools. We undertook the series in response to congressional requests for information about the schools in light of the fraud and abuse with which some have been charged. The series focuses on issues likely to be important during the forthcoming reauthorization of the Higher Education Act, including the educational opportunities they offer some students and the increasing amounts of Federal student aid they receive.

Proprietary schools are postsecondary vocational schools that are privately owned and operated for profit. They also are known as private career or private trade and business schools. Most proprietary school programs can be completed in 6 to 9 months, allowing students to obtain training without losing much time from work. While community colleges also offer short-term programs, as do some 4-year colleges, proprietary schools can be distinguished from most institutions of higher education by their consistent focus on vocational training. Colleges typically have academic programs leading toward degrees, even if they also have vocational programs. Relatively few proprietary schools award degrees.

A series of studies about proprietary schools covering:

- the schools and their students
- student aid
- regulation
- labor market experiences

Proprietary schools provide instruction in a wide variety of occupational subjects: business and secretarial skills, computers and information processing, marketing, travel and tourism, hotel management, culinary arts, cosmetology, health services, electronics, automotive maintenance and repair, truck driving, security guards, building maintenance, and many others. In several fields the proprietary school sector is a major provider of pre-employment training. Nonetheless, most postsecondary vocational education occurs in colleges and universities, and much occupational learning occurs on the job.

Currently there are over 6,000 proprietary schools and branches in the United States--more than all the colleges and universities. Most proprietary schools are small, but those with classroom instruction enroll well over one million students every year. Proprietary correspondence schools enroll about one-half as many. While the actual number of proprietary school students is difficult to determine from Federal surveys, they probably constitute between 9 and 12 percent of all undergraduate enrollment in a given year. Compared to colleges, proprietary schools are likely to have higher proportions of students who are minority, female, lower income, or without a high school diploma. Student bodies in individual schools differ substantially, though, and most postsecondary students with any of these characteristics are enrolled in colleges. For additional information, see *Proprietary Schools: A Description of*

Institutions and Students, CRS Report for Congress No. 90-428, by Richard N. Apling with Steven R. Aleman.

Federal financial aid to proprietary school students is controversial. One reason is the significant increase during the 1980s in their use of subsidized loans and grants. Proprietary school students now receive about one-third of Guaranteed Student Loans (GSLs) and one-quarter of Pell grants. Some people contend that this increase could result in less aid being available for college students. Their concern is magnified by two associated problems: proprietary school students' 40 percent GSL default rate--twice the rate of community college students and 4 times that of students from 4-year schools--and persistent allegations of fraud and abuse in the way a number of proprietary schools administer the aid programs. It is argued, however, that changes in Federal policies to address these problems could restrict postsecondary educational opportunities for some students. These and other issues related to the future of student aid for proprietary school students are analyzed in U.S. Library of Congress. Congressional Research Service. *Proprietary Schools and Student Aid Programs: Background and Policy Issues*, CRS Report for Congress No. 90-427, by Charlotte Fraas.

The way proprietary schools are regulated has come under scrutiny. Currently, the schools are subject to a three-part regulatory structure known as the "triad": private accreditation, State licensing, and Federal eligibility and certification. But frequent allegations of abuses by some schools show the limitations of these systems. Accrediting associations help schools raise standards through voluntary evaluation; created and controlled by the schools themselves, they have limited enforcement powers. Licensing requirements vary widely among States and may not address program quality. Eligibility and certification requirements for Department of Education student aid programs are neither adequate nor properly enforced, according to Inspector General reports. Proprietary schools are also subject to market forces to the extent they must compete for students. Yet if students are not knowledgeable consumers, as sometimes seems the case, the marketplace may not offer much protection. U.S. Library of Congress. Congressional Research Service. *Proprietary Schools: The Regulatory Structure*. CRS Report for Congress No. 90-424, by Margot Schenet, provides an analysis of these issues.

How proprietary schools affect the subsequent work and earnings of their students is not an easy question to answer. Little research has been done on the subject. Moreover, the question must be approached in different ways depending on the policy issue. Knowing how much proprietary school students subsequently earn, for example, would be helpful for determining whether they can pay back student loans. Knowing what similar students earn after attending community college, or perhaps not going on to school at all, would help determine the relative effectiveness of proprietary schools. Knowing if the students' additional earnings exceed the cost of the schooling would be useful for determining whether proprietary school education is a good investment. Whatever the issue, it is important to take account of differences in ability and prior education and training. These questions are explored in this report, *Early Labor Market Experiences of Proprietary School Students*, by Bob Lyke, Thomas Gabe, and Steven R. Aleman.

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CHAPTER 1
INTRODUCTION

This report presents findings about the early labor market experiences of proprietary school students who were members of the high school class of 1980. The report looks at who attended different kinds of postsecondary schools and what difference this might have made in their work and earnings at the beginning of 1986, 5½ years later. Particular attention is paid to those who enrolled in sub-baccalaureate programs lasting 2 years or less.

As is widely recognized, people who complete 4-year colleges and universities on average have substantially higher earnings than those who only graduate from high school.[1] Recent data indicate that this earnings differential grew larger during the 1980s.[2] But what about people who attend other postsecondary institutions--especially proprietary schools and community colleges? Students in these sub-baccalaureate programs now constitute a significant proportion of all who enroll in postsecondary education, and many of them receive Federal student aid. How do they fare in the labor market after completing their education?

Knowing more about the labor market experiences of people who enroll in sub-baccalaureate programs could inform discussions about the reauthorization of the Higher Education Act.[3]

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[1]The mean monthly earnings of adults with bachelors degrees are nearly twice those of adults who only completed high school. Adults with graduate or professional degrees earn even more. U.S. Department of Commerce. Bureau of the Census. Current Population Reports, series P-70, no. 21. *What's It Worth? Educational Background and Economic Status*, spring 1987. Washington, 1990, table A.

[2]Murphy, Kevin. The Education Gap Rap. *The American Enterprise*. Mar./Apr. 1990. p. 62-67.

[3]Authorization for most programs under the Higher Education Act expires at the end of FY 1991, though an automatic 1-year extension could occur under sec. 414 of the General Education Provisions Act. Authorization for the Guaranteed Student Loan program expires at the end of FY 1992.

- It would be useful to know whether completing sub-baccalaureate programs helps high school graduates make the transition from school to work. People who seek employment immediately after high school often encounter numerous problems: many have difficulty finding jobs providing steady work and career opportunities; their earnings may not rise much beyond minimum wage levels.[4] Encouraging more graduates to enroll in short-term programs might be an effective way to help them past these difficulties.

- It would be useful to know whether the type of postsecondary schooling makes a difference in the transition to work. Does it matter whether high school graduates enroll in a proprietary school or a community college, or does any postsecondary education seem to have the same effect? Some argue that proprietary schools generally provide better vocational training since their programs focus on occupational skills and quickly adapt to changing employer needs. On the other hand, community colleges may do more to improve academic skills that employers also want, and they may offer more counseling and other support services. Because of recent widespread criticism of proprietary schools, doubts have arisen about whether the sector as a whole is effective.

- It would also be useful to know whether students who enroll in sub-baccalaureate programs later earn enough to pay back educational loans. This issue is of particular importance for students who attend proprietary schools, for their tuition charges are much higher than community college fees, requiring them to borrow more, and they have had substantially higher default rates.[5] The issue could also be important for students at other schools if their earnings indicate they should not incur so much educational debt.

ABOUT THE STUDY

This report is based upon Congressional Research Service (CRS) analysis of a national longitudinal survey of 1980 high school seniors called *High School and Beyond* (HS&B). Conducted by the U.S. Department of Education, HS&B is one of the few sources of nationally representative data about subsequent

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[4]Problems in the transition from school to work are discussed in *The Forgotten Half: Pathways to Success for America's Youth and Young Families*. Final Report. Youth and America's Future: The William T. Grant Foundation on Work, Family, and Citizenship. 1988

[5]U.S. Library of Congress. Congressional Research Service. *Proprietary Schools and Student Aid Programs: Background and Policy Issues*. CRS Report for Congress No. 90-427 EPW, by Charlotte J. Fraas. Washington, 1990. (Hereafter cited as Fraas. *Proprietary Schools and Student Aid Programs*)

employment experiences of people who attend proprietary schools.[6] Our study used the initial survey conducted in the spring of 1980 as well as three follow-up surveys conducted in 1982, 1984, and February 1986.[7]

In several respects, the 1980 seniors are a good group to study. By the time of the third follow-up survey in February of 1986, they had been out of high school 5½ years, long enough to have acquired both some postsecondary education and subsequent labor market experience. This is particularly true for those who enrolled in sub-baccalaureate programs; in contrast, students who graduated from 4-year programs would just be starting full-time work. Moreover, the educational and employment experiences of the 1980 seniors are not so dated that they may no longer be relevant. The schools they attended can still be compared to today's.

Yet, studying the 1980 seniors has some drawbacks for this report. By February 1986, they have had only limited labor market experience. Few have been working long enough to receive the increases in earnings that many adults experience in their late twenties and thirties.[8] None has yet had an employment history that might reveal long-term consequences of education.[9] It would have been better if recent survey data with longer periods of employment had been available.[10]

Moreover, the 1980 seniors who attended proprietary schools over the following 5½ years are not representative of **all** proprietary school students of that period. Students in the HS&B study generally were between the ages of 18 and 24 when they enrolled in proprietary schools, yet about half of all

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[6]Questions about both education and subsequent employment experiences are included in three U.S. Bureau of the Census surveys (the decennial census, the Current Population Survey, and the Survey of Income and Program Participation), but none separately identifies people who attended proprietary schools.

[7]The *High School and Beyond* survey is designed to follow the transition of young adults from high school into postsecondary education and employment. The initial survey in the spring of 1980 included over 28,000 seniors and 30,000 sophomores in more than 1,100 secondary schools; 10,500 of the former and 13,400 of the latter were still included by the third follow-up survey. This report uses only the surveys for the 1980 seniors, since by 1986 they had more labor market experience than the sophomores. A fourth *High School and Beyond* follow-up survey is planned for 1992.

[8]These earnings increases can be inferred from 1987 Survey of Income and Program Participation (SIPP) data showing mean monthly earnings by educational attainment for adults grouped by age (18 to 24 years, 25 to 34 years, 35 to 44 years, etc.). Since SIPP is a cross-sectional rather than longitudinal survey, however, the earnings of any one group over time may be somewhat different. *What's It Worth? Educational Background and Economic Status*, spring 1987, table 2.

[9]It is not clear, however, how long after school it is reasonable to attribute differences in people's labor market experiences to their education.

[10]The fourth HS&B follow-up survey, scheduled for 1992, might be useful in this respect.

proprietary school students are older than 24.[11] While the focus on younger students has some advantages--it is a group which faces many problems in making the transition from school to work--it does limit the extent to which the findings of this study can be generalized to all proprietary school students.

Our findings are also limited by the number of proprietary school students who were included in the HS&B survey.[12] Because of small sample sizes, we could not answer a number of questions that might be relevant for reauthorization of the Higher Education Act. In particular, when we used regression analysis to measure the extent to which students' work and earnings were affected by their postsecondary education instead of other factors, the results could not be stated as strongly as might be desired.

The findings in this report are presented in two sections. In chapter 2 we compare proprietary school students to others in the class of 1980 with respect to important social and academic characteristics; we attempt to show who attended different types of schools as well as identify similarities and differences that might affect labor market experiences. In chapter 3 we compare proprietary school students to others in the class of 1980 with respect to employment rates, hourly earnings, and work in jobs that provide training. The fourth chapter has a short summary and discussion. Completing the report are three appendices: a technical discussion, tables showing standard errors and other details, and brief summaries of other reports with findings about labor market experiences of proprietary school students.

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[11]U.S. Library of Congress. Congressional Research Service. *Proprietary Schools: A Description of Institutions and Students*. CRS Report for Congress No. 90-428 EPW, by Richard N. Apling with Steven R. Aleman. Washington, 1990.

[12]Simply identifying all respondents who attended proprietary schools was difficult because of coding problems with HS&B data files.

CHAPTER 2
PROPRIETARY SCHOOL STUDENTS IN THE HIGH SCHOOL CLASS OF 1980

Most students in the high school class of 1980 obtained additional education during the 5½ years after they left high school.[13] Three quarters enrolled in colleges, proprietary schools, vocational courses, or some other program; only one quarter had no further education. In this chapter, we will discuss how students who attended proprietary schools differed from their high school classmates with no or other postsecondary education experiences. As will be seen, proprietary school students were more like students who attended community college or had no education beyond high school than they were like students at 4-year colleges; nonetheless, they can be distinguished from the former two groups in ways that might affect their labor market experiences. The chapter also provides information about enrollment rates, maximum levels of completion, fields of study, and tuition costs.

ENROLLMENT RATES

- **Nine percent of the 1980 high school seniors attended proprietary schools in the 5½ year period after high school.**

- **Of these students, nearly 40 percent also enrolled in some other type of postsecondary education.**

Table 2-1 shows the type of schools the 1980 seniors attended during the 5½ years after they left high school. As can be seen, 47 percent attended 4-year colleges and universities, 32 percent community colleges, 9 percent proprietary schools, and so on. The categories of public and private less than 2-year schools include area vocational-technical schools and continuing education programs offered at colleges and universities; the "other" category includes adult education courses, short-term job training, and a mixture of other instruction.

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[13]Some seniors in the initial *High School and Beyond* survey did not graduate in the spring of 1980, and about 1 percent had not completed high school even by the third follow-up survey. For simplicity, however, we shall discuss the 1980 seniors as if they left school in June 1980.

TABLE 2.1. Proportion of 1980 High School Seniors Attending Postsecondary Educational Institutions Within 5½ Years

Sector	Percent
No postsecondary experience	24%
Some postsecondary experience	76
Total	100
4 year college or university	47
Community college	32
Proprietary school	9
Public less than 2 year school	8
Private less than 2 year school	3
Other	4

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Percentages do not sum to totals due to students attending multiple postsecondary institutions.

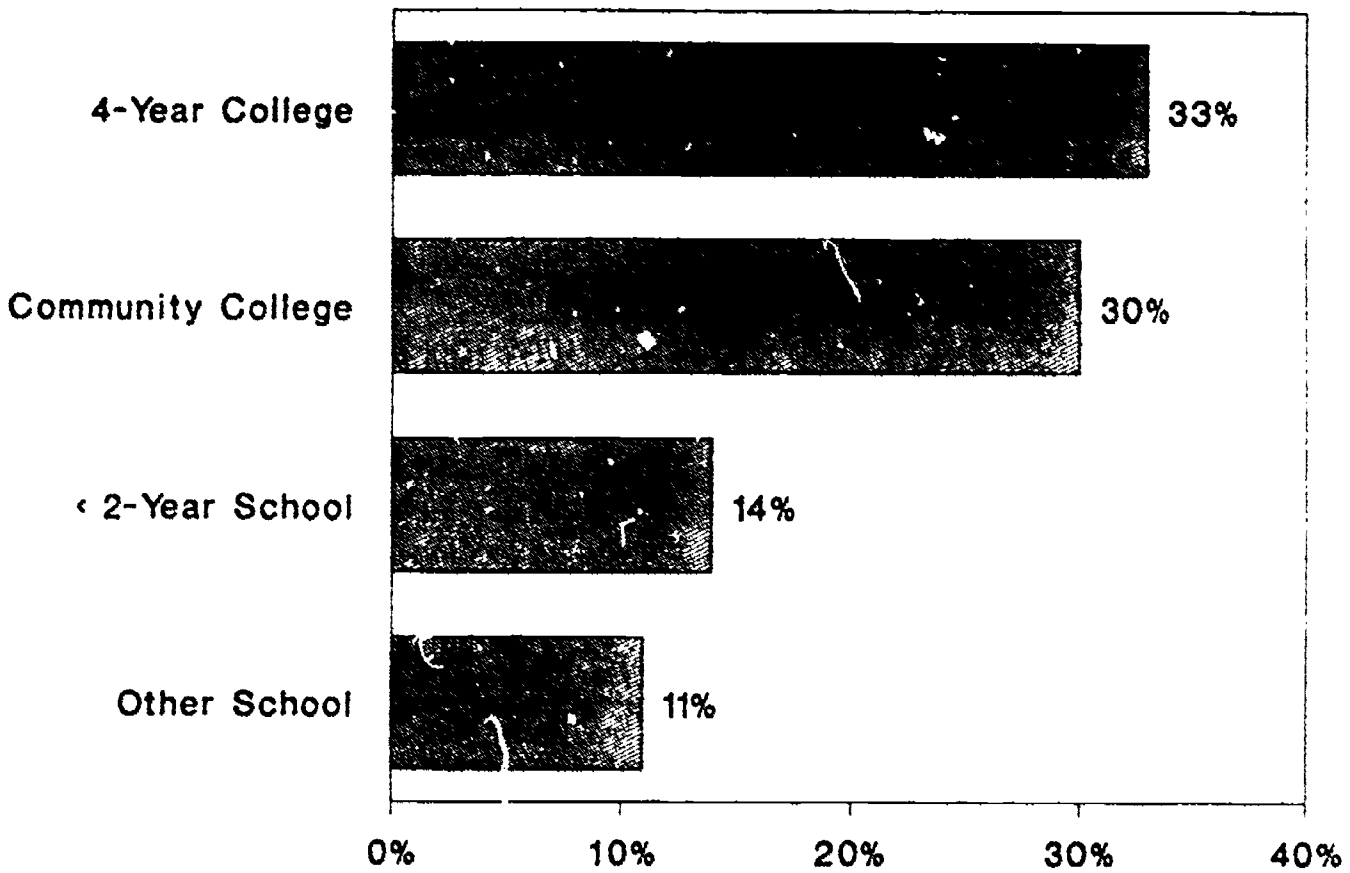
Interpretive Note: Among other things, the table shows that 76 percent of the high school class of 1980 had some postsecondary education experience; 47 percent of the class attended a 4-year college or university. Some students attended more than one type of institution.

Many students attended more than one type of school.[14] Proprietary school students were no exception: 39 percent of them also attended at least one other type of school, 23 percent attended two or more other types, and 3 percent attended three other types. Figure 2-1 shows the other types of institutions that the proprietary school students attended. The highest number (33 percent) enrolled in 4-year schools while almost as many (30 percent) enrolled in community colleges. Smaller numbers enrolled in less than 2-year schools and other programs.

It is striking that so many of the 1980 seniors who attended proprietary schools also enrolled in other types of schools. Further research is needed to show the order in which the students attended these schools (whether most changed from colleges to proprietary schools, or vice versa) and how long they stayed in each. It would be interesting to know whether the courses taken in the different schools were related. It could be that the transfers were logical steps toward a coherent training goal; for these students, there was not a rigid separation between collegiate and proprietary school education. On the other hand, the transfers may represent repeated beginnings in schools with markedly different purposes. These students would have incurred additional educational costs as they tried to decide what they should study.

[14]This accounts for why the enrollment percentages in the table add up to more than 76. Many students also attended one or more schools of the same type (for example, some transferred from one 4-year college to another), but that is not shown here.

FIGURE 2.1. Percent of Proprietary School Students In the 1980 Senior High School Class Who Also Attended Other Types of Schools



NOTE: Figure prepared by the Congressional Research Service (CRS). Based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file.

Interpretive Note: Among other things, the figure shows that 33 percent of proprietary school students who were in the high school class of 1980 also attended a 4-year school. Some students attended more than one other type of school.

SOCIAL CHARACTERISTICS

- **Compared to students with only high school education, students who attended proprietary schools were more likely to be from families of higher social-economic status; higher proportions were women and black.**

- **Compared to students who attended community college, students who attended proprietary schools were also more likely to be women and black; higher proportions were from families of lower social-economic status.**

Table 2-2 shows social characteristics of the high school class of 1980 according to their postsecondary education experiences.[15] Our findings are based on both the table and a regression analysis with which we controlled for a variety of social, academic, and other factors. (The regression analysis is discussed in appendix A; its results are presented in appendix B.)

Gender is one characteristic that clearly distinguishes the proprietary school sector. As a group, proprietary schools had a higher proportion of women students than did either community or 4-year colleges; the contrast with students who had only high school education is greater yet. Even controlling for other factors, we found that proprietary schools attracted more women than their proportion in the population would suggest. One reason for this might be that several of the largest proprietary school programs are in occupational fields that traditionally have employed women.[16]

Race is another distinguishing characteristic. Controlling for other factors, we found that proprietary school students were more likely to be black than were those who only completed high school. They also were more likely to be black than students who attended community colleges. For whatever reason--location and recruitment policies are among the possibilities--proprietary schools enrolled more black students than would be suggested by their proportion in the population.[17]

With respect to **social-economic status**, proprietary school students were more likely than those with only high school education to come from families in

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[15]Students who attended more than one type of school (such as both a proprietary school and a community college) are included in both groups.

[16]Table 2-5 shows that over two-thirds of the women who completed proprietary schools were enrolled in administrative support (clerical and data entry), personal services (cosmetology), and health programs (nursing and medical technology).

[17]Taking other characteristics into account, our analysis found some evidence that 4-year colleges also enrolled a disproportionate number of black students; however, the difference did not meet our test for minimum statistical significance.

the highest status quartile; they were less likely to come from families in the lowest status quartile.[18]

Proprietary school students were more likely to come from lower social-economic status families than were students at community or 4-year colleges. In controlling for other factors, however, our analysis did not show that social-economic status had an independent effect in distinguishing these groups.

TABLE 2.2. Background Characteristics of 1980 High School Seniors by Postsecondary School Attended

	High school only	Proprietary school	Community college	4-Year college
Gender				
Total	100.0%	100.0%	100.0%	100.0%
Male	52.0	36.5	47.2	49.1
Female	48.0	63.5	52.8	50.9
Race/ethnicity				
Total	100.0	100.0	100.0	100.0
White, nonhispanic	74.0	69.6	76.7	81.5
Black, nonhispanic	11.2	15.8	10.0	9.7
Hispanic	13.4	12.1	10.0	6.1
Other, nonhispanic	1.4	2.6	3.3	2.7
Social-economic status				
Total	100.0	100.0	100.0	100.0
Highest quartile	6.8	21.6	26.4	39.6
Third quartile	20.3	25.1	28.1	27.3
Second quartile	32.3	27.1	25.2	19.0
Lowest quartile	40.7	26.1	20.4	14.1

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Details may not sum to totals due to rounding.

Interpretive Note: Among other things, the table shows that 63.5 percent of the 1980 high school seniors who attended proprietary schools were women; 15.8 percent were black; and, 26.1 percent were from families in the lowest quartile of social-economic status.

HIGH SCHOOL BACKGROUND

- **Compared to students with only high school education, students who attended proprietary schools had somewhat higher high school grades and cognitive test scores, and somewhat more were enrolled in the academic course track.**

[18]Social-economic status is a composite variable in *High School and Beyond* that is based on five components: father's occupation, father's education, mother's education, family income, and household possessions.

- **Compared to students who attended community college, students who attended proprietary schools had somewhat lower high school grades and cognitive test scores, and somewhat fewer were enrolled in the academic course track.**

Table 2-3 provides information about the high school background of the 1980 seniors: their grades, their cognitive test scores, and whether they were in an academic, vocational, or general course track.[19] The first two factors are different measures of academic ability, while enrollment in the academic course track may reflect preparation for college.

On all three measures, students who attended proprietary schools can be differentiated from students who only attended high school. While differences in grades, test scores, and academic track enrollment are not large, their direction and consistency are clear. Proprietary school students were more likely to receive A's and B's, to have test scores in the top two quartiles, and to be enrolled in the academic track. Overall, they had somewhat stronger high school backgrounds.

Proprietary school and community college students can also be differentiated on the three measures. Proprietary school students were more likely to have lower grades and test scores; fewer were enrolled in the academic track. Overall, they had somewhat weaker high school backgrounds.

As might be expected, there were greater differences in grades, test scores, and academic track enrollment between proprietary school and 4-year college students.

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[19]Test scores were from math and verbal tests that were specially designed for the *High School and Beyond* survey.

TABLE 2.3. Background Characteristics of 1980 High School Seniors by Postsecondary School Attended

	High school only	Proprietary school	Community college	4-Year college
High school grades				
Total	100.0%	100.0%	100.0%	100.0%
Mostly A's	3.1	4.8	8.8	22.7
A's and B's	13.1	17.5	23.3	28.7
B's	17.8	22.2	23.4	22.1
B's and C's	31.3	32.6	28.2	19.3
C's	21.5	15.9	12.3	5.7
C's and D's	10.7	6.8	3.3	1.3
D's	2.4	0.1	0.6	0.2
Below D	0.1	0.1	0.1	0.0
H.S. cognitive test score				
Total	100.0%	100.0%	100.0%	100.0%
Fourth quartile	6.5	15.7	23.9	44.3
Third quartile	16.6	26.2	30.1	29.2
Second quartile	31.6	26.3	26.6	18.3
Lowest quartile	45.3	31.8	19.4	8.2
Course track				
Total	100.0%	100.0%	100.0%	100.0%
Academic	10.5	26.4	39.1	63.4
Vocational	40.2	34.9	24.5	10.0
General	49.3	38.8	36.5	26.6

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Details may not sum to totals due to rounding.

Interpretive Note: Among other things, the table shows that 4.8 percent of the 1980 high school seniors who attended proprietary schools had mostly A's in high school, 17.5 percent had mostly A's and B's, etc.; 31.8 percent scored in the lowest quartile on a cognitive test administered in high school; and, 26.4 percent were in an academic track in high school.

EDUCATIONAL EXPECTATIONS

- **While in high school, students who attended proprietary school had higher educational expectations than those who did not enroll in postsecondary education, but lower than those who went on to college.**

- **Over half of those who attended proprietary school had expected to complete college.**

When asked about their educational expectations during high school, most 1980 seniors anticipated completing some form of postsecondary education. Not surprisingly, those who subsequently attended proprietary schools had higher expectations than those who did not go on to school: as table 2-4 shows, six out of seven of the former (all but 14.2 percent) anticipated completing some postsecondary program in contrast to about one-half of the latter. On the other hand, proprietary school students had lower educational expectations than students who attended either community or 4-year colleges. Forty-five percent

of proprietary school students (that is, 31.0 + 14.2) had not anticipated going on to college as opposed to about 28 percent of community college students and only 8 percent of 4 year college students. Differences were evident even when we controlled for social, academic, and other factors.

TABLE 2.4. Highest Educational Expectations of 1980 High School Seniors by Postsecondary School Attended

	Postsecondary school attended			
Expectation	High school only	Proprietary school	Community college	4-Year college
Total	100.0%	100.0%	100.0%	100.0%
More than 4-year college	2.6	12.9	20.7	38.1
4-year college	5.7	18.3	28.3	42.6
Community college	11.8	23.6	22.9	11.5
Vocational school	28.6	31.0	20.5	5.8
High school only	51.2	14.2	7.7	2.0

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Details may not sum to totals due to rounding.

Interpretive Note: Among other things, the table shows that 18.3 percent of the 1980 high school seniors who later entered proprietary schools had expected to complete a 4-year college as their highest level of educational attainment.

Many students had expectations that were higher than what their enrollment choices would enable them to fulfill. Table 2-4 shows that 29 percent of those who only attended high school had expected to complete a vocational school, and another 20 percent had expected to complete college or more. Among those who attended proprietary schools, 24 percent had expected to complete community college and another 31 percent had expected to complete 4 or more years of college.[20] While our analysis does not indicate why students did not enroll only in institutions that enabled them to attain their earlier expectations, some may have encountered academic or financial problems, while others may have changed their goals once they left high school.

WORK ORIENTATION

- **When in high school, proprietary school students were more oriented towards work than either college students or those who would not have postsecondary education.**

When in high school, the 1980 seniors were asked several questions reflecting their orientation towards work: whether it is important to have

[20]As figure 2.1 shows, many proprietary school students also enrolled in other types of postsecondary institutions. We did not explore whether such enrollments were consistent with their educational expectations.

steady work, to be successful in a line of work, and to have lots of money. Controlling for other factors, our analysis showed that proprietary school students were more oriented to work than either community and 4-year college students or those who had only high school education.

In addition, proprietary school students were more likely than those who only attended high school to have confidence in their ability to plan and attain goals. These traits could also be helpful with work.

MAXIMUM LEVELS OF COMPLETION

- **About 5 percent of the 1980 seniors completed proprietary schools as their maximum level of educational attainment.**

- **Over half of all 1980 seniors who attended proprietary schools completed these programs. About 6 percent of those who attended completed community or 4-year colleges.**

Five and one-half years after leaving high school, about 15 percent of the 1980 seniors were still enrolled in postsecondary education while 85 percent had either completed their studies, dropped out without completing a program, or never gone on to school. Figure 2.2 shows that in January 1986, 21 percent of the seniors had completed 4-year colleges as their maximum level of educational attainment, about 7 percent had completed community colleges as their maximum level of attainment, and about 5 percent had completed proprietary schools as a maximum level of attainment. Note that this figure does not reflect total postsecondary education completion rates for the high school class of 1980: it excludes the lower degrees of those who completed two or more programs.[21]

Figure 2-3 provides information about all of the 1980 seniors who ever attended proprietary schools. Just over half (54 percent) completed such programs as their maximum level of educational attainment. About 6 percent completed community or 4-year colleges (some of these may also have completed proprietary schools, too) and 7 percent other programs. A third of all the proprietary school students did not complete any program.

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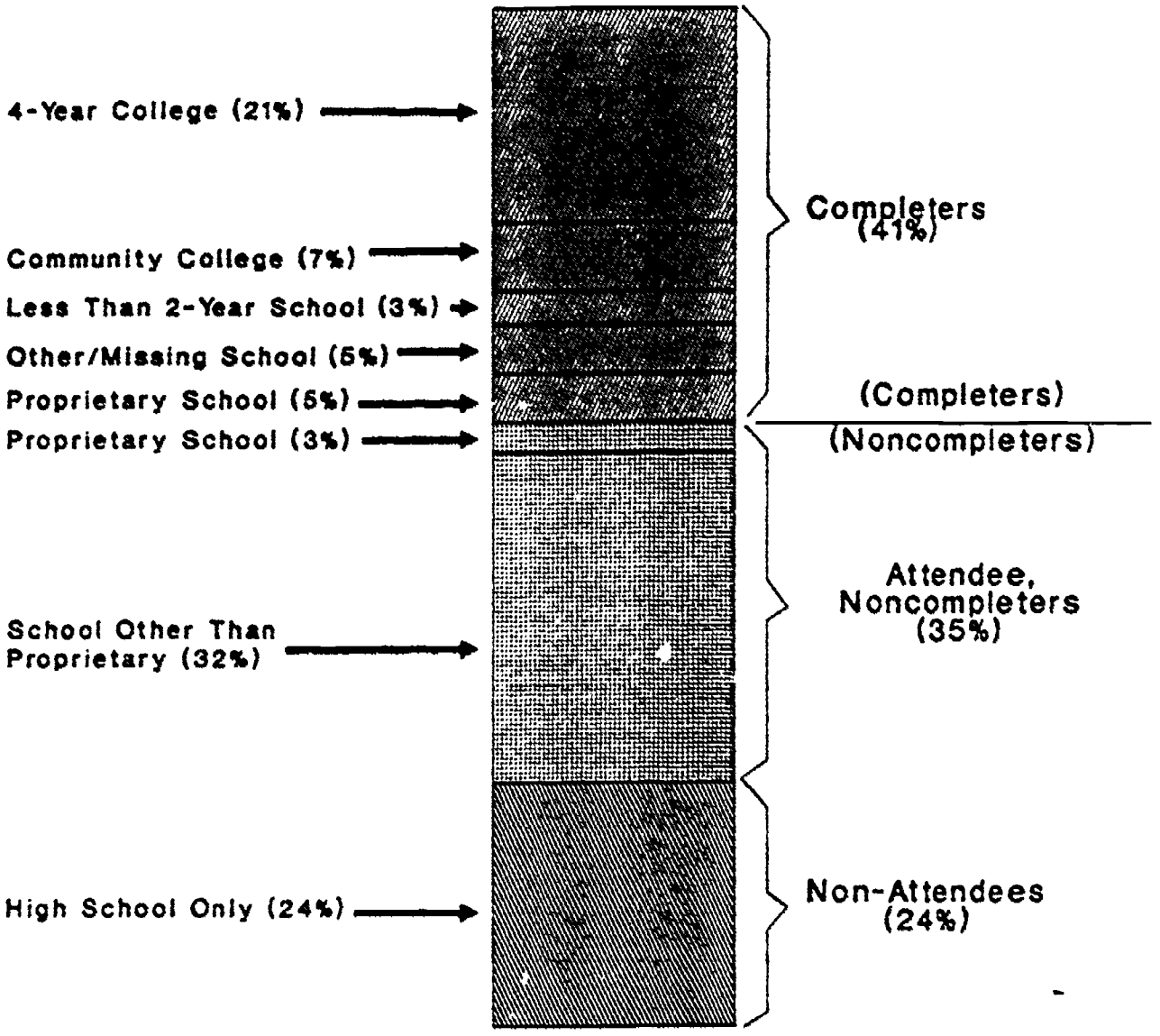
[21]For example, associate degrees or proprietary school certificates of students who also obtained bachelor degrees were omitted. The figure presents completion rates this way since our analysis of labor market experiences is based on workers characterized by maximum levels of educational attainment. We assumed that young adults would generally try to market their labor in terms of the program that required the most coursework; in contrast, older adults might give more emphasis to the most recent program completed. Obviously, there could be exceptions.

Controlling for other factors, we could not distinguish proprietary school students who completed their programs from those who attended but did not complete.[22]

[22]We found some evidence that a disproportionate number of black proprietary school students failed to complete their programs; however, the difference did not meet our test for minimum statistical significance. We cannot explain why our analysis did not distinguish between proprietary school students who completed and those who did not. The most likely possibilities are that sample sizes were not sufficiently large and that the particular design of our regression model did not show differences that were present. It is also possible that differences in school characteristics were a factor.

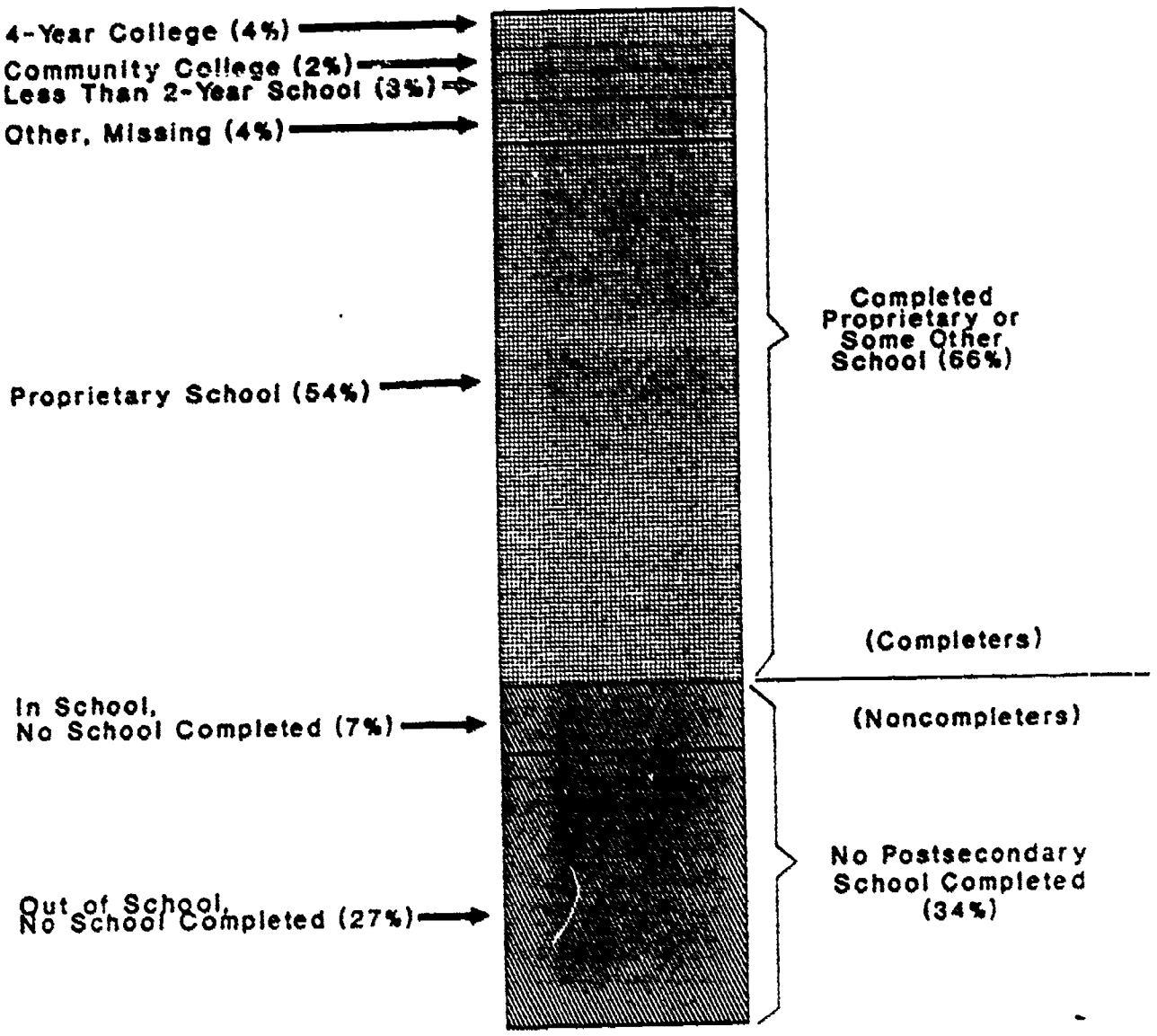
FIGURE 2.2. Maximum Level of Postsecondary School Completed by 1980 High School Seniors January 1986



NOTE: Figure prepared by the Congressional Research Service (CRS). Based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file.

Interpretive Note: Among other things, the figure shows that 41 percent of the 1980 high school seniors who were not enrolled in school in Jan. 1986 had completed a postsecondary education program; approximately 5 percent completed a proprietary school program as their maximum level of education completed. Approximately 35 percent of high school seniors attended but did not complete any postsecondary program.

FIGURE 2.3. Percent of 1980 High School Seniors Who Ever Attended a Proprietary School By Completion Status January 1986



NOTE: Figure prepared by the Congressional Research Service (CRS). Based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file Percentages may not sum to totals due to rounding.

Interpretive Note: Among other things, the figure shows that approximately two-thirds of the 1980 high school seniors who ever attended a proprietary school completed either a proprietary school (54 percent) or some other school as their maximum level of schooling attainment. Approximately one third of 1980 seniors who ever attended a proprietary school did not complete any postsecondary schooling, 27 percent were no longer in school and 7 percent were enrolled in school, in Jan. 1986.

FIELDS OF STUDY

- **More than one-third of all students who completed proprietary school were enrolled in programs that could lead to jobs with lower than average earnings.**

- **Women were more likely than men to enroll in such programs; men who completed were more likely to be in programs that could lead to jobs with higher than average earnings.**

Table 2-5 shows the fields of study selected by the 1980 seniors who completed either proprietary schools, community colleges, or 4-year colleges as their maximum level of educational attainment. The table lists the fields according to the frequency that they were selected by proprietary school completers.

More than one-third of all proprietary school completers were enrolled in two programs that could lead to jobs providing lower than average earnings: administrative support (clerical and data entry positions, etc.) and personal services (cosmetology and barbering positions, etc.). In 1989, median weekly earnings of full-time workers in these occupations were 83 percent and 57 percent, respectively, of the median weekly earnings of all workers.[23]

Women were much more likely than men to be enrolled in these two programs. Twenty-five percent of the women who completed proprietary schools were in personal services programs, but only 2 percent of the men who completed were. Twenty-three percent of the women completers were in administrative support programs, but only 7 percent of the male completers were.[24]

In contrast, half of the men who completed proprietary schools were in two programs that could lead to jobs with higher earnings: industrial skills (construction, precision production, and mechanics and repair) and advanced trades (engineering technology, architectural design, etc.). In 1989, median weekly earnings of full-time workers in these occupations were about 112 percent and 123 percent, respectively, of the median weekly earnings of all workers.[25]

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[23]U.S. Department of Labor. Bureau of Labor Statistics. *Employment and Earnings*. Jan. 1990, table 56. (Hereafter cited as *Employment and Earnings*)

[24]Another 38 percent of the women completers were in two fields of study (business/marketing and health) that could lead to jobs with either higher than average earnings (sales representatives and radiologic technicians, for example) or lower than average earnings (retail sales workers and health aides, for example). More information about their programs is needed to indicate the kind of jobs for which they were being prepared.

[25]*Employment and Earnings*, table 56.

TABLE 2-5. Percent of Proprietary School, Community College, and 4-Year College Completers of the 1980 Senior High School Class by Field of Study

	Proprietary			Community College			4-Year College		
Field of Study	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Administrative support	18	7	23	8	3	12	1	--[a]	3
Business/ marketing	18	16	19	20	13	24	29	32%	27
Personal services	17	2	25	2	2	2	--[a]	0	--[a]
Health	15	7	19	18	9	25	6	2	9
Industrial skills	13	35	2	8	19	--[a]	2	3	1
Technology	7	8	6	5	6	5	4	5	3
Advanced trades	6	15	1	12	24	2	11	18	5
Other	4	2	4	8	9	8	7	5	8
Transportation	2	5	0	--[a]	--[a]	--[a]	--[a]	1	0
Law/education/ social science/ public affairs	1	2	--[a]	10	8	12	20	15	24
Academic	0	0	0	8	5	10	20	19	20

[a]Less than 1 percent.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Columns may not sum to 100 percent due to rounding.

Interpretive Note: Among other things, the table shows that 18 percent of all 1980 high school seniors who completed proprietary schools were enrolled in administrative support program.

CUMULATIVE TUITION COSTS

- **Proprietary school completers had higher cumulative tuition costs than students who completed community colleges.**

Table 2-6 shows average (mean) cumulative postsecondary education tuition costs for several groups of 1980 seniors. These cumulative costs were calculated two ways: total tuition and total net tuition, that is, tuition fees minus grants and scholarships. The latter figure more accurately indicates what students and their families would have paid for direct school charges.[26] *High School and Beyond* does not have data on other direct expenses (books, for example), indirect expenses (transportation, for example), or opportunity costs (foregone earnings from studying rather than working). Note that table 2-6 takes into consideration all the schools the students attended during the 5½ year period since high school, not just the school they completed as their maximum level of attainment.

As might be expected, students who completed proprietary schools had higher cumulative tuition and cumulative net tuition costs than students who completed community colleges. Their costs were substantially less than those of 4-year college completers. Differences that are deemed to be statistically significant are marked by one or more asterisks.[27]

[26]Many students received loans to help pay net tuition costs. Loans do not reduce costs (though some loan subsidies might); rather, they extend the time over which costs can be paid.

[27]See appendix A for a discussion of the tests of statistical significance used in this report.

TABLE 2.6. Average Cumulative Postsecondary Tuition Costs of 1980 High School Seniors During the 5½ Years Following High School by Maximum Postsecondary Education Completion Status

	Average total tuition		Average total net tuition	
	Average	Difference compared to proprietary school completers	Average	Difference compared to proprietary school completers
Completers				
4-Year, baccalaureate	$16,880	$10,295***	$11,959	$6,785***
Community college	4,194	-2,391***	2,894	-2,280***
Proprietary school	6,585	0	5,174	0
Noncompleters				
Attended proprietary school	4,168	-2,417***	3,115	-2,059***
Did not attend proprietary school	5,369	-1,216**	3,707	-1,467***

* Statistically significant difference at the .10 probability level (.05 level for a 1-tailed test).

** Statistically significant difference at the .05 probability level (.025 level for a 1-tailed test).

*** Statistically significant difference at the .01 probability level (.005 level for a 1-tailed test).

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior High School Cohort, third follow-up data file. Estimates reflect data and assumptions used. Estimates are average total postsecondary education tuition costs for members of the 1980 senior high school class in the 5½ years following high school and who were not enrolled in school in Jan. 1986. Tuition costs reflect the costs of all schools attended over the period. Net tuition costs are defined as total tuition less grants.

Interpretive Note: Among other things, the table shows that average cumulative tuition cost of proprietary school completers was $6,585; their average cumulative net tuition cost (tuition minus grants and scholarships) was $5,174. Proprietary school completers had significantly higher total and net tuition costs than proprietary school noncompleters or community college completers. Proprietary school completers had significantly lower tuition costs than members of the 1980 high school class who completed a 4-year college baccalaureate program.

SUMMARY

Nine percent of the high school class of 1980 subsequently attended proprietary schools. At some point, many of these students enrolled in colleges and other schools as well. Over half of all who enrolled in proprietary schools completed their programs.

Proprietary school students were more like students who attended community college or had no education beyond high school than they were students at 4-year colleges. Their social and academic characteristics suggest that most would not have enrolled in 4-year schools, though there were many who did.

Nonetheless, proprietary school students can be distinguished from those with only a high school education. Controlling for a variety of factors, our analysis shows that proprietary school students were more likely to be from families of higher social-economic status; they were somewhat stronger students in high school and had higher educational expectations. Their orientation toward work was stronger. In addition, higher proportions of proprietary school students were women and black.

Compared to community college students, proprietary school students were also more likely to be women, black, and from families of lower social-economic status. They were somewhat weaker students in high school and had lower educational expectations. They had a stronger orientation toward work. While the majority of students in these two sectors were similar, some proprietary school students differed in ways that suggest they might not have enrolled in community colleges. Further research is needed to measure the extent to which community colleges and proprietary schools actually are educational alternatives for such students.

Many women who completed proprietary schools were enrolled in programs that had high concentrations of women. Nearly half were in administrative support (clerical and data entry) or personal services (cosmetology) programs that could lead to jobs with lower than average earnings.

CHAPTER 3
EARLY LABOR MARKET EXPERIENCES

Five and one-half years after leaving high school, most students in the class of 1980 were no longer in school and could seek steady employment. Only one in seven was still studying. In this chapter, we will discuss how out of school members of the class with different postsecondary education experiences compared with respect to employment rates, hourly earnings, and access to jobs that provide training. We also will show whether there were differences in their ability to pay back educational loans.

The chapter emphasizes two comparisons: first, between students who completed proprietary schools and those who only attended high school, and second, between proprietary school and community college completers.[28] Proprietary school students were more like these two groups than students at 4-year colleges; nonetheless, they differed from both groups in ways that might affect their labor market experiences. As will be seen, some employment and earnings differences that we identify probably are due to such factors rather than their postsecondary schooling.

EMPLOYMENT RATE

- **Men in the class of 1980 who completed proprietary schools had the same employment rate as men who only attended high school.**

- **The comparable rate for women completers was higher, but this did not appear to be due to their having completed proprietary school.**

- **Men who completed proprietary schools had a lower employment rate than men who completed community college. No comparable difference was found for women.**

Table 3-1 shows employment rates in January 1986, for people in the high school class of 1980 who had different postsecondary education experiences. Only those not in school were included; any who reported earnings were considered to be employed. Note that only differences marked with one or more asterisks (*) meet our tests for statistical significance; only in these cases is there sufficient evidence to conclude that employment rates were in fact different.

The table shows that men who completed proprietary schools did not have a higher employment rate (77.2 percent) than men who only attended high

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[28]Our analysis is based upon students' maximum level of completion, as discussed in the previous chapter.

school (77.7 percent). In addition, they had a lower employment rate than men who completed community colleges (89.4 percent).

TABLE 3.1. Employment Rate of Out-of-School 1980 High School Seniors By Postsecondary Education Completion Status January 1986

Postsecondary completion status	Men			Women		
	Employment rate	Difference compared to high school only	Difference compared to proprietary school completers	Employment rate	Difference compared to high school only	Difference compared to proprietary school completers
High school only	77.7%	0.0%	0.5%	60.0%	0.0%	-13.5%***
Attendee/noncompleters						
Proprietary school	76.2	-1.5	-1.0	68.9	8.9**	-4.6
School other than proprietary	80.4	2.7	3.2	76.9	16.9***	3.4
Completers						
Proprietary school	77.2	-0.5	0.0	73.5	13.5***	0.0
Public, < 2 year	86.5	8.8*	9.3	77.9	17.9***	4.4
Community college	89.4	11.7***	12.2**	81.0	21.0***	7.5
4-year, baccalaureate	85.7	8.0***	8.5*	88.3	28.3***	19.4***

* Statistically significant difference at the .10 probability level (.05 level for a 1-tailed test).

** Statistically significant difference at the .05 probability level (.025 level for a 1-tailed test).

*** Statistically significant difference at the .01 probability level (.005 level for a 1-tailed test).

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used.

Interpretive Note: Among other things, the table shows that women in the high school class of 1980 who completed proprietary school had a higher employment rate (73.5 percent) than women who only attended high school (60.0 percent). The difference is statistically significant at the .01 probability level or better, meaning that there is less than a 1 percent chance that the observed difference is due to chance. Although women community college completers had an employment rate of 81.0 percent, the difference (7.5 percent) from the rate for women proprietary school completers was not sufficient to be deemed statistically significant.

For women, the pattern is somewhat different. Women who completed proprietary schools had a higher employment rate (73.5 percent) than women who only completed high school (60.0 percent). Controlling for other factors, however, our analysis suggests that characteristics other than completing proprietary school probably account for this difference. Among the factors that appeared to be important were high school grades and cognitive test scores (measures of academic ability), confidence in planning and attaining goals, and whether the women had children.[29] No significant difference was found between the employment rates of women proprietary school and community college completers.

For both men and women, community college completers had higher employment rates than those of their gender who only attended high school. (The differences were 11.7 percent and 21.0 percent, respectively.) Differences were observed even after taking other factors into consideration.

Note that women who attended but did not complete proprietary schools (or any other school) had a higher employment rate than those of their gender who only attended high school. This difference was observed even after taking other factors into consideration. In fact, women who enrolled in any of the postsecondary programs in the table had higher employment rates, whether or not they completed their programs. In contrast, men who attended but did not complete proprietary schools (or any other school) had a rate that was no different from men who only attended high school.

Men and women who completed 4-year colleges had higher employment rates than proprietary school completers; only for women, however, were these differences maintained in taking other factors into account.

HOURLY EARNINGS

- **On average, men and women who completed proprietary schools had higher hourly earnings than those of their gender who only attended high school.**

- **For men, however, the higher earnings did not appear to be due to their having completed proprietary school. For women, higher earnings were observed even when other factors were taken into consideration.**

- **For both men and women, no significant difference was found in the average hourly earnings of proprietary school and community college graduates.**

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[29]Further research would be needed to show how these factors influenced employment rates; their effects may actually be due to other factors not discussed here.

Table 3-2 shows mean (average) hourly earnings in January 1986, for people in the high school class of 1980 who had different postsecondary education experiences. Only those not in school and who had earnings were included.[30] As was the case with the previous table, only differences marked with asterisks meet our tests for statistical significance.

The table shows that men who completed proprietary schools on average had higher hourly earnings ($7.85) than men who only completed high school ($6.82). Women completers likewise had higher hourly earnings ($6.47) than women who only completed high school ($5.46).

Taking other factors into account, however, our analysis indicates that the higher earnings of men who completed proprietary schools probably were due to factors other than their completing such schooling per se.[31] Among those that appeared to be important were an orientation towards work described in chapter 2 (including both favorable attitudes towards the importance of work as well as a greater sense of being able to attain their goals), higher family social-economic status, and having work-based training.[32]

In contrast, higher earnings were observed for women proprietary school completers even when other factors were taken into consideration. While this finding is not unambiguous (as is discussed in the concluding section of the chapter), one interpretation is that women who are recent high school graduates can increase their earnings by enrolling in and completing proprietary schools.

Men who completed proprietary school appeared to have higher hourly earnings than men who completed community college ($7.09), but this difference is not statistically significant. The same was true of the difference for women.

For both men and women, no significant differences in hourly earnings were found between those who attended but did not complete proprietary schools (or any other schools) and those who only graduated from high school.

The table shows that women 4-year college graduates on average had higher hourly earnings than proprietary school graduates. This difference was maintained even after controlling for other factors. The comparable difference for men was not statistically significance.

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[30]Our findings of differences between comparison groups did not change when we used estimates of mean monthly earnings (reflecting whether or not the respondent was working, the number of hours worked, and hourly earnings).

[31]While the coefficient of the proprietary school variable used in the regression analysis was positive, the difference did not meet our minimum standard for statistical significance.

[32]Further research would be needed to show how these factors influenced earnings; their effects may actually be due to other factors not discussed here.

TABLE 3.2. Average Hourly Wage Rate of Employed Out-of-School 1980 High School Seniors By Postsecondary Education Completion Status January 1986

Postsecondary completion status	Men			Women		
	Hourly wage rate	Difference compared to high school only	Difference compared to proprietary school completers	Hourly wage rate	Difference compared to high school only	Difference compared to proprietary school completers
High school only	$6.82	$0.00	-$1.03*	$5.46	$0.00	-$1.01**
Attendee/noncompleters						
Proprietary school	7.62	0.80	-0.23	5.84	0.38	0.63
School other than proprietary	7.27	0.45**	-0.58	6.18	0.72***	-0.29
Completers						
Proprietary school	7.85	1.03*	0.00	6.47	1.01**	0.00
Public, < 2 year	7.31	0.49	-0.54	6.60	1.14	0.13
Community college	7.09	0.27	-0.76	6.06	0.60**	-0.41
4-year, baccalaureate	8.03	1.21***	0.18	7.33	1.87***	0.86**

* Statistically significant difference at the .10 probability level (.05 level for a 1-tailed test).

** Statistically significant difference at the .05 probability level (.025 level for a 1-tailed test).

*** Statistically significant difference at the .01 probability level (.005 level for a 1-tailed test).

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used.

Interpretive Note: Among other things, the table shows that women in the high school class of 1980 who completed proprietary school had higher average hourly earnings ($6.47) than women who only attended high school ($5.46). The difference ($1.01) is statistically significant at the .05 probability level or better, meaning that there is a less than 5 percent chance that the observed difference is due to chance. Although women community college completers had average hourly earnings of ($6.06), the difference (-$0.41) from the earnings of women proprietary school completers was not sufficient to be deemed statistically significant.

WORK-BASED TRAINING

- **Men who completed proprietary school were more likely to have jobs providing training than men who only attended high school. No comparable difference was found for women.**

- **Women who completed proprietary school were less likely to have jobs with training than women who completed community college. No comparable difference was found for men.**

Table 3-3 shows whether people in the high school class of 1980 with different postsecondary education experiences had jobs that provided training. Such training is one indication of whether jobs enable workers to develop skills; to the extent it increases their productivity, it may result in higher earnings.[33] The table is based only on respondents not in school in January 1986 who indicated whether they had participated in work-based training in their most recent full-time job.[34] Both employer-provided training programs and employer-provided training benefits were counted.

The table shows that men who completed proprietary schools were more likely (49.7 percent) to have work-based training than men who only attended high school (28.1 percent). In fact, men who enrolled in any of the postsecondary programs in the table were more likely to have work-based training, even if they did not complete the programs. Differences among those who had postsecondary education were not statistically significant, however.

Women who completed community or 4-year colleges were more likely to have work-based training than were those who completed proprietary schools or who only attended high school.

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[33]For a recent analysis of the economic effects of training, see Mincer, Jacob. Human Capital and the Labor Market: A Review of Current Research. *Educational Researcher*, May 1989. p. 27-34.

[34]Only respondents who had reported having a full-time job were included. Since *High School and Beyond* did not ask people with part-time jobs whether they received work-based training, the percentages in the table do not show proportions for everyone in the class of 1980 with particular postsecondary education experiences.

TABLE 3.3. Percentage of 1980 High School Seniors Receiving Work-Based Training by Postsecondary Education Completion Status

Postsecondary completion status	Men			Women		
	Percent receiving training	Difference compared to high school only	Difference compared to proprietary school completers	Percent receiving training	Difference compared to high school only	Difference compared to proprietary school completers
High school only	28.1%	0.0%	-21.6%**	39.0%	0.0%	0.8%
Attendee/noncompleters						
Proprietary school	47.4	19.3**	-2.3	42.2	3.2	4.0
School other than proprietary	42.3	14.2***	-7.4	45.6	6.6**	7.4
Completers						
Proprietary school	49.7	21.6**	0.0	38.2	-0.8	0.0
Public, < 2 year	45.1	17.0**	-4.6	31.4	-7.6	-6.8
Community college	56.1	28.0***	6.4	52.3	13.3**	14.1**
4-Year, baccalaureate	57.8	29.7***	8.1	52.1	13.1***	13.9***

* Statistically significant difference at the .10 probability level (.05 level for a 1-tailed test).

** Statistically significant difference at the .05 probability level (.025 level for a 1-tailed test).

*** Statistically significant difference at the .01 probability level (.005 level for a 1-tailed test).

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Estimates are for members of the 1980 senior class who were out of school in Jan. 1986, and had been employed in a full-time job in the prior 2 years. Work based training was for the most recent full-time job.

Interpretive Note:Among other things, the table shows that men in the high school class of 1980 who completed proprietary school were more likely to receive work based training (49.7 percent) than men who only attended high school (28.1 percent). The difference (21.6 percent) is statistically significant at the .05 probability level or better, meaning that there is a less than 5 percent chance that the observed difference is due to chance. Although 56.1 percent of men community college completers received work-based training, the difference (6.4 percent) from the rate for men proprietary school completers was not sufficient to be deemed statistically significant.

REPAYING EDUCATIONAL LOANS

- **Based on monthly earnings 5½ years after high school, proprietary school graduates were no more likely than community or 4-year college graduates to have difficulty repaying educational loans.**

Recently proprietary school students have had default rates on Guaranteed Student Loans (GSLs) that are substantially higher than students who attend community or 4-year colleges.[35] While the *High School and Beyond* survey has no information about loan defaults, we attempted to see whether the early labor market experiences of the 1980 seniors might shed light on this problem. Our analysis compared a hypothetical repayment schedule for all educational loans students acquired (not just GSLs) over 5½ years with their estimated monthly earnings for January 1986.[36] Since *High School and Beyond* loan data may not always be reliable--borrowers who defaulted, for example, may have been reluctant to admit they had loans--and sample sizes were small, our findings should be viewed with caution.

Table 3-4 shows the percentage of borrowers whose hypothetical loan payments exceed varying proportions of monthly earnings. While there appear to be differences among the groups in the table, none is statistically significant. We would conclude that students who attended proprietary schools (whether or not they completed their programs) were no more likely to have difficulty repaying educational loans with their January 1986 earnings than were graduates of community and 4-year colleges. Separate analyses by gender and race did not change this result.

Considering recent higher default rates of proprietary school students, we do not know how to explain this finding. Setting aside possible data problems, here are several hypotheses:

- Proprietary school students who are recent high school graduates may have default rates that are similar to college students' rates.[37]

- Proprietary school students whom we studied may have borrowed less than recent students.[38]

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[35]Fraas. *Proprietary Schools and Student Financial Aid Program*.

[36]All educational loans were combined since the *High School and Beyond* survey did not ask respondents to list separate amounts for each type of loan.

[37]Our sample included few if any ability-to-benefit students (who are not high school graduates) and few who were older than 24 years of age by the time of the third follow-up survey. Proprietary schools enroll many such students, who may have higher default rates.

[38]Total GSL borrowing by students attending proprietary schools increased sharply between 1980 and 1987. Fraas, *Proprietary Schools and Student Financial Aid Programs*, p. 8-11.

- Proprietary school students whom we studied may have had lower earnings in other months.[39]

- Proprietary school students may be less likely to pay back loans than others with similar earnings.[40]

Given the concern about student loan defaults, it would be useful to test these theories using data from other sources.

TABLE 3.4. Percentage of Borrowers Whose Loan Repayments Exceed Various Percentages of Monthly Earnings by Postsecondary Completion Status, January 1986

Loan payment as a percentage of monthly income	Proprietary school noncompleters	Proprietary school completers	Community college completers	4-Year college completers
5 percent or more	87%	84%	82%	84%
10 percent or more	51	51	46	49
15 percent or more	39	39	25	35
20 percent or more	35	30	25	27

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Estimates are for all student loans incurred during the 5½ years following high school. See appendix A for discussion of methodology.

Interpretive Note: The table shows that 39 percent of students who had loans and completed a proprietary school as their maximum level of educational attainment had estimated loan payments that were in excess of 15 percent of their Jan. 1986 monthly earnings. None of the comparisons with proprietary school completers are statistically significant.

[39]Proprietary school students' lower employment rate in Jan. 1986 may indicate that over time they were more likely to be unemployed. (See table 3.1, which shows significant differences between the rates for proprietary school graduates and 4-year college graduates; it also shows a difference in the rates for male proprietary school graduates and male community college graduates.)

[40]Some may be more difficult for lenders and guarantee agencies to keep track of; some might resent paying loans back if they had complaints about the cost or quality of their education.

SUMMARY

This chapter looked at the early labor market experiences of students in the high school class of 1980 who had different postsecondary education experiences. In some respects, students who completed proprietary schools had more favorable experiences than those of their gender whose education ended with high school. Both men and women proprietary school graduates had higher hourly earnings; women graduates also had a higher employment rate.

Just because their earnings and employment rates were higher, however, does not mean that the differences were due to proprietary schools. Since students who attended proprietary schools differed from those who only attended high school, as chapter 2 showed, their other characteristics and experiences might have been responsible. Taking a variety of such factors into consideration, our analysis suggests that the higher hourly earnings of men and the higher employment rate of women probably can be attributed to these other characteristics. In these cases, we did not find that completing proprietary school actually made a difference.[41]

On the other hand, higher hourly earnings were still observed for women proprietary school graduates after other factors were taken into account. This finding suggests that women who are recent high school graduates may increase their earnings by enrolling in and completing proprietary schools. Our confidence in this interpretation would be greater if other studies of young adult women reached similar conclusions; as appendix C shows, however, there has been very little research on labor market experiences of proprietary school students.[42]

Nonetheless, our finding about women proprietary school graduates' earnings is not implausible. Even though many enrolled in programs leading to jobs with lower than average earnings, as table 2-5 shows, proprietary school education still might have enabled them to obtain better-paying positions than otherwise. Had their education ended with high school, most might have found only unskilled jobs that pay even less.

Postsecondary education in general appears to be important for women's early labor market experiences. Taking other factors into consideration, our

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[41]That no difference was found does not mean that none was there; with regression analysis, there is always the possibility that effects of the factor in which one is interested (in this case proprietary schools) are indirectly reflected through other factors.

[42]It is difficult to synthesize findings of studies that have been done since they used a variety of survey data and research methodologies. However, there are two reasons why additional studies would be useful. First, our research is based just on one group of students, 1980 high school seniors who attended proprietary schools during the 5½ year period after they left high school. Experiences of other recent graduates might be different. Second, with regression analysis it is always possible that significant factors that help account for differences do not get identified. To attribute the unexplained variance to one factor (in this case school effects) is always subject to error.

analysis shows that women who completed community colleges had a higher employment rate than comparable women who only attended high school, though their hourly earnings were no higher. It also shows that women who completed 4-year colleges had both a higher employment rate and hourly earnings than comparable women with no education beyond high school.

In contrast, postsecondary education seems to be less important for men's early labor market experiences. Taking other factors into consideration, our analysis shows that the higher employment rate and hourly earnings of men who completed proprietary schools can probably be attributed to other characteristics; this was also the case for the employment and earnings of men who completed 4-year colleges and the earnings men who completed community colleges (male community college graduates had a higher employment rate than comparable men who only attended high school). Men appear more likely than women to get better-paying jobs with only a high school education (at least 5½ years out of school this seems to be the case); for them, the immediate labor market advantages of further education are not as evident.[43]

[43]We would anticipate, however, that men who completed 4-year colleges would eventually have higher earnings and a higher employment rate than comparable men who only attended high school. Five and one-half years after high school, most graduates of 4-year colleges would just be starting full-time jobs; their employment advantages would not yet be evident.

CHAPTER 4
CONCLUSION

This report presented findings about the early labor market experiences of proprietary school students who were members of the high school class of 1980. The report showed that about 9 percent of the class attended proprietary schools during the 5½ years after high school, and that over half of these students completed their programs. Many proprietary school students also enrolled in colleges and other schools.

Proprietary school students were more like students who attended community college or had no education beyond high school than they were like students at 4-year colleges. At the same time, they could be distinguished from both groups. Compared to those who only attended high school, proprietary school students were more likely to be from families of higher social-economic status; they were somewhat stronger students in high school and had higher educational expectations. Their orientation toward work was stronger. In addition, higher proportions of proprietary school students were women and black.

Compared to community college students, proprietary school students were more likely to be women, black, and from families of lower social-economic status. They were somewhat weaker students in high school and had lower educational expectations. They had a stronger orientation toward work.

Differences like these had to be taken into consideration in comparing labor market experiences in January 1986. Thus, while men who completed proprietary schools had higher hourly earnings than men who only attended high school, our analysis indicates that much of the difference can probably be attributed to characteristics other than their proprietary school education. Male proprietary school graduates did not have a higher employment rate than men who only attended high school.

Similarly, although women proprietary school graduates had a higher employment rate than women who only attended high school, this difference appeared to be due to characteristics other than their proprietary school education.

However, women proprietary school graduates did have higher hourly earnings than women who only attended high school, even when other factors were taken into account. While this finding can be interpreted several ways, it does suggest that women who are recent high school graduates may increase their earnings by enrolling in and completing proprietary schools. Our analysis found that postsecondary education in general is important for women's early labor market success, perhaps because most would otherwise only find unskilled jobs at low pay. In contrast, men with only high school education may be more likely to get better-paying jobs; for them, the **immediate** labor market advantages of further education are not as evident.

OTHER QUESTIONS AND ISSUES

Our findings about early labor market experiences of the high school class of 1980 would have been stronger had more proprietary school students been included in the *High School and Beyond* survey. Due to small sample sizes, we could not be confident whether some of the differences we observed were real or only reflections of chance. The findings also would have been stronger had data for a longer time period been available. Five and one-half years after high school is a good point to measure early labor market experiences, particularly for students in sub-baccalaureate programs, but a longer span is needed to show whether the patterns we identified persist.

If *High School and Beyond* had sampled more proprietary school students, here are some important questions that we might have been able to answer:

- whether their labor market experiences varied by fields of study
- whether they varied by program length
- whether the experiences of particular groups (such as students who had been on welfare) are different
- whether employment prior to attending proprietary school makes a difference.
- whether postsecondary education prior to attending proprietary school makes a difference.

In addition, if *High School and Beyond* had sampled more proprietary school students, we might have been able to determine whether proprietary school education is a good financial investment. Since our analysis did not show that men in the high school class of 1980 had either a higher employment rate or higher earnings from completing proprietary schools, it casts doubt on whether their early labor market returns would cover the costs they had to pay for their education. Perhaps for some men returns did exceed costs, especially if their employment and earnings could be measured over a number of years; however, we could not tell this one way or the other.[44] The higher hourly earnings of women proprietary school graduates suggests that they were more likely to cover their educational costs, though we do not know how long it would take them to do so.

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[44]Among other things, small sample sizes prevented us from trying to measure the opportunity costs of attending proprietary schools, that is, the earnings students had to forgo because they were studying. It is argued that proprietary school students have smaller opportunity costs than students who attend community or 4-year colleges since their programs are shorter.

Proprietary schools and community colleges were the two postsecondary education options discussed most frequently in this report. There are other ways, however, that students just out of high school might obtain some of the education that these schools provide. Public vocational/technical institutes, apprenticeship programs, the military services, Job Corps centers and other disadvantaged worker training programs offer occupational instruction as well. These alternatives ought not be overlooked in trying to determine whether changes in Federal postsecondary education policies are needed to help students enter the adult labor market.[45]

Consideration might also be given to work-based training, which over 40 percent of the 1980 seniors with full-time jobs received. To the extent that proprietary school education is similar to such training, it might be asked whether students could instead acquire the occupational skills they need while working. Some might learn more quickly that way, perhaps at less cost.[46] In such cases, employers may be using proprietary schools more to identify who can learn on the job, not who already has productive skills.[47]

Finally, it ought to be noted that most 1980 seniors in full-time jobs received no work-based training. One reason for this may be that employers are reluctant to train workers who might leave (as young adults are especially likely to do); they do not want to invest in workers who won't be with them long. To the extent this is true, it illustrates the need for good occupational education programs to help meet the Nation's training needs.[48] Another reason, however, may be that many employers do not need skilled workers; they prefer to invest in physical capital and organize work so that employees become productive only at narrowly defined tasks. To the extent this is true, it is

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[45]*High School and Beyond* has data on who attended or participated in these educational alternatives, but little information about the programs themselves. In addition, sample sizes were small.

[46]While employers generally pay the direct costs of work-based training (for instructors and training manuals, for example) as well as the indirect costs (for reduced output due to training time), they may pass some of these costs on to their employees through lower wages. Nonetheless, our analysis found that the 1980 seniors who had work-based training had higher hourly earnings than those who did not.

[47]*High School and Beyond* does not have information about the type of training workers received; survey questions dealt instead with location and length of training as well as who provided it.

[48]The need for good education and training programs is described in a number of recent reports, including *America's Choice: High Skills or Low Wages!* The Commission on Skills of the American Workforce. National Center on Education and the Economy, June 1990; *Workforce 2000: Work and Workers for the 21st Century*. Indianapolis, Hudson Institute, 1987; and U.S. Congress. Office of Technology Assessment. *Worker Training: Competing in the New International Economy*. Washington, 1990.

possible that occupational education programs have only limited benefits.[49] Such broader economic issues might also be considered in determining Federal policies regarding proprietary schools.

[49]Mangum, Stephen L. Impending Skill Shortages: Where is the Crisis? *Challenge*, Sept./Oct. 1990. p. 46-52; and Mishel, Lawrence and Ruy A. Teixeira. *The Myth of the Coming Labor Shortage: Jobs, Skills, and Incomes of America's Workforce 2000*. Economic Policy Institute, Washington, 1990.

APPENDIX A
METHODOLOGY

THE HIGH SCHOOL AND BEYOND SURVEY

The data in this report are from the *High School and Beyond* (HS&B) Survey, a U.S. Department of Education survey designed to follow the transition of young adults from high school into postsecondary education and employment. The initial survey in the spring of 1980 included over 28,000 seniors and 30,000 sophomores in more than 1,100 secondary schools. Three follow-up surveys have been conducted of both groups of students, the most recent in February 1986, when approximately 10,500 seniors and 13,400 sophomores were surveyed. A fourth follow-up is planned for 1992. The HS&B data files contains a vast array of information, over 2,500 variables, on the high school, postsecondary education, and subsequent labor market experiences of these students.

Only data from the high school senior cohort were used in this report since by 1986 fewer students of the sophomore cohort had completed their postsecondary schooling and acquired subsequent labor market experience. Nearly all of the seniors graduated from high school within several months of the initial survey, though there were some who did so later and a small number (about 1 percent) who never completed high school. Data on the seniors were screened to select only those who responded to the initial survey (conducted in the spring of 1980) and all three subsequent surveys. This resulted in a working sample of 9,373 respondents, of whom we estimated that 948 attended a proprietary school at some time during the 5½ years following high school.[50]

It should be kept in mind that the particular findings in this report should not be generalized beyond the population that was surveyed. The experiences of the respondents during the 5½ years studied reflect the economic conditions of the first half of the 1980s, a time marked by severe recession followed by strong economic recovery. Moreover, the data only capture short-term labor market effects that may be associated with postsecondary education; it will be many more years before the members of the senior class become sorted out economically and long-term effects can be assessed. In addition, the findings do not reflect the experiences of all students who attended postsecondary educational institutions during the early 1980s. In particular, they omit two groups who are disproportionally represented among proprietary school students: older students (those who were in high school classes that preceded the class of 1980) and most high school dropouts (nearly all students who drop out leave high school prior to the spring term of their senior year, the time when the initial HS&B survey was conducted). Both of these groups might be expected to have different labor market experiences than the proprietary school students included in our study.

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[50]Observations on these respondents were then weighted to arrive at overall population estimates.

ANALYSIS GROUPS DEFINED ACCORDING TO THEIR POSTSECONDARY EDUCATION STATUS

Several groups were identified for analysis in this report according to their postsecondary education status. First, individuals were identified by whether they ever attended a postsecondary education program in the 5½ years following high school (through January 1986). The **High School Only** group consists of individuals who **never** attended a postsecondary education program. Individuals who attended a postsecondary program were then divided into two groups: those who were **Currently in School**, and those who were **Out-of-School** in January 1986.

The descriptive analysis and statistical modelling of postsecondary school enrollment includes the entire HS&B sample, categorizing respondents according to whether they ever attended any of a variety of types of postsecondary institutions during the 5½ years following high school. The principal focus was on students who attended three types of postsecondary institutions: proprietary schools, community colleges, and 4-year colleges. Students who attended other schools (e.g., public vocational schools, private 2-year colleges, graduate school, employer sponsored training institutes, etc.) were not specifically examined, either because the data did not allow for a clear designation of school type or because sample sizes were too small to be useful. While students who attended these other schools were included in the analysis, they are not separately discussed.

Analysis of labor market experiences and completion status was restricted to students who were out of school in January 1986. Out-of-school respondents had to have indicated that they completed their program of study and received a certificate, diploma/degree, or license in order to be categorized as a "completer." Students may have completed more than one program, but they were categorized according to the program or school that represented their maximum level of educational attainment. If two or more programs were completed at the same level of attainment, the most recent one was selected. Students who did not complete any program were divided into two groups--proprietary school attendee/noncompleters and all other attendee/noncompleters.

SAMPLING ERROR

Estimates from the HS&B data presented in this report are subject to sampling error, as are estimates from any sample survey. The reader should therefore be cautioned in making comparisons between estimates, since an apparent difference between two estimates may be due to sampling error rather than to a "real" difference. This is especially true given the small sample sizes upon which many of the estimates presented in this report are based. Estimates based on larger samples will generally be more precise than those based on smaller samples. Whether an apparent difference between two estimated values should be considered real, or simply due to chance, requires that a statistical test be performed to determine whether the difference is "statistically significant."

Standard Errors of Estimates

The standard error (SE) of an estimate provides an indication of how much the estimate is likely to vary due to sampling fluctuations that relate to the size of the sample drawn. For instance, the estimated average hourly earnings of women in the HS&B survey who completed proprietary school was $6.47 in January 1986, compared to $5.46 for women who only attended high school. The standard errors associated with these mean hourly wage rates are $0.38 and $0.16, respectively. The standard error provides an estimate of the degree which an estimated parameter (in this case, the average hourly earnings of women completing different types of schools) is likely to vary from one sample to another. Had another sample of the population been drawn, the estimated mean hourly earnings of women might be somewhat different than that obtained from the particular sample drawn by HS&B. Using the standard error, confidence intervals about an estimate may be constructed,[51] and tests of statistical significance performed. Descriptive statistics and their associated standard errors for descriptive statistics presented in this report are presented in appendix B.[52]

Tests of Statistical Significance

Reported differences in the body of this report are based upon tests of statistical significance. The .10 probability level is the minimum standard used in this report for citing that a statistic (e.g., difference, regression coefficient) is "*statistically significant.*" This means that there is a 10 percent chance that the observed difference is due to chance; or stated in somewhat different terms, that we are 90 percent confident that the observed difference is real, as opposed to being due to chance. Statistical tests in which one is willing beforehand to "bet" on the direction of the outcome, are referred to as "1-tailed" tests in the statistics literature, whereas tests in which one is willing only to determine whether there

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[51]For example, a confidence interval around an estimate ranging from the estimate minus one standard error to the estimate plus one standard error, means that given an existing sample frame, slightly over two-thirds of all samples drawn (of a similar size) would produce an estimate that would lie within the specified range. A confidence interval of approximately plus or minus 2 standard errors means that 95 percent of all samples drawn would produce an estimate within the specified range.

[52]Since HS&B is a highly stratified sample, standard errors estimated from most computer software packages will be biased since these packages assume that data are from a simple random sample. Failing to correct standard errors for highly stratified sampling designs, such as that used by the HS&B, may result in downwardly biased standard errors. This can result in falsely inferring at a specified level of statistical significance that a variable has an effect. Standard errors for the descriptive statistics and ordinary least squares regression results presented in this report have been corrected for possible bias resulting from the HS&B stratified sampling design, using replicate weight procedures. The HS&B computer data file contains basic sampling information on each data record (primary sampling unit and strata) that allows for the construction of replicate weights. Replicate weights were created through jackknife (for descriptive statistics) and balanced repeated replicate (OLS regression statistics) procedures. These weights were used in conjunction with the WESVAR and WESREG computer software packages, developed by Westat, Inc., to arrive at unbiased estimates of standard errors.

is a difference, be it positive or negative, are referred to as "2-tailed" tests. The probability level of a test statistic based on a 1-tailed test is half that of a test statistic based on a 2-tailed test. Thus, in cases where the direction of the difference is consistent with prior expectations, (e.g., if one is willing to predict beforehand that men who completed proprietary school would be expected to earn more, but not less, than men who only attended high school), a test statistic that is significant at the .10 level based on a 2-tailed test is significant at the .05 probability level for a 1-tailed test (i.e., we are at least 95 percent confident that men who complete proprietary school earn more than men who only attended high school).

The statistical standards used in this report are as follows:

* Significant at the .10 level (2-tailed test), .05 level (1-tailed test).
** Significant at the .05 level (2-tailed test), .025 level (1-tailed test).
*** Significant at the .01 level (2-tailed test), .005 level (1-tailed test).
**** Significant at the .001 level (2-tailed test), .0005 level (1-tailed test).

STATISTICAL MODELS

The results of a number of statistical models (ordinary least squares regression and logistic regression) are presented in this report. The models are used to predict who attends various types of schools, and among attendees, who completes. Models were also used to predict employment status, hourly earnings and monthly earnings.

Descriptive statistics alone do not make it readily possible to say whether observed differences in a variable of interest (e.g., employment) are due to the particular characteristic being examined, (e.g., schooling) or due to some other characteristic associated with the characteristic being examined (e.g., socioeconomic status). One way to begin to unravel these differences is by modelling the simultaneous effect of background variables and schooling on employment, to see whether schooling has an independent effect on employment.

The modelling results presented here should be viewed as suggestive rather than definitive. Although it may appear that schools have an independent effect on a particular variable of interest (earnings, employment, etc.), apparent differences may not necessarily be attributable to the effect of schooling, per se. Failure to account for other relevant variables, such as unmeasured motivational differences which may affect individuals' tendencies to select various types of schools over others, may make it appear as though schooling has an effect, when the effect being captured is really a function of these unmeasured variables. Given the variables in the model, one can only say whether schooling **appears** to have an independent effect. Similarly, the lack of an effect (i.e., a coefficient not deemed to be statistically significant) does not necessarily mean than the variable of interest has no effect on the dependent variable--the effect, may instead be indirect. For example, a particular variable, such as social economic status, may have an effect on a dependent variable of interest (e.g., probability of attending proprietary school) by operating through other variables included

in the model that may be associated with proprietary school attendance (e.g. effect on high school grades and postsecondary schooling expectations). In such a case, social economic status would have an effect on schooling attendance, but only indirectly, by operating through these other variables.

Predicting Postsecondary School Enrollment and Completion

A number of logistic regression models were specified to predict who among the high school class would enroll in and complete various postsecondary education programs. Logistic regression models provide a useful means of predicting the occurrence of a categorical (dichotomous) dependent variable based a set of independent (predictor) variables.[53] The intent is to estimate the independent effect of each variable, given the other variables in the model, on the dependent variable. Logistic regression models were also posed to determine whether there are discernable differences between individuals who attended but failed to complete a program (any program) and those for whom completion of a program marked their ultimate level of educational attainment.

Contrast Groups (Dependent Variable)

Several logistic regression models were posed, specifying different contrast groups, in order to determine who among the 1980 high school class was likely to attend different postsecondary schools:

- **High School Only Group vs. All Postsecondary School Attendees**
- **Proprietary School Attendees vs. Nonattendees**
- **Community College Attendees vs. Nonattendees**
- **4-Year College Attendees vs. Nonattendees**

Three groups were also contrasted with proprietary school attendees, to determine how students in each sector might differ from one another. The three contrast groups examined consisted of:

- **Proprietary School Attendees vs. High School Only Group**
- **Proprietary School Attendees vs. Community College Attendees**
- **Proprietary School Attendees vs. 4-Year College Attendees**

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[53]The dependent variable is coded as 1 if the condition being modelled is true (e.g., the individual is employed, or they attended a proprietary school) and 0 if false (e.g., not employed, or did not attend a proprietary school).

Lastly, individuals whose program completion marked their highest level of educational attainment were compared to individuals who attended the specified program, but failed to complete any program. These comparisons were made for:

- **Proprietary School Completers vs. Attendee Noncompleters**
- **Community College Completers vs. Attendee Noncompleters**
- **4-year College Completers vs. Attendee Noncompleters**

Independent Variables

The same set of variables were included in each of the logistic regression models noted above, only the comparison groups differed. Categorical independent variables were coded as 1 if the condition was present, and 0 otherwise.[54] The variables included in the models are described below:

Socioeconomic Status (SES): A composite variable based on 5 components-- 1) father's occupation, 2) father's education, 3) mother's education, 4) family income, 5) material household possessions. The SES variable was divided into 4 variables representing quartiles and a fifth variable for respondents with missing data.

Race/Ethnicity: Race/ethnic groups were divided into 4 mutually exclusive variables. categories: White nonhispanic, black nonhispanic, Hispanic, and other nonhispanic.

High School Cognitive Test Score: A composite high school test score measuring vocabulary, reading, and mathematics. Test scores were divided into quartiles, represented by 4 variables. An additional variable for respondent's with missing test score data was also included.

High School Grades: Coded as 1 = mostly A's, 2 = A's and B's, 3 = mostly B's, 4 = B's and C's, 5 = mostly C's, 6 = C's and D's, 7 = mostly D's, 8 = mostly below D. Note that a negative coefficient on this variable means that a positive response on the dependent variable (i.e., 1 as opposed to 0) is more likely to be observed among those having higher grades. A positive

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[54]The categorical variables are coded as 1, if the condition is present, and 0 otherwise. At least one among a set of categorical variables must be dropped from a regression equation in order for the equation to have a solution. For example, knowing that one is not hispanic, not black, and not of some race other than white implies that one is white. By only including the categorical variables for hispanics, blacks, and other races in the regression equation, the effect of being white is captured in the intercept term. The effect of the hispanic, black, and other race coefficients are contrasted to the value of the intercept. For example, a statistically significant positive coefficient for the black variable implies that blacks have a greater likelihood of having a value of 1 on the dependent variable (e.g., attending proprietary school) than whites, controlling for other factors.

coefficient means that the dependent variable is more likely to be observed among those having lower grades.

Psychological Orientation: Three composite variables measuring individual's psychological orientation towards *work*, *self concept*, and ability to control one's world to attain desired goals (*locus of control*). These composite variables were converted to standardized scores. A positive sign on the estimated coefficient for these variables indicates a strong psychological orientation, whereas a negative sign, a weak orientation.

High School Curriculum: A set of 4 categorical variables, indicating whether an individual was enrolled in either a general, academic, or vocational curriculum in high school, or whether this information is missing.

High School Courses: The number of semesters of various types of course work taken in high school. Variables include the number of semesters of math, science, english/literature, foreign language, social science and history, business, trade, technical, and other vocational courses. Categorical variables indicating whether the respondent ever took remedial english or math were also included.

CETA Enrollment: A categorical variable indicating whether the individual was enrolled in the Comprehensive Employment and Training Program during high school.

H.S. Work Study Program: A categorical variable indicating whether the respondent was enrolled in a work study program when in high school.

Handicap: A categorical variable indicating whether the individual had a physical handicap or learning disability when in high school.

Post-Secondary Schooling Expectations: A set of mutually exclusive categorical variables indicating respondent's expectations while in high school regarding their ultimate level of schooling completion, (coded as high school only, vocational school, 2-year degree, 4-year degree, graduate degree).

College Boards: A categorical variable indicating whether the respondent took the college Scholastic Aptitude Test (SAT) or American College Testing (ACT) program.

Interpreting the Results

The results of the logistic regression models are shown below in appendix B, tables B.13 through B.15. Beta coefficients, the standard error, and the associated probability for each coefficient are shown in the table. The overall model chi-square, as well as the model's R and Somer's D_{yx}, a measure of rank

order correlation between the predicted and the observed values of the dependent variable are also shown.[55]

Logistic regression model results are difficult to interpret directly. The beta coefficients derived by such models represent the estimated independent effect of a variable on the dependent variable, controlling for all other variables in the model. Beta coefficients represent the change in the log odds ratio associated with a unit change in the independent variable,[56] a measure that is intuitively

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[55]The R statistic reported here, when squared, is analogous to an R^2 in an ordinary least squares regression, with a correction for the number of parameters estimated. It represents the proportion of log-likelihood explained by the model, and may range from 0 to 1.

[56]The odds ratio represents the ratio of the probability of an event occurring over the probability of it not occurring. For example, if p is the probability of an event occurring, 1-p is the probability of it not occurring. The beta coefficient is ln(p/(1-p). Thus, the log-odds ratio, or logit parameter for the model is defined as:

$$g(x)=\beta_0+\beta_1x_1+\beta_2x_2+\ldots+\beta_px_p$$

where: $g(x)$ *is the estimated logit paramater at specified levels of* x, *the values of the independent variable*

β_0 *is the intercept*

$\beta_1 \ldots \beta_p$ *are the individual beta coefficients associated with the independent variables in the model, and*

$x_1 \ldots x_p$ *are the values associated with the independent variables.*

In order to convert a logit statistic to a probability, the following transformation must be performed:

$$\pi(x)=\frac{e^{g(x)}}{1+e^{g(x)}}$$

where: $\pi(x)$ *is the estimated probability, and*

e is the base of natural logarithm (2.71828).

While the beta coefficient may be converted to a probability, its value will depend upon the probability of the dependent variable associated with all of the other variables in the model. For example, if the overall logit for the model is -2.197 (i.e., the product of the beta coefficients and the values of the independent variables), there would be an overall probability of .10 of the dependent variable having a value of 1 [i.e. exp(-2.197/(1+exp(-2.197)=.10.] Now, if the beta coefficient for a categorical variable is say, .502, (e.g., the beta coefficient associated with blacks either attending a proprietary school (assigned a value of 1), or not attending any school (assigned a value of 0) then the overall probability would be 0.16 [i.e., exp(-2.197+.502)/(1+exp(-2.197+.502)] an .06 increase in the probability of the dependent variable having a value of 1. However, if the overall logit for the model is 0, the overall probability for the model would be .50. A beta coefficient of .502, evaluated at the .5 probability for other variables in the model would result in an overall probability of 0.62 [i.e., exp(.502)/(1+exp(.502))]. Thus, being black results in a .12 increase in the probability of the dependent variable have a value of 1 (i.e., of attending

(continued...)

difficult to interpret. What is important to keep in mind for interpreting the tables is whether or not a beta coefficient for a particular variable is statistically significant, and the sign associated with the coefficient (positive or negative), bearing in mind the way in which the variable was measured.[57]

Predicting Labor Market Outcomes

The results of three different models, estimating employment, hourly earnings, and monthly earnings are presented in this report. Separate models were run for men and women, as the effects of independent variables might be expected to differ according to gender. Logistic regression models were specified to predict employment in January 1986 for young adults who were out of school. Ordinary least squares regression models were specified to predict hourly earnings of employed men and women who were working in January 1986, and monthly earnings of all out-of-school young adults, whether or not they were working.[58]

Employment Model: Independent Variables

Socioeconomic Status: Described above.

Race/Ethnicity: Described above.

High School Cognitive Test Score: Described above.

High School Grades: Described above.

Psychological Orientation: Described above.

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[56](...continued)
proprietary school), when assessed at the .5 probability level for the other variables in the model compared to a .06 increase in probability, when assessed at the .10 probability level.

For a good discussion of logistic regression modelling see: Hosmer, David W. and Stanley Lemeshow. *Applied Logistic Regression*. New York, John Wiley and Sons, 1989.

[57]The standard errors associated with each beta coefficient were initially estimated without correction for the stratified design of the HS&B survey. As noted above in the discussion of standard errors and tests of statistical significance, failing to correct standard errors for highly stratified sampling design effects may result in downwardly biased standard errors. This can result in falsely inferring at a specified level of statistical significance that a variable has an effect. Consequently, we have imposed a more conservative test for considering whether a coefficient is statistically significant, multiplying standard errors by a factor of 1.5, and calculating test statistics using these "adjusted standard errors." The "adjusted standard errors" shown in the tables have been multiplied by this correction factor. The 1.5 adjustment factor is recommended by the Department of Education as appropriate to compensate for the design effect of the HS&B survey. See: *High School and Beyond 1980 Senior Cohort Third Follow-Up (1986) Data File User's Manual Volume II.* Contractors Report. Center for Education Statistics. Office of Educational Research and Improvement. U.S. Department of Education.

[58]Monthly earnings were defined as hourly earnings multiplied by the number of weeks usually worked multiplied by four. Individuals with zero earnings were included in this analysis.

Region Attended High School: Four variables representing the North East, North Central, South, and West, coded as 1 if the respondent attended high school in the region, and 0 otherwise. More recent data indicating region of current residence is not included on the HS&B data file. It is assumed that most members of the 1980 high school class still live in the region in which they attended high school.

Community Type: A set of 7 categorical variables for the type of community in which students most recently lived were included: rural area, small city or suburb of a small city, medium size city or suburb of medium size city, large city, suburb of a large or very large city, very large city, military base. The variables were coded as 1 if true, and 0 otherwise.

High School Credential: A variable indicating whether or not respondents had earned a high school diploma or the equivalent by January 1986. The variable is coded as 1 if the respondent had *not* attained a high school credential, and 0 otherwise.

Maximum Level of Schooling Completed: A set of mutually exclusive categorical variables indicating the maximum level of schooling attained: H.S. only; attended, did not complete proprietary school; attended, did not complete other school; completed proprietary school; completed miscellaneous (unidentified) school; completed public, less than 2-year school; completed private 2-year school; completed community/junior college; completed 4-year school with other than a 4-year degree; completed 4-year school with a 4-year degree.

Hourly Earnings Model: Independent Variables

Same variables described above in the logistic regression model predicting employment, with the following additional variables included:

Employer Provided Training: Whether the respondent received employer provided training at latest full-time job (1 if yes, 0 otherwise).

Military: Coded as 1 if presently in the military, 0 otherwise.

Prior Military Service: Code as 1 if not presently in the military, but had prior military service. Coded as 0 otherwise.

Full-time Work Experience: The number of months in which the respondent worked full-time (35 hours or more per week) since high school (range of 0 to 67).

Monthly Earnings Model: Independent Variables

The same variables as described above for predicting hourly earnings, except that number of months of full-time work experience and the military experience variables are excluded.

Interpreting the Results

The results of the logistic regression analysis of employment status are shown in appendix B, table B.16. The layout of the table and its interpretation follows that described earlier for the logistic regression models.

The results for the ordinary least squares (OLS) regressions of hourly and monthly earnings are shown in appendix B, tables B.17 and B.18, respectively. The coefficients of the OLS regressions are much easier to interpret than logistic regression coefficients, as the coefficients are in the same units as the dependent variable being measured (i.e., dollars). For example, the hourly earnings of women who completed a proprietary school as their maximum level of education is estimated to be $0.72 higher than that of women who had only attended high school, after controlling for other factors. The effect of proprietary school completion on hourly earnings of women 5½ years out of high school is significantly different from that of those who only attended high school (statistically significant at the .0699 probability level), which exceeds our minimum standard for a difference to be deemed "*statistically significant.*"[59]

TUITION, GRANTS, AND LOANS

The tuition, grant, and loan information presented in chapters 2 and 3 cover the entire 5½ year period following high school. For students who may have attended a number of institutions, financial data represent their total postsecondary schooling costs, not necessarily just the costs of the particular type of school they were designated as having completed. Loans that were totally from friends or relatives were ignored, as an argument could be made that these "loans" often become "gifts." All other loans were aggregated, and monthly payments estimated. Monthly payments were estimated using guidelines for the Guaranteed Student Loan (GSL) program, using established interest rates (8 percent), repayment periods (5 or 10 years, depending on the size of the loan--less than or above $5,000) and minimum payments ($50 per month). Student loan status was evaluated as if all loan repayments had been deferred, interest free, until January 1986. Efforts were made to examine loan burden and the risk of default by comparing estimated monthly loan payments to monthly earnings. While there are no clear guidelines as to the size loan burden required to constitute a substantial risk of default, relative loan burden was evaluated at several levels (5, 10, 15 and 20 percent of monthly earnings). It should be noted that individuals who accumulated loans early in the period and faced repayment earlier than January 1986, may have faced substantially higher loan burdens and risk of default, given both the state of the economy and the likelihood that their earnings, based on less work experience, would have been lower.

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[59]Statistically significant at the .035 probability level for a 1-tailed statistical test. As noted earlier, a 1-tail statistical test is appropriate when one is not only testing whether there is a statistically significant difference, but when the direction of the difference is also hypothesized (i.e., that proprietary school completers should earn more than their high school only counterparts).

APPENDIX B
SUPPORT TABLES

TABLE B.1. Gender by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year college university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
Gender								
Total	100.00%		100.00%		100.00%		100.00%	
Male	52.04	1.42	36.52	2.17	47.15	1.42	49.13	1.02
Female	47.96	1.42	63.48	2.17	52.85	1.42	50.87	1.02
Chi-square[a]	31.7		-		15.0		28.1	
Degrees of freedom	1		-		1		1	
Probability	0.0000		-		0.0001		0.0001	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.2. Race/Ethnicity by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year college university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
Race/ethnicity								
Total	100.00%		100.00%		100.00%		100.00%	
Hispanic	13.40	0.78	12.06	1.21	9.98	0.55	6.11	0.41
Black	11.21	0.76	15.81	1.46	10.04	0.70	9.73	0.58
White	74.02	1.17	69.55	1.96	76.73	1.18	81.49	0.76
Other	1.37	0.24	2.58	0.52	3.26	0.43	2.67	0.23
Chi-square[a]	16.4		-		33.0		74.8	
Degrees of freedom	3		-		3		3	
Probability	0.0009		-		0.0000		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.3. Socioeconomic Status by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year college university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
SES quartile								
Total	100.00%		100.00%		100.00%		100.00%	
Lowest	40.66	1.35	26.10	1.83	20.35	1.13	14.05	0.72
Second	32.29	1.43	27.11	1.57	25.15	1.19	19.01	0.91
Third	20.28	1.23	25.15	1.73	28.07	1.23	27.28	1.02
Highest	6.77	0.99	21.64	1.94	26.42	1.32	39.65	1.45
Chi-square[a]	87.9		-		13.2		110.5	
Degrees of freedom	3		-		3		3	
Probability	0.0000		-		0.0041		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.4. High School Grades by Postsecondary Education Attendance

	High School only		Proprietary school		Community college		4-Year College university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
High school grades								
Total	100.00%		100.00%		100.00%		100.00%	
A's	3.13	0.49	4.79	1.06	8.80	0.70	22.69	1.06
A's and B's	13.09	1.04	17.51	2.03	23.30	1.09	28.67	0.91
B's	17.79	1.26	22.25	2.22	23.40	1.14	22.07	0.95
B's and C's	31.27	1.40	32.64	2.30	28.25	1.23	19.29	0.77
C's	21.53	1.20	15.92	1.57	12.32	0.96	5.68	0.54
C's and D's	10.75	0.99	6.77	1.19	3.28	0.42	1.35	0.21
D's	2.35	0.44	0.08	0.04	0.56	0.20	0.24	0.11
Below D	0.09	0.05	0.05	0.05	0.09	0.09	0.01	0.01
Chi-square[a]	33.1		-		39.4		197.9	
Degrees of freedom	7		-		7		7	
Probability	0.0000		-		0.0000		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.5. High School Cognitive Test Scores by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year college university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
Cognitive test score								
Total	100.00%		100.00%		100.00%			100.00%
Lowest	45.34	1.39	31.82	2.23	19.36	1.06	8.16	0.62
Second	31.56	1.53	26.28	2.26	26.61	1.12	18.33	0.91
Third	16.62	1.24	26.17	2.13	30.11	1.38	29.17	1.18
Highest	6.48	0.81	15.73	1.80	23.92	1.30	44.31	1.27
Chi-square[a]	43.1		-		36.2		201.7	
Degrees of freedom	3		-		3		3	
Probability	0.0000		-		0.0000		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.6. High School Course Track by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year college university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
H.S. course track								
Total	100.00%		100.00%		100.00%		100.00%	
General	49.31	1.54	38.77	2.17	36.47	1.23	26.58	1.21
Vocational	40.18	1.76	34.85	2.19	24.47	1.23	10.01	0.66
Academic	10.52	0.90	26.38	2.17	39.06	1.32	63.41	1.31
Chi-square[a]	53.7		-		34.1		212.7	
Degrees of freedom	2		-		2		2	
Probability	0.0000		-		0.0000		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.7. Schooling Expectations while in High School by Postsecondary Education Attendance

	High school only		Proprietary school		Community college		4-Year College university	
	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error	Estimate (percent)	Standard error
Postsecondary Schooling Expectations								
Total	100.00%		100.00%		100.00%		100.00%	
N.S. only	51.22	1.64	14.19	1.90	7.69	0.72	2.04	0.27
Vocational school	28.64	1.35	31.02	2.38	20.45	1.25	5.77	0.56
Community college	11.82	1.06	23.63	2.11	22.87	1.10	11.48	0.66
4-year college	5.68	0.67	18.28	1.74	28.32	1.13	42.61	1.13
More than 4 year	2.63	0.43	12.88	1.48	20.66	1.23	38.09	1.34
Chi-square[a]	188.3		-		53.7		255.3	
Degrees of freedom	4		-		4		4	
Probability	0.0000		-		0.0000		0.0000	

[a]Chi-square statistics, associated degrees of freedom and probability levels are based upon comparison with proprietary school attendees.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Details may not sum to totals due to rounding.

TABLE B.8. Average Cumulative Postsecondary Tuition Costs of 1980 High School Seniors During the 5½ Years Following High School by Postsecondary Completion Status

	Total tuition		Net tuition	
	Average	S.E.	Average	S.E.
Noncompleters				
Proprietary school	$4,168	$376	$3,115	$349
School, other than proprietary	5,369	276	3,707	249
Completers				
Proprietary school	6,585	514	5,174	501
Community college	4,194	372	2,894	400
4-Year, sub-baccalaureate	6,444	1,020	5,092	1,036
4-Year, baccalaureate	16,880	530	11,959	497

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. See appendix A for further discussion of methodology. Tuition costs reflect tuition for all schools attended during the period following high school. Net tuition is defined as total tuition less grants. Estimates are for members of the 1980 senior class who were not in school in Jan. 1986.

TABLE B.9. Maximum Level of Completion of 1980 High School Seniors by Enrollment Status, January 1986

	Total	In school	Out of school
Total	100.0%	15.4%	84.6%
Without postsecondary credential	100.0%	12.9%	87.1%
With postsecondary credential	100.0%	19.0%	81.0%
Total	**100.0%**	**100.0%**	**100.0%**
No postsecondary credential	**59.3%**	**49.8%**	**61.0%**
H.S. Only	23.9%	0.0%	28.3%
Attendee/noncompleters	35.4%	49.8%	32.8%
Attended proprietary	3.0%	3.9%	2.8%
Attended other, nonproprietary	32.4%	45.9%	29.9%
Postsecondary credential			
Maximum level of schooling completed	40.7%	50.2%	39.0%
4-Year, baccalaureate	19.6%	27.5%	18.2%
4-Year, subbaccalaureate	1.5%	1.9%	1.4%
Community college	6.7%	9.7%	6.1%
Proprietary	4.7%	3.4%	5.0%
Public < 2 year	2.4%	3.5%	2.2%
Private, < 2 year	1.0%	1.6%	0.9%
Other	0.7%	0.3%	0.7%
Missing	4.1%	2.4%	4.5%

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* (HS&B) 1980 Senior Cohort, third follow-up data file. Estimates reflect data and assumptions used. Details may not sum to totals due to rounding.

Interpretive Note: Among other things, the table shows that 4.7 percent of the 1980 senior high school class had completed a proprietary school program as their maximum level of educational attainment, by Jan. 1986. Another 3.0 percent attended a proprietary school, but had not attained any postsecondary credential. Although not shown in this table, another 1.2 percent of high school students attended a proprietary school, but completed a program offering a certificate, license, or degree at some other school. Some of these students may also have attained a proprietary school certificate. In total, 8.9 percent of the 1980 senior high school class attended a proprietary school at some time during the 5½ years following high school.

TABLE B.10. Labor Market Indicators of Out-of School Members of the 1980 Senior High School Class by Postsecondary Schooling Status January 1986

	Employment rate		Average hourly earnings		Average monthly earnings	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Males						
H.S. only	77.7%	1.7%	$6.82	$0.15	$843	$29
Attendee, noncompleters						
Proprietary school	76.26	6.2	7.62	0.16	927	84
Other schools	80.4	1.8	7.27	0.27	910	31
Completers						
Proprietary	77.2	4.8	7.85	0.59	941	87
Private, < 2 year	95.95	3.4	8.95	1.74	1,467	267
Public, < 2 year	86.5	4.5	7.31	0.46	962	89
Junior/community college	89.4	3.0	7.09	0.28	967	61
4 year, sub-baccalaureate	87.8	6.6	7.89	0.76	1,252	141
4 year, baccalaureate	85.85	1.9	8.03	0.18	1,070	42
Females						
H.S. only	60.0	2.1	5.46	0.16	482	23
Attendee, noncompleters						
Proprietary school	68.9	4.0	5.84	0.52	546	42
Other schools	76.9	1.7	6.18	0.11	672	22
Completers						
Proprietary	73.5	3.7	6.47	0.38	621	60
Private, < 2 year	82.9	7.6	5.90	0.59	918	92
Public, < 2 year	77.9	5.8	6.60	0.70	641	69
Junior/community college	81.0	3.1	6.06	0.22	681	44
4 year, sub baccalaureate	77.5	6.8	6.93	0.50	736	97
4 year, baccalaureate	88.3	1.4	7.33	0.21	946	39

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Postsecondary schooling status is based upon the maximum level of schooling completed as of Jan. 1986. Members of the 1980 senior high school class who were attending a postsecondary school in Jan. 1986 are not included.

TABLE B.11. Percentage of H.S. Seniors Receiving Work-Based Training by Postsecondary Education Completion Status

	Males		Females	
	Estimate	S.E.	Estimate	S.E.
H.S. only	28.1%	1.8%	39.0%	2.4%
Attendee/noncompleters				
Proprietary	47.4	8.4	42.2	6.3
Other schools	42.3	2.3	45.6	2.1
Completers				
Proprietary	49.7	5.8	38.2	4.0
Public, < 2 year	45.1	8.1	31.4	7.5
Community/junior college	56.1	5.2	52.3	4.2
4-Year, sub-baccalaureate	36.3	11.2	66.3	7.8
4-Year, baccalaureate	57.8	3.0	52.1	3.1

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file based on data and assumptions used. Estimates are for members of the 1980 senior class who were out-of-school in Jan. 1986, and had been employed in a full-time job in the prior 2-years. Work based training was for the most recent full-time job.

TABLE B.12. Percentage of Borrowers Whose Loan Repayments Exceed Various Percentages of Monthly Earnings by Postsecondary Completion Status

	Loan payment as a percent of monthly earnings							
	5% or more		10% or more		15% or more		20% or more	
	Percent	S.E.	Percent	S.E.	Percent	S.E.	Percent	S.E.
Noncompleters								
Proprietary school	86.7%	4.5%	50.8%	6.2%	39.3%	4.9%	35.2%	5.4%
School, other than proprietary	81.9	2.2	50.8	2.6	39.0	2.3	34.1	2.3
Completers								
Proprietary school	83.9	4.0	50.7	5.3	39.0	4.9	30.4	4.8
Community college	81.6	4.8	45.6	7.4	25.5	6.5	24.8	6.6
4-Year, sub-baccalaureate	74.0	10.6	31.6	9.9	27.2	9.7	25.6	9.6
4-Year, baccalaureate	83.7	1.8	49.1	2.0	34.7	2.3	26.7	2.2

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimates are based on data and assumptions used. Estimates are members of the 1980 senior class who were out-of-school in Jan. 1986, and incurred loans for postsecondary education in the period following high school. Estimates are based on all loans incurred during the period. See appendix A for discussion of methodology.

TABLE B.13. Logistic Regression Results Predicting Postsecondary School Attendance

Variables	H.S. only versus attended any postsecondary school		Attended proprietary school versus did not attend		Attended community college versus did not attend		Attended 4-year college versus did not attend	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
Intercept	1.9463	0.3441****	-4.1875	0.4694****	-2.7533	0.3003****	-3.5773	0.4127****
Gender								
Female	0.0000		0.0000		0.0000		0.0000	
Male	0.1589	0.1130	-0.5812	0.1386****	-0.0863	0.0821	0.2412	0.1098**
H.S. cognitive test								
Lowest quartile	0.0000		0.0000		0.0000		0.0000	
Second quartile	-0.2119	0.1238*	-0.1436	0.1681	0.1989	0.1142*	0.3569	0.1548**
Third quartile	-0.5961	0.1477****	-0.0023	0.1845	0.2576	0.1220**	0.5552	0.1621****
Highest quartile	-0.6792	0.1973****	-0.1749	0.2294	-0.0794	0.1393	0.7919	0.1826****
Missing	-0.1781	0.1535	0.0840	0.1954	0.0522	0.1370	0.5608	0.1815***
Socioeconomic status								
Lowest quartile	0.0000		0.0000		0.0000		0.0000	
Second quartile	0.0057	0.1174	0.1545	0.1620	0.1542	0.1053	-0.1134	0.1371
Third quartile	-0.1909	0.1297	0.1841	0.1707	0.2558	0.1078**	0.0969	0.1391
Highest quartile	-0.8822	0.1753****	0.2796	0.1890	0.1608	0.1155	0.6098	0.1495****
Missing	0.0390	0.2748	0.3352	0.3660	-0.1624	0.2693	-0.1797	0.3364
Psychological orientation								
Self concept	0.0426	0.2072	0.1238	0.2540	0.0961	0.1573	0.1278	0.2097
Locus of control	-0.6421	0.2233***	0.2047	0.2855	0.5288	0.1812***	0.4912	0.2386**
Work orientation	-0.9121	0.2159****	1.0002	0.2843****	0.2893	0.1665**	0.3168	0.2208
Race/ethnicity								
White, nonhispanic	0.0000		0.0000		0.0000		0.0000	
Black, nonhispanic	-0.3072	0.1577*	0.4151	0.1814**	-0.0231	0.1264	0.2311	0.1621
Hispanic	-0.0589	0.1484	0.2209	0.1873	0.2316	0.1255*	-0.1065	0.1699
Other, nonhispanic	-0.4927	0.3504	0.3027	0.3569	0.5709	0.2164***	-0.0007	0.2929
H.S. grades								
(A's=1,...,D's=8)	0.0782	0.0378**	0.1681	0.0479****	0.1036	0.0302****	-0.2418	0.0401****
High school curriculum								
General	0.0000		0.0000		0.0000		0.0000	
Academic	-0.4763	0.1449***	-0.2966	0.1635*	-0.1338	0.0947	0.2907	0.1159**
Vocational	-0.0731	0.1056	0.2371	0.1400*	0.0367	0.0969	-0.2849	0.1290**
Missing	-0.1327	0.3108	0.1942	0.4067	0.1005	0.2879	-0.0166	0.3825
Remedial courses in H.S.								
No	0.0000		0.0000		0.0000		0.0000	
Yes	-0.0694	0.0973	-0.0703	0.1264	-0.0512	0.0817	-0.0968	0.1065
Took college boards								
No	0.0000		0.0000		0.0000		0.0000	
Yes	-0.7227	0.1085****	0.0171	0.1375	-0.1440	0.0894	1.0008	0.1037****
High school coursework								
Math	-0.0114	0.0568	0.0446	0.0720	0.0178	0.0459	0.1210	0.0596**
English	-0.0832	0.0684	0.0672	0.0956	-0.1024	0.0616*	0.1356	0.0864
Foreign language	-0.0632	0.0498	0.1035	0.0547*	0.0355	0.0328	-0.0197	0.0434
History, social sci.	0.0089	0.0574	0.0074	0.0726	0.0297	0.0455	-0.0760	0.0614
Science	-0.0475	0.0586	-0.0295	0.0713	0.0017	0.0437	0.0895	0.0577
Business	-0.0017	0.0472	0.0729	0.0562	0.0738	0.0363**	0.0759	0.0480
Trade, industrial	0.1241	0.0516***	-0.0341	0.0740	0.0048	0.0452	-0.1882	0.0623***
Technical	-0.1501	0.0585**	0.0479	0.0762	0.1121	0.0463**	-0.0065	0.0637
Vocational, other	0.0059	0.0448	0.0504	0.0573	0.0401	0.0371	-0.0664	0.0493
Advanced math/science	-0.0283	0.0149*	0.0008	0.0181	0.0094	0.0113	0.0388	0.0147***

See notes at end of table.

TABLE B.13. Logistic Regression Results Predicting Postsecondary School Attendance--Continued

Variables	H.S. only versus attended any postsecondary school		Attended proprietary school versus did not attend		Attended community college versus did not attend		Attend 4-year college versus did not attend	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
H.S. work study program								
No	0.0000		0.0000		0.0000		0.0000	
Yes	0.2209	0.1217*	0.0983	0.1582	-0.1229	0.1102	-0.3252	0.1462**
CETA program enrollment								
No	0.0000		0.0000		0.0000		0.0000	
Yes	0.3284	0.1505**	-0.0146	0.1971	-0.1032	0.1343	-0.0973	0.1738
Physically or learning disabled								
No	0.0000		0.0000		0.0000		0.0000	
Yes	0.0976	0.2135	0.2821	0.2485	-0.2859	0.1828	0.2826	0.2305
Postsecondary schooling Expectations								
H.S. only	0.0000		0.0000		0.0000		0.0000	
Vocational cert./deg.	-1.0428	0.1152****	0.7945	0.1841****	1.1709	0.1343****	0.6712	0.2038****
2 year academic deg.	-1.6985	0.1415****	0.7697	0.2021****	1.8202	0.1430****	1.3471	0.1979****
4 year academic deg.	-2.2996	0.1791****	0.1143	0.2276	1.4196	0.1475****	2.7092	0.1970****
Graduate/prof. deg.	-2.5714	0.2388****	-0.0142	0.2567	1.3349	0.1607****	2.9192	0.2142****
Missing	-1.2592	0.2523****	0.2457	0.3753	1.2938	0.2374****	1.4876	0.2982****
Chi-square	3,409		356		692		5,988	
probability	0.0000		0.0000		0.0000		0.0000	
R	0.568		0.223		0.228		0.675	
Somer's D_{YX}	0.721		0.336		0.327		0.801	

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Adjusted standard errors are estimated standard errors multiplied by a factor of 1.5 to adjust for HS&B stratified sampling design. Estimates are based on data and assumptions used. See appendix A for a description of methodology and variables.

TABLE B.14. Logistic Regression Results Predicting Proprietary School Attendance

Variables	Attend proprietary school versus H.S. only		Attend proprietary school versus attend community college		Attend proprietary school versus attend 4-year college	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
Intercept	-4.0882	0.5675****	-1.6636	0.5184***	-0.2487	0.6218
Gender						
Female	0.0000		0.0000		0.0000	
Male	-0.6374	0.1806****	-0.5050	0.1488****	-0.7180	0.1652****
H.S. cognitive test						
Lowest quartile	0.0000		0.0000		0.0000	
Second quartile	0.0390	0.1991	-0.2968	0.1827	-0.5941	0.2187***
Third quartile	0.4565	0.2264**	-0.2165	0.1985	-0.5059	0.2300**
Highest quartile	0.4607	0.3005	-0.1516	0.2371	-0.6850	0.2632***
Missing	0.2492	0.2344	0.0523	0.2171	-0.2539	0.2556
Socioeconomic status						
Lowest quartile	0.0000		0.0000		0.0000	
Second quartile	0.1065	0.1912	0.0890	0.1767	0.1865	0.2068
Third quartile	0.2717	0.2068	0.0834	0.1842	0.1147	0.2120
Highest quartile	1.1458	0.2555****	0.1387	0.1984	-0.1400	0.2229
Missing	0.1406	0.4361	0.3525	0.4095	0.1500	0.4646
Psychological orientation						
Self concept	0.1940	0.3265	0.1569	0.2725	0.3894	0.3031
Locus of control	0.6698	0.3646*	-0.1576	0.3124	0.0388	0.3526
Work orientation	1.4578	0.3539****	0.7382	0.2999**	0.6913	0.3354**
Race/ethnicity						
White, nonhispanic	0.0000		0.0000		0.0000	
Black, nonhispanic	0.5016	0.2325**	0.3898	0.2027*	0.0306	0.2276
Hispanic	0.2005	0.2306	0.1294	0.2034	0.2564	0.2426
Other, nonhispanic	0.7127	0.5035	0.0338	0.3717	0.0721	0.4104
H.S. grades (A's=1,...,D's=8)	0.0309	0.0609	0.1359	0.0532**	0.3083	0.0592****
High school curriculum						
General	0.0000		0.0000		0.0000	
Academic	0.1962	0.2224	-0.2029	0.1672	-0.2670	0.1764
Vocational	0.1576	0.1672	0.1842	0.1537	0.4893	0.1836***
Missing	0.1672	0.4864	0.0017	0.4458	0.4548	0.5397
Remedial courses in H.S.						
No	0.0000		0.0000		0.0000	
Yes	-0.0200	0.1553	-0.0726	0.1371	-0.0147	0.1588
Took college boards						
No	0.0000		0.0000		0.0000	
Yes	0.5456	0.1624****	0.0153	0.1391	-0.4880	0.1621***
High school coursework						
Math	0.0384	0.0905	0.0393	0.0788	-0.0185	0.0887
English	0.1009	0.1086	0.1302	0.1085	-0.0372	0.1306
Foreign language	0.1160	0.0735	0.0608	0.0575	0.1008	0.0622
History, social science	-0.0729	0.0924	-0.0106	0.0806	0.0310	0.0895
Science	0.0530	0.0918	-0.0550	0.0778	-0.0728	0.0836
Business	0.0615	0.0719	0.0292	0.0610	0.0509	0.0699
Trade, industrial	-0.1169	0.0877	-0.0321	0.0790	0.1676	0.0954*
Technical	0.0903	0.0958	0.0107	0.0815	0.0441	0.0953
Vocational, other	0.0286	0.0704	0.0327	0.0615	0.1095	0.0706
Advanced math/science	0.0342	0.0235	-0.0091	0.0194	-0.0285	0.0221
H.S. work study program						
No	0.0000		0.0000		0.0000	
Yes	-0.0469	0.1896	0.2130	0.1731	0.2608	0.2059

See notes at end of table.

TABLE B.14. Logistic Regression Results Predicting Proprietary School Attendance--Continued

Variables	Attend proprietary school versus N.S. only		Attend proprietary school versus attend community college		Attend proprietary school versus attend 4-year college	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
CETA program enrollment						
No	0.0000		0.0000		0.0000	
Yes	-0.3171	0.2381	0.0962	0.2224	0.0346	0.2528
Physically or learning disabled						
No	0.0000		0.0000		0.0000	
Yes	0.1959	0.3110	0.5446	0.2853*	0.0152	0.3095
Postsecondary schooling expectations						
H.S. only	0.0000		0.0000		0.0000	
Vocational certificate/degree	1.1811	0.1981****	-0.0367	0.2121	-0.2665	0.2795
2 year academic degree	1.4225	0.2253****	-0.4102	0.2226*	-0.7843	0.2789***
4 year academic degree	1.6576	0.2734****	-0.7617	0.2405***	-1.9697	0.2840****
Graduate/professional degree	1.8690	0.3335****	-0.8218	0.2639***	-1.9371	0.3063****
Missing	1.0607	0.4318**	-0.7001	0.4040*	-1.1977	0.4685**
Chi-square	756		264		1317	
probability	0.0000		0.0000		0.0000	
R	0.438		0.212		0.516	
Somer's D_{YX}	0.557		0.339		0.664	

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Adjusted standard errors are estimated standard errors multiplied by a factor of 1.5 to adjust for HS&B stratified sampling design. Estimates are based on data and assumptions used. See appendix A for a description of methodology and variables.

TABLE B.15. Logistic Regression Results Predicting Postsecondary Schooling Completion

Variables	Completed proprietary school versus attended, failed to complete		Completed community college versus attended, failed to complete		Completed 4-year college versus attended, failed to complete	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
Intercept	-0.2160	1.1282	-1.0035	0.7063	-0.1044	0.7955
Gender						
Female	0.0000		0.0000		0.0000	
Male	0.2527	0.3263	-0.1375	0.2051	-0.1172	0.1405
H.S. cognitive test						
Lowest quartile	0.0000		0.0000		0.0000	
Second quartile	0.1535	0.3581	-0.1770	0.2705	0.1480	0.2901
Third quartile	0.3467	0.4027	0.3073	0.2771	-0.0336	0.2901
Highest quartile	0.4924	0.5856	0.0538	0.3182	0.0977	0.3015
Missing	0.6856	0.4776	-0.1689	0.3284	0.0302	0.3169
Socioeconomic status						
Lowest quartile	0.0000		0.0000		0.0000	
Second quartile	0.4590	0.3668	0.2855	0.2423	-0.0789	0.2240
Third quartile	-0.0527	0.3834	0.1614	0.2502	0.4190	0.2142*
Highest quartile	0.0776	0.4385	-0.1404	0.2807	0.6401	0.2095***
Missing	1.2944	1.0124	0.3877	0.5859	-0.5056	0.8041
Psychological orientation						
Self concept	0.0623	0.5822	-0.0233	0.3831	-0.0934	0.2859
Locus of control	0.0720	0.6711	-0.2678	0.4232	-0.0244	0.3406
Work orientation	-0.1100	0.6839	0.4540	0.3938	0.5923	0.2937**
Race/ethnicity						
White, nonhispanic	0.0000		0.0000		0.0000	
Black, nonhispanic	-0.6389	0.4002	-0.1783	0.3127	-0.5819	0.2363**
Hispanic	-0.4700	0.4120	0.1107	0.2851	-0.2536	0.2860
Other, nonhispanic	-0.2433	0.9024	0.2271	0.4925	0.1189	0.4218
H.S. grades (A's=1,...,D's=8)	0.0633	0.1185	-0.1567	0.0738**	-0.3437	0.0588****
High school curriculum						
General	0.0000		0.0000		0.0000	
Academic	0.6342	0.4022	-0.1679	0.2179	0.2551	0.1559
Vocational	0.2847	0.3098	-0.1714	0.2218	-0.0121	0.2481
Missing	-0.9394	1.0021	-0.3870	0.8193	-0.3680	0.6723
Remedial courses in H.S.						
No	0.0000		0.0000		0.0000	
Yes	-0.3432	0.3005	0.0442	0.1851	-0.0765	0.1645
Took college boards						
No	0.0000		0.0000		0.0000	
Yes	0.2565	0.3114	0.3984	0.1859**	0.1271	0.2162
High school coursework						
Math	0.0740	0.1776	-0.0644	0.1083	0.1151	0.0887
English	0.1525	0.2307	-0.0532	0.1458	-0.0922	0.1623
Foreign language	0.1151	0.1275	0.0336	0.0806	0.0091	0.0546
History, social science	-0.0471	0.1742	-0.0362	0.1152	-0.0905	0.0867
Science	-0.2070	0.1775	0.1888	0.1084*	0.1475	0.0772*
Business	0.0326	0.1294	-0.0338	0.0870	0.0382	0.0679
Trade, industrial	0.1741	0.2084	-0.0308	0.1048	-0.0996	0.1050
Technical	0.2819	0.1966	0.0300	0.1054	0.0012	0.0945
Vocational, other	-0.0179	0.1318	0.1382	0.0861	0.0624	0.0750
Advanced math/science	-0.0287	0.0450	0.0177	0.0251	-0.0251	0.0206
H.S. work study program						
No	0.0000		0.0000		0.0000	
Yes	-0.4626	0.3507	0.0451	0.2477	0.2007	0.2502
CETA program enrollment						
No	0.0000		0.0000		0.0000	
Yes	-0.4424	0.4382	0.1362	0.3292	0.3321	0.2839

See notes at end of table.

TABLE B.15. Logistic Regression Results Predicting Postsecondary Schooling Completion--Continued

Variables	Completed proprietary school versus attended, failed to complete		Completed community college versus attended, failed to complete		Completed 4-year college versus attended, failed to complete	
	Beta	Adjusted S.E.	Beta	Adjusted S.E.	Beta	Adjusted S.E.
Physically or learning disabled						
No	0.0000		0.0000		0.0000	
Yes	0.0983	0.5465	0.5236	0.4594	0.2330	0.3251
Postsecondary Schooling expectations						
N.S. only	0.0000		0.0000		0.0000	
Vocational certificate/degree	0.2346	0.4051	0.1599	0.3456	-0.5064	0.5528
2 year academic degree	-0.1131	0.4438	0.2091	0.3406	-0.2177	0.4948
4 year academic degree	-0.5167	0.5121	0.0575	0.3621	0.5283	0.4716
Graduate/professional degree	0.2284	0.6159	0.0241	0.3898	0.3087	0.4817
Missing	0.9168	1.0715	-0.0682	0.5845	0.2511	0.6459
Chi-square	88		84		452	
probability	0.0000		0.0000		0.0000	
R	0.568		0.568		0.309	
Somer's D_{YX}	0.242		0.189		0.396	

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Adjusted standard errors are estimated standard errors multiplied by a factor of 1.5 to adjust for HS&B stratified sampling design. Estimates are based on data and assumptions used. See appendix A for a description of methodology and variables.

TABLE B.16. Logistic Regression Results Predicting Employment Status of Out-of-School Men and Women in January 1986

Variables	Men			Women		
	Beta	Adjusted S.E.	Adjusted probability level	Beta	Adjusted S.E.	Adjusted Probability Level
Intercept	0.36230	0.45856	0.42945	0.67130	0.361.5	0.06314*
Race/ethnicity						
White, nonhispanic	0.00000			0.00000		
Black, nonhispanic	-0.33950	0.22575	0.13266	-0.42060	0.19023	0.02705**
Hispanic	-0.11500	0.22788	0.61374	-0.20180	0.19470	0.29987
Other, nonhispanic	-0.10400	0.45456	0.81905	-0.66270	0.37602	0.07800*
Marital/family status						
Never married, no children	0.00000			0.00000		
Married, no children	0.61670	0.20715	0.00291***	0.06010	0.17147	0.72583
Married, with children	0.18950	0.18811	0.31376	-1.46640	0.15494	0.00000****
Sep., div., wid., no children	0.08760	0.49362	0.85911	-0.32420	0.39257	0.40889
Single, with children	0.45320	0.33673	0.17837	-0.82850	0.20916	0.00008****
Missing	-1.19510	0.71892	0.09643*	-2.28700	0.64688	0.00041****
Geographic region						
Northeast	0.00000			0.00000		
North central	-0.12270	0.20116	0.54180	0.06110	0.16688	0.71439
South	-0.08990	0.20254	0.65722	-0.07150	0.16229	0.65965
West	-0.40910	0.23070	0.07616*	-0.01200	0.18855	0.94938
Community type						
Medium city/suburb medium city	0.00000			0.00000		
Rural area	0.13930	0.22032	0.52733	0.27550	0.18056	0.12699
Small city/suburb of small city	-0.15820	0.18940	0.40352	0.22200	0.15581	0.15422
Large city	-0.19640	0.23256	0.39838	0.50760	0.20477	0.01317**
Suburb of large/very large city	-0.05680	0.24450	0.81617	0.32970	0.21317	0.12194
Very large city	0.20030	0.32943	0.54307	-0.12960	0.24791	0.60113
High school diploma/equivalent						
Has diploma	0.00000			0.00000		
No diploma	-0.56880	0.70662	0.42086	-0.22520	0.67004	0.73676
H.S. cognitive test						
Lowest quartile	0.00000			0.00000		
Second quartile	0.22280	0.19740	0.25899	0.35800	0.16043	0.02566**
Third quartile	0.69010	0.22959	0.00265***	0.54130	0.18665	0.00373***
Highest quartile	1.05570	0.26431	0.00007****	0.38350	0.22289	0.08530*
Missing	0.44290	0.23052	0.05470*	0.35060	0.20940	0.09407*
Psychological orientation n						
Self concept	-0.14230	0.320[illegible]9	0.65704	0.18640	0.25517	0.46498
Locus of control	0.58960	0.34494	0.08738*	0.74230	0.28847	0.01008**
Orientation towards work	0.22340	0.34558	0.51796	0.11540	0.26237	0.66008
H.S. grades (A's=1,...,D's=8)	0.09820	0.05641	0.08187*	-0.07370	0.04875	0.13059
Social economic status						
Lowest quartile	0.00000			0.00000		
Second quartile	0.02900	0.19756	0.88342	0.17670	0.15342	0.24940
Third quartile	0.04320	0.20349	0.83192	0.20280	0.16979	0.23239
Highest quartile	0.04480	0.22455	0.84169	-0.16480	0.19254	0.39198
Missing	-0.99470	0.34590	0.00403***	-0.88120	0.38777	0.02305**

See notes at end of table.

TABLE B.16. Logistic Regression Results Predicting Employment Status of Out-of-School Men and Women in January 1986--Continued

Variables	Men			Women		
	Beta	Adjusted S.E.	Adjusted probability level	Beta	Adjusted S.E.	Adjusted Probability Level
Postsecondary schooling status						
H.S. only	0.00000			0.00000		
Attendee/noncompleters						
School other than proprietary	-0.00670	0.18126	0.97038	0.33270	0.15617	0.03315**
Proprietary	-0.17390	0.50188	0.72897	0.20380	0.28703	0.47763
Completers						
Proprietary	-0.17720	0.34776	0.61037	0.15340	0.25176	0.54224
Miscellaneous	0.23560	0.31726	0.45771	-0.10230	0.26741	0.70199
Private, < 2 year	1.29130	2.18478	0.55448	0.46040	0.60903	0.44963
Public, < 2 year	0.49330	0.52951	0.35157	0.50950	0.42681	0.23255
Community/junior college	0.70770	0.38706	0.06751*	0.44860	0.26564	0.09129*
4-year, sub-baccalaureate	0.46930	0.61516	0.44550	0.42210	0.42572	0.32138
4-year, baccalaureate	0.18440	0.25749	0.47397	0.44470	0.23952	0.06334*
Chi-square	190			742		
probability	0.0000			0.0000		
R	0.186			0.364		
Somer's D_{YX}	0.307			0.449		

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Adjusted standard errors and probability levels are derived from estimated standard errors multiplied by a factor of 1.5 to adjust for the HS&B stratified sampling design. Estimates are based on assumptions used. See appendix A for a description of methodology and variables.

TABLE B.17. Ordinary Least Squares Regression Results Predicting Hourly Earnings of Out-of-School Working Men and Women January 1986

Variables	Men			Women		
	Parameter estimate	S.E.	Probability	Parameter estimate	S.E.	Probability
Intercept	6.07150	0.80136	0.00000****	6.00025	0.50435	0.00000****
Race/ethnicity						
White, nonhispanic	0.00000	-	-	0.00000	-	-
Black, nonhispanic	-0.18160	0.22591	0.42153	-0.18096	0.28252	0.52189
Hispanic	0.43440	0.22988	0.05889*	0.12074	0.22159	0.58587
Other, nonhispanic	-0.17800	0.35468	0.61579	0.90829	0.68491	0.18489
Marital/family status						
Never married, no children	0.00000	-	-	0.00000	-	-
Married, no children	0.88920	0.21142	0.00003****	-0.22533	0.17379	0.19488
Married, with children	0.53580	0.21491	0.01273**	-0.52099	0.22293	0.01950**
Sep., wid., div., no children	0.61020	0.68798	0.37517	-0.36315	0.58493	0.53476
Single, with children	-0.31910	0.31480	0.31081	-0.55260	0.36247	0.12747
Missing	-1.32920	0.68904	0.05383*	-0.42334	0.79919	0.59635
Geographic region						
Northeast	0.00000	-	-	0.00000	-	-
North central	-0.44120	0.20724	0.03336**	-0.40511	0.23961	0.09099*
South	-0.30430	0.21987	0.16642	-0.09528	0.23256	0.68205
West	0.56230	0.24011	0.01927**	0.15326	0.22657	0.49881
Military status						
Not currently in military	0.00000	-	-	0.00000	-	-
Currently in military	-1.92520	0.36950	0.00000****	-0.49346	0.72840	0.49817
Prior military service						
No prior service	0.00000	-	-	0.00000	-	-
Prior service	-0.63250	0.28708	0.02767**	0.84510	0.85268	0.32171
H.S. cognitive test						
Bottom quartile	0.00000	-	-	0.00000	-	-
Second quartile	0.04700	0.24716	0.84929	-0.10481	0.23385	0.65405
Third quartile	0.05210	0.33168	0.87513	-0.17867	0.27749	0.51971
Highest quartile	0.00340	0.26733	0.98999	0.10251	0.32288	0.75088
Missing	0.00480	0.33559	0.98869	-0.22310	0.35777	0.53295
Psychological orientation						
Self concept	0.67670	0.42559	0.11195	0.79721	0.38809	0.04005**
Locus of control	1.02110	0.51060	0.04562**	0.36970	0.36627	0.31288
Orientation towards work	1.02870	0.58032	0.07640*	0.69075	0.34950	0.04820**
Social economic status						
Bottom quartile	0.00000	-	-	0.00000	-	-
Second quartile	0.20940	0.20628	0.31010	0.40251	0.20062	0.04490**
Third quartile	0.95440	0.22729	0.00003****	0.47578	0.22260	0.03265**
Highest quartile	0.97470	0.30003	0.00118***	0.91127	0.25766	0.00041****
Missing	0.11100	0.38831	0.77496	0.25113	0.40535	0.53561
H.S. grades (A's=1,...,D's=8)	-0.18650	0.07026	0.00801***	-0.14938	0.05889	0.01125**
Full-time employment						
Worked < 35 hrs per week	0.00000	-	-	0.00000	-	-
Worked 35+ hrs per week	0.43920	0.42756	0.30437	-0.57757	0.26620	0.03011**
Employer provided training						
No training provided	0.00000	-	-	0.00000	-	-
Training provided	0.48070	0.18748	0.01040**	0.52399	0.15328	0.00064****

See notes at end of table.

TABLE B.17. Ordinary Least Squares Regression Results Predicting Hourly Earnings of Out-of-School Working Men and Women January 1986--Continued

Variables	Men			Women		
	Parameter estimate	S.E.	Probability	Parameter estimate	S.E.	Probability
Postsecondary schooling status						
H.S. only						
Attendee/noncompleters	0.00000	-	-	0.00000	-	-
School other than proprietary	-0.07060	0.20387	0.72902	0.35137	0.22093	0.11185
Proprietary	0.42830	0.64693	0.50796	0.28056	0.58143	0.62946
Completers						
Proprietary	0.53300	0.58570	0.36286	0.71687	0.39540	0.06992*
Miscellaneous	-0.44510	0.34521	0.19743	0.26632	0.50490	0.59791
Private, < 2 year	2.22760	1.92092	0.24630	0.65834	0.58721	0.26232
Public, < 2 year	0.05540	0.44485	0.90082	0.92378	0.70298	0.18892
Community/junior college	-0.45110	0.34130	0.18640	0.10820	0.25230	0.66807
4-year, sub-baccalaureate	1.22720	0.78734	0.11921	0.86693	0.45967	0.05939*
4-year, baccalaureate	0.08330	0.29746	0.77935	1.08813	0.26626	0.00005****
Months of full-time work since H.S.	0.00020	0.00529	0.97518	0.01037	0.00464	0.02538**
R^2	0.12150			0.10210		
N	3425			3051		
F	14.648			9.26		
Probability > F	0.0001			0.0001		

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimated standard errors compensate for HS&B stratified sample design through the use of replicate weighting procedures. Estimates are for out-of-school youth who were employed in Jan. 1986 and reported having earnings. Estimates are based on data and assumptions used. See appendix A for a description of methodology and variables.

TABLE B18. Ordinary Least Squares Regression Results Predicting Monthly Earnings of Out-of-School Men and Women January 1986

Variable	Men			Women		
	Estimated parameter	S.E.	Probability	Estimated parameter	S.E.	Probability
Intercept	1194.29	107.87	0.00000****	989.64	80.94	0.00000****
Race/ethnicity						
White, nonhispanic	0.00			0.00		
Black, nonhispanic	-84.65	42.02	0.04405**	-67.90	62.07	0.27410
Hispanic	20.54	66.98	0.75909	27.79	35.83	0.43801
Other, nonhispanic	-88.18	90.23	0.32851	-57.63	63.52	0.36435
Marital/family status						
Never married, no children	0.00			0.00		
Married, no children	190.36	36.43	0.00000****	-51.88	29.90	0.08281*
Married with children	175.35	44.34	0.00008****	-142.18	39.17	0.00029****
Sep., div., wid., no children	171.18	124.74	0.17011	-113.73	61.28	0.06357*
Single, with children	43.86	69.70	0.52925	-145.78	36.42	0.00006****
Missing	-241.84	297.64	0.41657	-113.67	155.02	0.46345
Geographic region						
North east	0.00			0.00		
North central	18.59	38.95	0.63310	-40.77	33.45	0.22303
South	-12.33	41.14	0.76447	44.10	41.30	0.28563
West	89.32	45.00	0.04725**	7.96	48.04	0.86844
Community type						
Medium city/suburb medium city	0.00			0.00		
Rural area	-4.89	57.63	0.93239	-134.88	46.05	0.00343***
Small city/suburb of small city	-18.82	40.62	0.64321	-66.95	37.40	0.07355*
Large city	-28.08	60.64	0.64343	-27.80	35.59	0.43485
Suburb of large/very large city	115.69	65.08	0.07558*	73.87	60.34	0.22101
Very large city	30.01	58.78	0.60969	73.89	57.13	0.19602
Military base	-279.27	65.74	0.00002****	12.43	161.07	0.93851
H.S. diploma/equivalent						
Has diploma	0.00			0.00		
No diploma	427.65	413.76	0.30143	-82.17	98.40	0.40374
H.S. cognitive test						
Lowest quartile	0.00			0.00		
Second quartile	26.19	42.50	0.53787	13.12	36.70	0.72068
Third quartile	20.92	54.61	0.70169	18.04	45.11	0.68922
Highest quartile	18.37	50.41	0.71561	40.26	53.80	0.45424
Missing	-65.50	55.71	0.23984	-8.20	63.70	0.89756
Psychological orientation						
Self concept	228.89	70.08	0.00111***	149.64	55.74	0.00730***
Locus of control	168.17	80.61	0.03706**	105.79	61.96	0.08784*
Orientation towards work	219.31	77.30	0.00459***	160.67	59.44	0.00691***
Social economic status						
Lowest quartile	0.00			0.00		
Second quartile	33.08	43.58	0.44788	73.51	27.04	0.00660***
Third quartile	194.51	40.47	0.00000****	86.73	35.20	0.01380**
Highest quartile	178.12	55.89	0.00145***	155.18	50.39	0.00209***
Missing	37.56	84.26	0.65579	147.14	114.39	0.19845
H.S. grades (A's=1,...,D's=8)	-44.69	12.68	0.00043****	-31.04	11.24	0.00578***

See notes at end of table.

TABLE B18. Ordinary Least Squares Regression Results Predicting Monthly Earnings of Out-of-School Men and Women January 1986--Continued

Variables	Men			Women		
	Estimated parameter	S.E.	Probability	Estimated parameter	S.E.	Probability
Postsecondary schooling status						
N.S. only	0.00			0.00		
Attendee/noncompleters						
School other than proprietary	-91.23	45.56	0.04533**	4.27	34.01	0.89998
Proprietary	-48.78	63.88	0.44519	-68.14	56.01	0.22386
Completers						
Proprietary	68.16	107.55	0.52632	2.42	70.74	0.97272
Miscellaneous	-105.12	62.85	0.09452*	-17.09	75.34	0.82057
Private, < 2 year	409.24	353.26	0.24679	137.88	97.34	0.15673
Public, < 2 year	-131.59	97.52	0.17732	3.46	62.88	0.95611
Community/junior college	-86.26	73.73	0.24215	-2.34	51.08	0.96351
4-year, sub-baccalaureate	233.89	140.68	0.09653*	94.27	69.59	0.17563
4-year, baccalaureate	-24.49	56.25	0.66338	106.30	45.83	0.02043**
R^2	0.1194			0.1305		
N	2610			3051		
F	8.94			11.59		
Probability > F	0.0001			0.0001		

* Significant at the .10 probability level or lower, two-tailed test.

** Significant at the .05 probability level or lower, two-tailed test.

*** Significant at the .01 probability level or lower, two-tailed test.

**** Significant at the .001 probability level or lower, two-tailed test.

NOTE: Table prepared by the Congressional Research Service (CRS). Estimates are based on analysis of the *High School and Beyond* 1980 Senior Cohort, third follow-up data file. Estimated standard errors compensate for HS&B's stratified sample design through the use of replicate weighting procedures. Estimates are for out-of-school members of the 1980 senior high school class in Jan. 1986. Estimates include persons without earnings (e.g., persons not working). Estimates are based on data and assumptions used. See appendix A for a description of methodology and variables.

APPENDIX C
OTHER STUDIES

This appendix lists 14 other studies with findings about the labor market experiences of people who attended proprietary schools. These studies are based upon a wide variety of research, including several different national longitudinal surveys of students, a one-time national survey of employers, and specially designed surveys of proprietary and other vocational school students. Some studies have findings about a number of employment outcomes while others are limited to just one or two. They vary in the extent to which they deal with the methodological difficulties inherent in measuring labor market experiences. The studies themselves should be consulted to determine the scope and limitations of the findings. The studies are discussed in reverse chronological order.

Leigh, Duane. *What kinds of training "work" for noncollege bound youth?* Report prepared for the U.S. General Accounting Office. Washington State University. Oct. 1989. 42 p. Uses the National Longitudinal Survey of Youth (U.S. Department of Labor), a survey of men and women aged 14 to 24 at the time of the initial interview in 1979. One finding is that proprietary school programs have a strong impact on annual earnings but none on wage rates, that is, the programs appear to improve employment stability but not hourly earnings.

Goodwin, David. *Postsecondary vocational education.* Final report, v. 4. National assessment of vocational education. U.S. Department of Education. 1989. 131 p., plus appendices. Uses *High School and Beyond* Survey of 1980 seniors (U.S. Department of Education). Among the findings is that people who had studied at proprietary schools had a higher incidence of unemployment than those who had studied at community colleges or public technical institutes; the mean wages of proprietary school students were higher, though the differences between regression-adjusted means for them and community college students were not statistically significant.

Grubb, W. Norton. *The causes and consequences of enrollments in higher education: evidence from the national longitudinal study of the class of 1972.* Report prepared for the U. S. Department of Education. Institute for the Study of Family, Work, and Community. 1989. 94 p. plus appendices. Uses the National Longitudinal Study of 1972 high school seniors (U.S. Office of Education). One finding is that while community colleges, public technical institutes, and certificate programs in 4-year colleges provide some labor market benefits, private vocational schools often reduce wage rates and earnings, perhaps by directing students to low-paying occupations

Grubb, W. Norton. "Access, achievement, completion, and 'milling around.'" In *Postsecondary vocational education*. MPR Associates. Apr. 1989: 68 p., plus appendices. Uses *High School and Beyond* Survey of 1980 seniors (U.S. Department of Education). One finding is that for students who attended private vocational schools, as for those who attended community colleges and public technical institutes, on average only a minority of their courses were related to subsequent employment.

Sango-Jordan, Marilyn. "Economic outcomes." In *Career training*, v. 5, May 1989: 30-35. Uses *High School and Beyond* Survey of 1980 seniors (U.S. Department of Education). One finding is that among respondents who held full-time jobs during the third follow-up interview period, proprietary school graduates had higher average 1985 earnings than did graduates of 2-year colleges or of 4-year colleges; their earnings were also higher than those of students who had no postsecondary education through 1983.

Magnum, Stephen L. and Arvil V. Adams. "The labor market impacts of post-school occupational training for young men." In *Growth and change*, v. 18, fall 1987: 57-73. Uses the National Longitudinal Survey of Young Men, 1966-1976 (U.S. Department of Labor). Among other things, found that training provided by "business and technical institutes" (presumably proprietary schools) resulted in higher income for whites but lower income for blacks.

Magnum, Stephen L. and David E. Ball. "Military skill training: some evidence of transferability." In *Armed forces and society*, v. 13, spring 1987: 425-441. Uses the National Longitudinal Survey of Youth (U.S. Department of Labor) to study the transferability of skills between various training providers and civilian employment. One finding is that relative to military training, barber and beauty schools (which often are proprietary institutions) have a higher level of skill transfer for females, while there was no statistically significant difference for proprietary business colleges and correspondence courses.

Bishop, John. "Impacts of training." In *Training and human capital formation* by John Bishop et al. Report prepared for the U.S. Department of Labor. National Center for Research in Vocational Education. The Ohio State University. July 1985: 60 p. Uses the National Employer Survey, a 1982 Gallup Survey of 3,800 employers about training and productivity. Among other things, found that workers who received training at private vocational-technical institutions were more productive and had lower training costs than students who received vocational training at public institutions, though their starting wages were only minimally higher.

Wilms, Wellford W. and Stephen Hansell. "The dubious promise of postsecondary vocational education: its payoff to dropouts and graduates in the U.S.A." In *International journal of educational development*, v. 2, spring 1982: 43-59. Uses a specially designed longitudinal survey (1973-1976) of 1,300 students attending 21 public and 29 proprietary schools in 4 different metropolitan areas. Among other things, found that few students who enrolled in short-term programs for what the author calls "upper status" jobs (accountant, computer programmer, and electronic technician) got such positions, while the majority of those who studied for what he calls "lower status" jobs (secretary, dental assistant, cosmetologist) did obtain them; for the latter training, proprietary schools may be more appropriate than public institutions.

Olson, L.S. *An empirical study of decisions involving postsecondary vocational school training*. Report prepared for the Bureau of Occupational and Adult Education, U.S. Office of Education. University of Rochester. 1978. Uses the National Longitudinal Study of the high school class of 1972 (U.S. Office of Education). One finding is that students who take short proprietary school programs (less than 3 months) earn more than people without training, but this advantage decreases and eventually reverses for longer programs.

Dunning, Bruce B. *Posttraining outcomes: experiences with the Portland WIN Voucher Training Program*. Report prepared for the U.S. Department of Labor. Bureau of Social Science Research. Oct.1977, 180 p. Uses an experimental program in Portland, Ore., designed to test the feasibility of providing vocational training vouchers to welfare recipients rather than offering training through particular schools and other providers. One finding is that voucher recipients who attended proprietary schools instead of public institutions were much more likely to be in the labor force during the first year after training.

Freeman, Richard B. "Occupational training in proprietary schools and technical institutes." In *Review of economics and statistics*, v. 56, Aug. 1974: 310-318. Uses the National Longitudinal Survey (U.S. Department of Labor). One finding is that for older men (45 to 59 years of age, the earnings of blacks were raised more by proprietary school education and by company training, while the earnings of whites were raised more by formal schooling.

Wilms, Wellford W. *Public and proprietary vocational training: a study of effectiveness*. Center for Research and Development in Higher Education. University of California at Berkeley. 190 p. plus appendices. Uses a specially designed survey of 2,270 graduates of 21 public and 29 proprietary schools in 4 different metropolitan areas. Among the many findings is that graduates of public schools had about the same success in the labor market as did graduates of proprietary schools.

Wolman, Jean M. et. al. *A comparative study of proprietary and nonproprietary vocational training programs.* Report prepared for the U.S. Office of Education. American Institutes for Research in the Behavioral Sciences. Nov. 1972. 130 p. plus appendices. Uses a specially designed survey of 3,900 proprietary school alumni and 1,300 nonproprietary school alumni who had attended school in 4 metropolitan areas. Among the many findings is that both proprietary schools and nonproprietary schools were generally effective in producing graduates with marketable skills; nonproprietary school graduates realized greater economic gains from their training, principally because they had previously been earning less.