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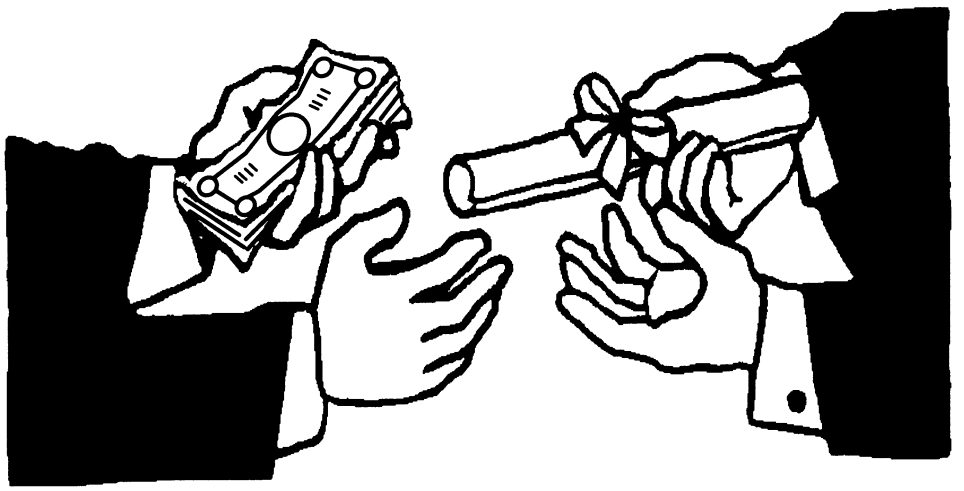
P70-39

Dollars for Scholars: Postsecondary Costs and Financing, 1990-1991



by Rebecca Sutterlin
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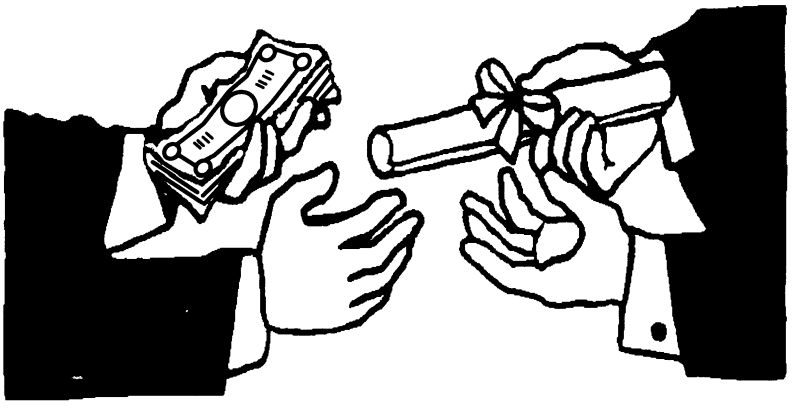

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Dollars for Scholars: Postsecondary Costs and Financing, 1990-1991

HIGHLIGHTS

- During school year 1990-1991 an estimated 20.6 (±.5) million high school graduates ages 17 or above were enrolled in postsecondary school for at least some time, approximately 14 (±.4) percent of that population.
- In 1990-1991 the average total costs of schooling for all postsecondary students, irrespective of type of school, level of enrollment, or amount of time spent in school, was $2,653 (±98) per student.
- Of the estimated 20.6 (±.5) million students who were enrolled in the past year, 51 (±1.4) percent received some kind of financial assistance from at least one source.
- The average overall aid package among persons who received any financial aid at all was $2,919 (±152).
- While the most common source of aid was employer assistance with 3,617,000 (±232,000) recipients, this was also the lowest average aid source at $979 (±106).
- The single largest aid amount was that based on loans, at $3,155 (±168), while the smallest number of people served by any source was the 416,000 (±79,000) reporting aid from one of the many veterans' programs.
- Half of both men and women receive some type of aid and both receive comparable amounts, but there is variation in the sources of this aid. Women were more likely than men to have received aid from a Pell Grant or from a loan, while men were more likely to have gotten aid from a veterans' program or their employer.
- For Black students, Pell Grants were the single largest source of aid (in terms of proportions served); for White students the largest source of aid was in the form of employer assistance.
- Generally, the proportion of students receiving aid decreased as their family income increased, going from 59.5 (±2.4) percent of students in the low income category to 43.7 (±2.2) percent in the highest income category.
- Over three and a half million students were receiving financial aid from more than one source; this is about one-third of all students who received aid.
- The single most common multiple aid package was a loan and a Pell Grant, held by 6 (±.9) percent of aid recipients, with another 3 (±.6) percent receiving a loan, a Pell Grant, and something else.
- Among those students who received some kind of financial aid, on average 75 (±1.6) percent of their costs were covered.
- About 60 (±2.4) percent of students from the lowest income category received aid, and on average, about 80 (±1.6) percent of their costs were covered. By contrast, 44 (±2.2) percent of the students from the highest family income category received some kind of aid, and 69 (±3.2) percent of their costs were covered.

INTRODUCTION

Each year, millions of persons throughout the nation attend colleges and other postsecondary institutions in pursuit of knowledge, skills, and training that will make them better equipped citizens and workers. While a wide array of educational opportunities beyond high school are available to most adults, they are not without financial cost. Indeed, there is much current debate about how best to provide access to higher education to as many people as desire it. In this report we look at the individuals who were enrolled in postsecondary school at any time during the 1990-1991 school year and the costs and financing of their education.

Using data from the Survey of Income and Program Participation (SIPP), this report examines patterns of school enrollment, education costs, financial aid, and the associated social, demographic, and economic characteristics of postsecondary students in the United States. Often, the collection of postsecondary enrollment data includes only those enrolled in 2- or 4-year colleges; that is, undergraduate and graduate/professional degree programs. This report also includes persons in vocational, technical, and business schools. The tabulations show the numbers of high school graduates (17 years and older) enrolled in postsecondary institutions by a variety of demographic, social, and economic characteristics. Other tabulations show the average

costs, financial aid received, net costs, and numbers of aid recipients by level of enrollment. These tabulations are crossed by gender, family income, race/ethnicity, and student dependency status.

The analysis is based on data collected as part of the Wave 5 (interview) of the 1990 SIPP panel. These data were gathered in the 4-month period from June through September of 1991. The fifth wave includes a section of questions regarding school enrollment and financing for the past year (see appendix F for a copy of the questionnaire). Thus, the period of enrollment under examination basically reflects the 1990-1991 school year. Analysis of enrollment is restricted to persons 17 years and older with at least a high school diploma or the equivalent. Tabulations of the financing data focus on those high school graduates age 17 and over who were enrolled in a postsecondary institution.

Other tabulations included in this report refer to the school year 1987-1988 and are found in appendix A, tables A-1 through A-6. These data were collected in Wave 5 of the 1987 SIPP panel during the 4-month period from June through September of 1988. Tables A-1 to A-6 are laid out in the same format as tables 1 to 6 for comparison purposes. The analysis in this report, however, is restricted to data from the 1990 SIPP panel.

A note of caution should be issued to users of this report who are also familiar with other sources of postsecondary school financing data. The SIPP estimates differ from those found in the 1989-1990 National Postsecondary Student Aid Study (NPSAS) administered by the Department of Education. While these two surveys reflect two different academic years (NPSAS collected data for the 1989-1990 school year while SIPP data reflects 1990-1991), there should be some correspondence. However, SIPP and NPSAS may differ due to differences in the populations studied. This is most likely due to the ability of SIPP to collect data for those students of the shortest enrollment durations — usually in non-traditional postsecondary institutions. Why would there be more short-term students captured in SIPP? Institutions are ineligible in NPSAS if they offer only correspondence courses; offer only courses or seminars of less than 3 months duration; or provide only avocational, recreational, or remedial courses.[1] However, students in courses of less than 3 months duration and the other types of courses mentioned are very likely to have reported themselves as enrolled in the SIPP survey since the SIPP enrollment question is so broad. Table E-4 in appendix E shows weighted estimates of enrollment level for both surveys. SIPP shows a substantially higher number of persons enrolled in vocational, technical, and business schools or other types of noncollegiate postsecondary institutions. For a more detailed discussion on data quality, see appendix E.

[1]See the "Methodology Report for the 1990 National Postsecondary Student Aid Study" for more detail.

CHARACTERISTICS OF POSTSECONDARY STUDENTS

Table 1 shows some of the basic characteristics of persons who were enrolled in postsecondary school at any time during the 1990-1991 school year. Enrollment as measured in this report is not necessarily continuous throughout the entire school year. Respondents were asked whether or not they were enrolled at any time in the past 12 months. This includes not only year-round enrollees, but also those who were enrolled for one term/semester and those who may have dropped out before completing the term. Enrollment is not confined to full-time students, but also includes those who were enrolled part-time, as well as persons who were taking only one course or were not working towards a degree. Consequently, the enrollment estimates presented in this report are higher than those from surveys using a "snapshot" or one point in time approach in collecting the data (e.g., college enrollment numbers estimated from the October Current Population Survey). At levels beyond high school, enrollment is not necessarily a year-long activity; people move in and out of the system much more rapidly than at lower levels. In this regard, SIPP provides a more realistic picture of the total number of persons enrolled in a given year than does a simple one-time cross-sectional survey.

Table 1 shows that in 1990-1991 an estimated 20.6 million high school graduates ages 17 and above had been enrolled in postsecondary school, approximately 14 percent of the eligible population.[2] A sizable segment of these students (35 percent) were enrolled in the first 2 years of college (this includes both 2-year and 4-year institutions). About 25 percent were enrolled in the third and fourth years of college, 19 percent in the fifth year or higher, and 20 percent in some type of noncollegiate postsecondary school.[3]

Some variation in the patterns of enrollment by level can be observed in various demographic subgroups. For example, a higher proportion of women than men are enrolled in the first 2 years of college (37 percent versus 32 percent), and a larger proportion of men than women are in a vocational, technical, business, or other school (23 percent versus 18 percent). This does not necessarily mean men are less likely to attend 4-year institutions; the higher college enrollment of women in years one and two may reflect a higher enrollment by women in 2-year associate degree programs. Although the type of degree sought cannot be determined from the data (associate versus bachelor's), it is clear that similar proportions of each sex are enrolled in the third

[2]The Current Population Survey shows an estimated 13.6 million persons 17 years and over enrolled in college in October 1990.

[3]The proportion of students enrolled in the fifth year of college or higher and in a noncollegiate postsecondary institution are not significantly different.

and fourth years of college. Men may be more likely to attend vocational, technical, or business schools whereas women may enroll in associate degree programs in junior or 2-year colleges.

Level of enrollment also differs across race/ethnicity groups. While Whites have greater proportions enrolled at the graduate level (21 percent in the fifth year of college or more) than either Hispanics or Blacks (both at 9 percent),[4] a greater proportion of both Black and Hispanic students are enrolled in noncollegiate schooling (26 percent and 28 percent, respectively) than are Whites (20 percent).[5]

Variation across other dimensions such as age and marital status show what may be considered typical life course patterns. Many students enroll in college shortly following high school graduation. A traditional life course pattern would include school completion followed by employment and family formation. As might be expected, the proportion of persons enrolled decreases with increases in age. Half of all persons ages 17 to 24 are enrolled in some type of schooling, compared to only 16 percent of those ages 25 to 34. Similarly, persons who have never married are more likely to have been enrolled in the past year than were any other marital status group.

Not only do persons in different stages of the life course differ in the overall proportion enrolled, but there are also differences in the level of enrollment. For example, the vast majority of the youngest age group is enrolled in the first 4 years of college. Relatively high proportions of persons 25 and over enroll in the graduate level (5th year of college or more)[6] and in other schooling such as vocational or technical schools in comparison to the younger students. A similar pattern is seen when comparing never married persons to married persons, where the enrollment patterns of never married persons follow those of the youngest age group. Veterans, who tend to be older because of their time in the military, also have higher proportions enrolled in noncollegiate postsecondary schools than do non-veterans.

One might expect economic circumstances to be related to enrollment, but the data in table 1 show some surprising findings. The highest overall enrollment level is reported by those persons from the lowest family income category. This may be due to the fact that many of these persons are "independent" students who are reporting only their own income, as opposed to "dependent" students who may still be living with or be supported by their parents. Across income categories, the proportion enrolled in noncollegiate schools — that is vocational, technical, or business, schools — drops substantially for persons with higher family incomes (only 11.9 percent of students in the highest income category are enrolled in noncollegiate institutions compared to 23.4 percent of students with average monthly family income below $1,250). Conversely, the proportion enrolled at the graduate level is quite high for those in the highest income group.

It is important to remember when examining the relationship between income and enrollment that not all students are "traditional" students who attend college immediately after high school and who are supported by their parents; table 1 includes all students, the traditional and the non-traditional. Another way to look at the relationship between income and enrollment is to examine only the traditional-aged college students. Typically, the "traditional" postsecondary student is a young adult between the ages of 18 and 24 often still economically dependent on a parent or parents. Thus, one pool of potential students consists of unenrolled young adults who have yet to complete 4 years of college.[7] Table A and figure 1 show enrollment status by income for young adults who have not completed 4 years of college. The data indicate that those young adults with higher family incomes are more likely to be enrolled and those in the lowest family income category are the least likely to be enrolled. It cannot be determined here whether or not these unenrolled young adults have the financial means to attend a postsecondary institution. Some of the young adults are likely to be in the lowest income group because they are already in the labor force and economically independent of their family of origin; these persons would likely have lower incomes since they are often in entry-level jobs. A substantial proportion, however, are reported as living with at least one parent.[8]

Table 1 also shows enrollment by dependency status. Dependency status is defined in terms similar to those used by federal aid programs such as the Pell Grant, although the definitions are not exactly comparable due to restrictions of the SIPP data (see appendix B for the definition). Not unexpectedly, a clear majority of students are classified as independent (70 percent), since we are looking at all adults, not just traditional-age students. Half of the dependent students reported living at home. The majority of dependent students were

[4]The race/ethnicity categories used in this report are: Hispanic; White, not Hispanic; Black, not Hispanic; and, other races, not Hispanic. Thus, references to "White," "Black" and "other races" throughout this report refer only to the non-Hispanic members of these groups.

[5]The proportions of Hispanic and Black students enrolled in noncollegiate schools are not significantly different.

[6]The year of college may not correspond directly to the level of enrollment. Although persons enrolled in the 5th year of college are likely to be enrolled in graduate or professional school, they may also be 5th year undergraduates.

[7]It should be noted that this pool may have attained an associates degree or a vocational or technical school license, diploma, or certificate. Of course, they are still eligible for undergraduate enrollment in a 4-year college.

[8]Further analysis shows that 41.5 percent of not enrolled young adults are reported as child of the reference person; an additional 5.1 percent are some other relative (not spouse) of the reference person. Of the remainder, 42.2 percent are a reference person or spouse of the reference person and the rest are nonrelatives of the reference person, but some may be related to other household members.

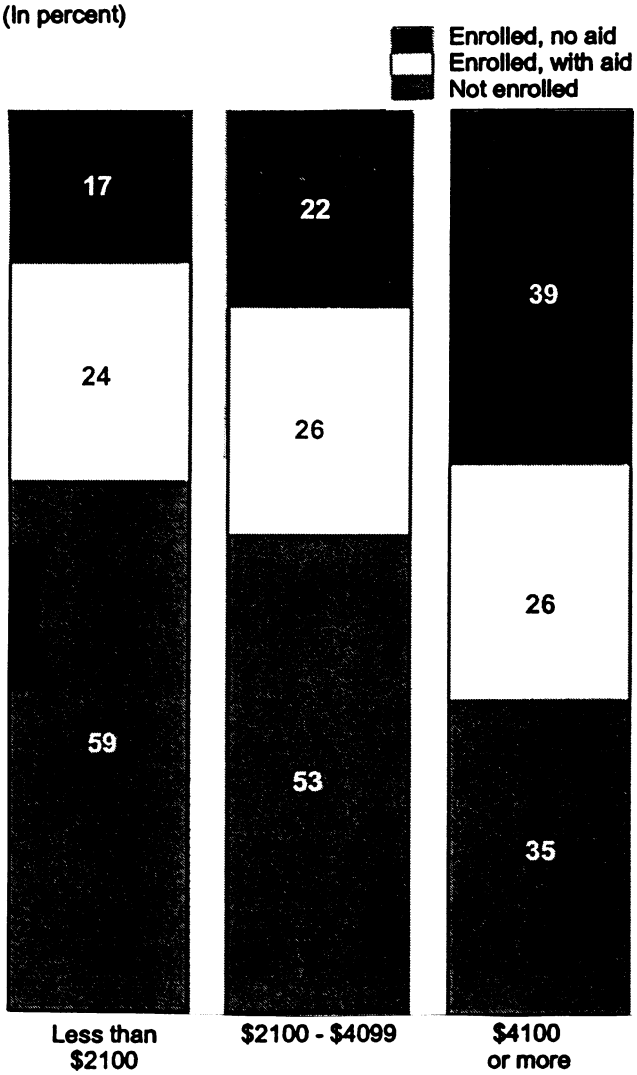
Table A. **Persons Enrolled by Average Monthly Family Income and Aid Recipiency for Persons 18-24 Years of Age With Less Than 4 Years of College Completed: 1990-1991**

(In thousands)

Persons	Total	Average monthly family income					
		Less than $2,100		$2,100 to $4,099		$4,100 or more	
		Number	Percent	Number	Percent	Number	Percent
Total	17,968	6,743	100	5,327	100	5,898	100
Not enrolled	8,888	4,012	59	2,801	53	2,075	35
Enrolled	9,080	2,730	40	2,527	47	3,823	65
Receives aid	4,515	1,616	24	1,369	26	1,531	26
No aid	4,565	1,115	17	1,158	22	2,292	39

Figure 1.
Family Income by Enrollment and Aid Received for 18-24 Year Olds: 1990-1991

(In percent)



enrolled in the first or second year of college (55 percent). Independent students, however, are distributed fairly evenly across the four levels of enrollment.[9] Most of the students in year five or higher are classified as independent (96 percent). Many of these students are likely to be in a graduate or professional degree program. They are generally a group of students who are older and consequently more likely to be independent of their parents. The majority of noncollegiate school enrollees are also independent students (87 percent). Persons may be more likely to attend this type of school after being employed and discovering vocational opportunities. These students also tend to be at a different stage in the life course. For example, half of vocational/technical/business students are married — this factor alone qualifies them as independent.

The last panel of table 1 shows the proportion of students who reported receiving aid of any type. Although the largest number of students receiving aid were in their early college years, the proportion of students receiving financial aid in some form does not differ significantly across levels of enrollment. One half of all postsecondary students reported receiving financial assistance of some kind in the 1990-1991 school year.

POSTSECONDARY COSTS

Enrollment in higher education is not without real financial costs for most students. Generally, these costs have three basic components: actual tuition and fees that are assessed; books and educational supplies; and for students living away from home, the cost of room and board. In this section we examine these three cost components as well as their sum. In the analysis that follows costs are reported for all types of students in the past year, including full-time and part-time, as well as those attending one or more terms/semesters. Table 2

[9]The proportion of independent students enrolled in college years 1 to 2, college years 5 or higher, and noncollegiate postsecondary schools are not significantly different; the proportion enrolled in college years 3 to 4 is slightly lower than each of the other levels.

shows average total costs, as well as tuition and fees, books and supplies, and room and board, for different levels of enrollment. Average total cost is the total value of the three components of tuition and fees, books, and room and board, and is computed before financial aid is taken into account.[10] In 1990-1991 the average total costs of schooling for all postsecondary students, irrespective of type of school, level of enrollment or amount of time spent in school, was $2,653.

While we might expect average costs to be higher for private institutions than for public, this information was not collected in the SIPP data. We might also expect variation in costs by the level of enrollment, and this is generally borne out. Table 2 and figure 2 show that on average, noncollegiate (that is, vocational, technical, or business) schools are the least costly to attend ($1,066),[11] while students in the third and fourth year of college have the highest average total costs ($3,825). This pattern holds for tuition and for books, with significantly lower costs in noncollegiate institutions. Room and board costs across the different college levels are relatively similar;[12] however, those for students in other postsecondary schools were significantly lower at $1,874.

Examination of the differences in costs between men and women indicate that there is no significant difference in the total average costs or in any of the individual cost components. One sizable difference in cost is seen across race and ethnic groups, where Hispanics have lower total costs ($1,882) than any other group, as well as the lowest average tuition and fees ($1,275). Overall costs, as well as those of the three individual components, do not differ between White and Black students.[13]

Differences in costs by family income are somewhat counter-intuitive. Although students from the lowest income group have lower total costs than those from the highest group ($2,627 versus $2,982 respectively), the middle income group has the lowest average total costs at $2,302. This is somewhat unexpected since one might assume that higher income families might be more disposed to choose more select colleges, and thus, incur higher costs, while students from less well-to-do families would choose more economical options. The inconsistency may be explained in part by who is in the lowest income group and who is eligible for financial aid. For example, graduate students tend to have little or no income while in school, while younger undergraduates are often supported by their families, having larger family incomes than the independent graduate students. This notion is supported by the higher total costs reported by low income students in the graduate school category in comparison to the total costs of the other two income groups.

A different way of looking at this phenomenon is by examining the data for students classified by their dependency status. Simply put, "dependent" students are assumed to still be a part of their family of origin — that is, the family in which they grew up. For the most part, dependent students tend to be young undergraduates. Independent students, by comparison, are not as economically bound to their original family. They have struck out on their own, perhaps as a single individual, or have created a family of their own. Many independent students are graduate students. Obviously, the dependency concept relates strongly to "who pays the bills" as far as college financing is concerned. We use a series of variables, described in appendix B, to define dependent and independent status of students.

On average, the total cost for dependent students is much higher at $4,387 than those of independent students ($1,923). This holds true for average tuition and fees, books and supplies, and room and board. Dependent students, being somewhat more "traditional," may very well include some of the persons attending higher cost colleges and universities. Dependent students may also be more likely to go to school full-time, driving up average costs. Independent students on the other hand are supporting themselves and may also be supporting a family, and are probably more likely to look for low-cost educational sources. Independent students are probably also more likely to be part-time as they may not have the luxury to attend full-time if they are in the labor force supporting themselves or their family, which would also indicate lower costs.

FINANCIAL AID

For many students, finding a way to finance postsecondary education may be as much of a challenge as the academic training they will have to master. In general, the costs of higher education are not as prohibitive if financial aid is available. A wide variety of sources of financial aid are available to students and their families. Some of these are competitive; some are based on financial need; others are direct grants; still others are loans requiring repayment. In the SIPP, students were asked about 12 possible sources of educational financing they might have received; these are shown in appendix F. Our analysis of these 12 sources indicates

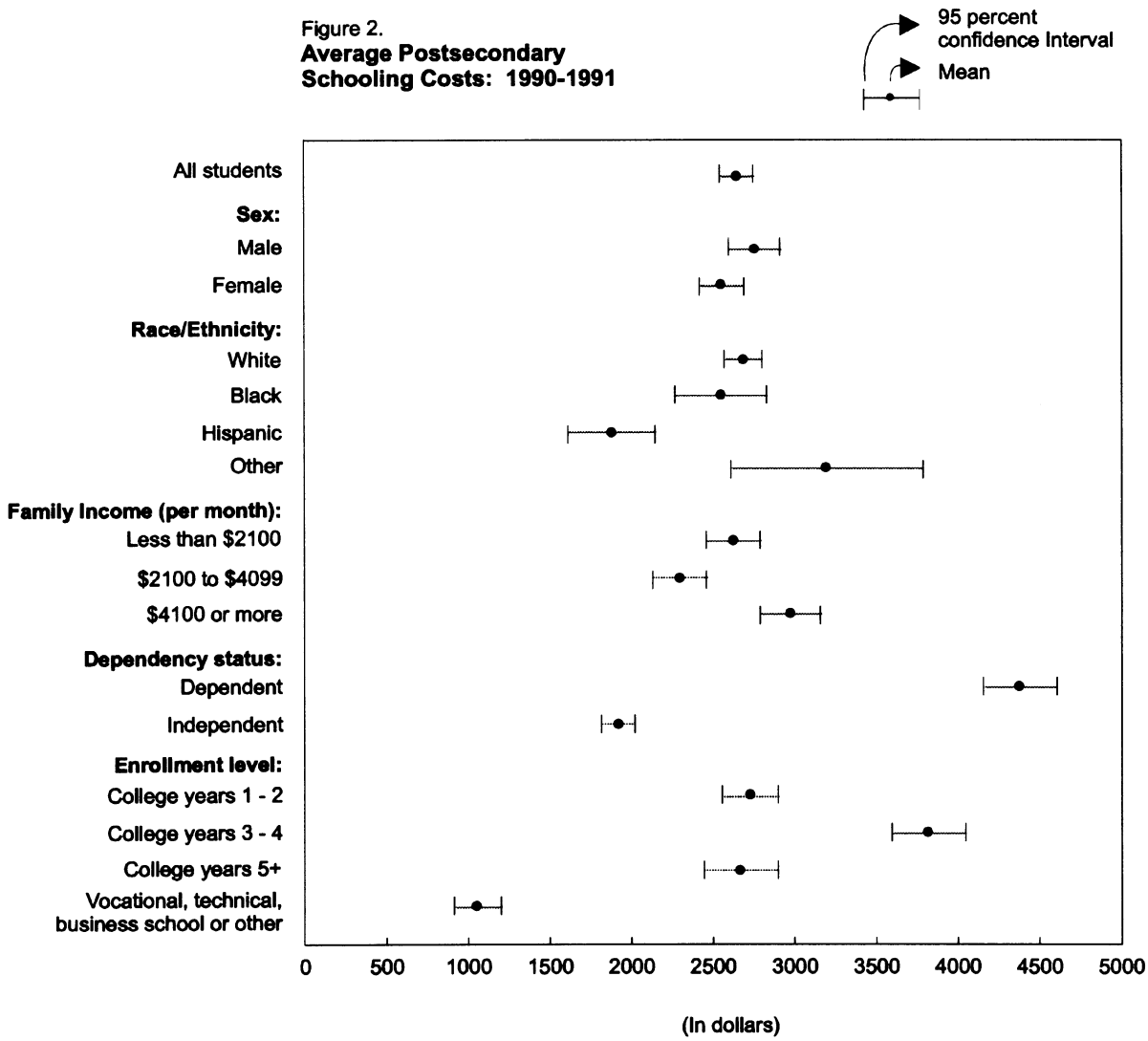
[10]The average value is for all students, including those who have no costs in any one or all of the components.

[11]The average cost for noncollegiate schools in SIPP is considerably lower than that reported in the NPSAS. See appendix E for a detailed discussion on the differences between SIPP and NPSAS data.

[12]For persons enrolled at the graduate level, room and board costs are significantly lower than those of students in the third and fourth year of college ($2,931 versus $3,465); however, room and board costs for graduate students are not statistically different from those of students in the first and second year of college ($2,931 versus $3,203). The cost of room and board does not differ significantly between students in the first 2 years of college and those in the third and fourth year.

[13]Total cost does not differ significantly between White students and students of "other" races; however, Black students have significantly lower total costs than do students of "other" races.

Figure 2.
Average Postsecondary Schooling Costs: 1990-1991



that some have very few recipients and cannot be reliably disaggregated given the small number of sample cases in the SIPP for these sources. For this reason, we have collapsed the sources into seven categories to provide more detail about the recipients.

Table 3 shows data for the seven collapsed sources of financial assistance. This table provides information on the number and percentage of students receiving each source, the average amount received, and the percentage of total aid received that is due to this source, by enrollment levels. Note that the sum of recipients across all sources does not equal the total number of recipients of aid, since students may receive more than one source of financial assistance.

Of the estimated 20.6 million students who were enrolled in the previous year, 51 percent received some kind of financial assistance from at least one source. This level of aid receipt was remarkably consistent across the different enrollment levels, with no category exceeding 54 percent or below 49 percent.

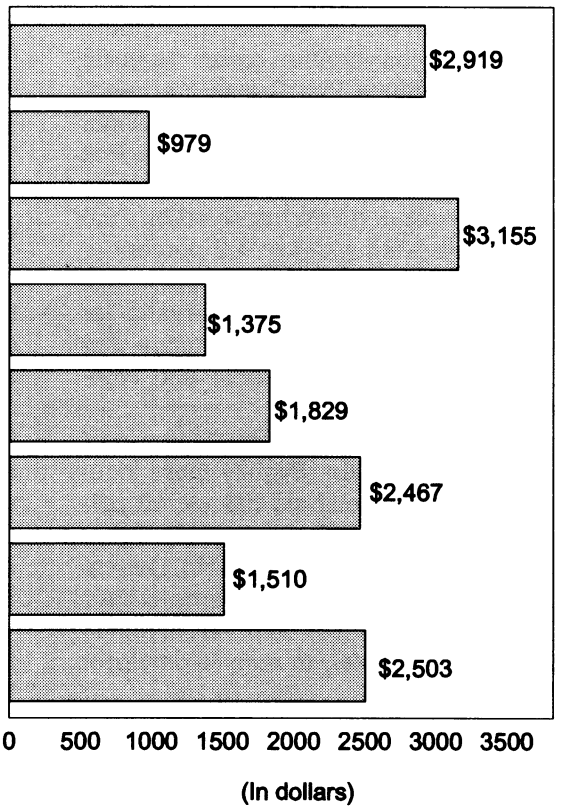
Overall, the average aid package (which may include multiple sources of assistance) among persons who received any aid, was $2,919. Unlike the proportion receiving aid, however, the average amount of aid varies significantly by level of enrollment. For example, persons enrolled in the fifth year or higher of college reported average aid packages of $4,223, while those enrolled in noncollegiate institutions reported significantly smaller packages of $1,673. Aid packages were also higher for students in the third and fourth year of college ($3,312) than for those in the first or second year ($2,573).

As one might expect, the actual amount of aid received from different sources varies greatly, as shown in figure 3. At least part of this is due to limits placed on some aid programs, loans, and grants.[14] While the most common source of aid was employer assistance or Job Training Partnership Act (JTPA) programs (most of

[14]For example, the maximum Pell Grant award in 1991 was $2,300 according to the Department of Education.

Figure 3.
Recipients of Financial Aid and Mean Amount Received: 1990-1991

	Number of recipients (In thousands)	Percent of all students
All sources	10,461	51
Employer assistance	3,617	18
Loan	3,022	15
Pell Grant	2,881	14
Other	2,788	14
Fellowship/scholarship	2,436	12
SEOG/College work study	890	4
GI Bill/VEAP	416	2



which was employer assistance) with 3,617,000 recipients, this was also the lowest average amount of aid at $979. One can imagine many situations where an employer will have paid for a course or two, thus requiring a relatively small financial expenditure. The single largest aid amount was that based on loans, at $3,155, while the smallest number of people served by any source was the 416,000 reporting aid from one of the many veterans' programs.

Table 4 shows the kinds and amounts of aid received by students of different demographic and economic backgrounds. Half of both men and women receive some form of assistance and both receive comparable amounts, but there is variation in the sources of aid received. For example, women were more likely than men to have received aid from a Pell Grant or a loan, while men were more likely to have gotten aid from veterans' programs or from their employer. The largest aid components for men were given in the form of loans, veterans' benefits, and fellowships and scholarships (at $2979, $2761, and $2971, respectively). For women, the largest single source was in the form of loans ($3,280). Men were awarded a substantially higher amount in terms of scholarships, fellowships, and tuition reductions than were women ($2,971 versus $2,068) which is money that does not have to be repaid.

Differences in sources and amounts of aid are also apparent across race and ethnic groups. While 58.3 percent of Black students reported some kind of aid, only about half of all Hispanic students had received some kind of assistance. Overall, average amounts ranged from $2,527 for Black students to $4,032 for students of "other" races. There was also variation in the kinds of aid received: for example, White students were less likely than either Black or Hispanic students to have been given a Pell Grant.[15] Of course, many of the White students may have come from families with sufficient economic resources which would rule out this need-based source of aid. Nearly one-fifth (19.5 percent) of all Black students had a loan of some kind, giving them a level of use of this source that was higher than that of Whites. For Blacks, Pell Grants were the single largest source of aid (in terms of proportions served), while for Whites the largest source was employer assistance. One of the most common sources of aid for Hispanic students was the Pell Grant.[16]

[15]The proportion of White students receiving a Pell Grant did not differ significantly from that of students of "other" races.

[16]The proportion of Hispanic students receiving a loan is not statistically different from the proportion receiving a Pell Grant.

Across levels of family income, it can be seen that the proportion of students receiving aid decreases as family income increases, going from 59.7 percent of students in the low income-category to 43.7 percent in the highest category. The average amount varies substantially as well, going from $2,427 for the high-income group to $3,622 for the low-income group. Specific types of aid vary as well. Since Pell Grants are need-based, it is not surprising that most of the recipients have family incomes of less than $2,100 per month. Pell Grants were the most common form of aid for students from the lowest family income group, received by 26.0 percent of them, as contrasted with just 4.3 percent of the students from the highest income group. While Pell Grants and loans are primary sources of funding for many low-income students,[17] employer assistance was the main source for students from middle and high-income families.

Similar patterns are observed across the dependent/independent student classification. Slightly more independent students receive financial aid (53 vs. 46 percent), but the average aid amount is substantially higher for the dependent students ($3,729 vs. $2,619). Dependent students are more likely than independents to have received a Pell Grant, loan or fellowship, but independent students are much more likely to receive employer assistance (24 vs 2 percent).

For many students, financial aid does not come from a single source, but takes the form of an "assistance package" that consists of several different sources. Table B shows the extent of these multiple aid packages by demographic sub-groups for the seven aid source categories we have established.[18] Over three and a half million students were receiving financial aid from more than one source, about one third of all students who received aid. Dependent students were much more likely to have received multiple sources than were independent students, with 53 percent reporting more than one source (8 percent of dependent students had four or more sources). Multiple sources also became less common with increasing family income (with 45, 34, and 23 percent for the low, middle, and high income groups, respectively).

Since Pell Grants have a fairly low limit on the grant amount, it would probably not be uncommon for many students to have both a Pell Grant and something else. The data support this notion, with the single most common multiple aid package being a Pell Grant and a loan, held by 6 percent of aid recipients. Another 3 percent received a Pell Grant, a loan, and something else. The Pell Grant/loan combinations was more common for Black students (13 percent) than for any other race/ethnic group. The 11 percent of aid recipients from low-income families receiving the same combination was greater than the proportions receiving it in the other income groups.

COSTS COVERED BY AID

By considering both the costs and financial assistance sources available to students we are able to determine how much of the overall costs of schooling are covered by some kind of financial aid. Table 5 presents costs for both those students with aid and those without. This is necessary because, as the data show, the gross costs students incur vary depending on whether or not aid is available to them. There was a difference of about $600 less in the gross costs of schooling for persons who were not receiving any kind of aid, compared to those with aid of some sort. In virtually all comparisons, persons who have no aid also have lower gross costs.[19] This is not too surprising, in that persons attending higher cost schools are often given some kind of financial inducement in the form of fellowships or loans to help them attend.

Only about half of all students received some form of financial aid. However, as can be seen in table 5, these students on average had significant proportions of their costs covered by their aid. For example, among all students who received any kind of aid, the average gross costs were $2,955, but the average amount of aid received was $2,919, implying, by subtraction, net costs of about $36 per student. Since these are average amounts, this is somewhat misleading because many students in fact received more aid than their total costs. For example, aid can take many forms, including loans, fellowships, grants, and direct payments from employers. In many cases, aid amounts are designed to cover not only tuition and fee costs, but other living expenses as well. Graduate students in particular are likely not to report room and board costs, but often receive stipends to cover these costs as well as tuition and fees. If

[17]The proportion of low-income students receiving loans does not differ significantly from those receiving "other" types of aid.

[18]Estimates in this analysis are an underestimate of all multiple recipients, since students might receive more than one loan or fellowship, and because we had previously collapsed some categories.

[19]The groups in which the gross costs did not differ between those with aid and those not receiving aid include: persons enrolled in college years 3 to 4; students of "other" races; dependent students; and students from the highest family income groups.

Table B. **Percentage of Persons With Multiple Types of Financial Assistance by Sex, Race/Ethnicity, Dependency Status, Level of Enrollment, and Family Income: 1990-1991**

Aid received	All students	Sex		Race/ethnicity				Dependency status		Level of enrollment				Average monthly family income		
		Male	Female	White	Black	Hispanic	Other	Dependent students	Independent students	College years 1 to 2	College years 3 to 4	College years 5 or higher	Vocational, technical, business school or other	Less than $2,100	$2,100 to $4,099	$4,100 or more
Total aid recepients[1]	10,461	4,773	5,687	8,381	1,128	551	401	2,825	7,635	3,601	2,652	2,136	2,072	3,717	3,410	3,333
Percent with:																
One type of aid	66	69	64	67	58	67	61	47	73	62	52	75	81	55	66	77
Veterans Assistance	2	3	1	2	2	-	2	-	3	3	2	1	1	1	3	2
SEOG/College Work Study	1	1	-	1	2	1	-	1	1	1	1	1	-	1	1	1
Pell Grant	7	4	10	6	13	17	6	9	6	12	5	1	8	11	7	2
Loan	8	8	7	7	9	13	9	8	7	5	9	11	6	7	7	8
Employer assistance/JTPA	32	36	28	35	19	21	15	3	42	23	19	41	52	19	35	42
Fellowship/Scholarship	8	8	8	9	5	7	8	17	5	11	8	9	2	6	5	14
Other Type	9	8	9	9	8	7	19	9	9	7	8	10	12	10	9	8
Multiple Types	34	31	36	33	42	33	39	53	27	38	48	25	19	45	34	23
Two types of aid	21	19	22	19	30	23	25	30	17	22	26	17	14	27	19	16
Fellowship or Scholarship/ Other	2	3	2	2	3	2	-	4	2	3	3	3	-	2	1	4
Loan/Other	2	2	2	2	2	2	2	2	2	1	2	4	1	3	3	1
Loan/Fellowship or Scholarship	3	2	3	3	1	2	8	5	2	2	3	4	2	2	3	3
Pell/Other	2	1	3	2	3	1	6	2	2	3	3	-	1	3	2	1
Pell/Fellowship or Scholarship	1	1	1	1	2	2	2	3	1	2	2	-	-	2	1	1
Pell/Loan	6	5	7	5	13	2	1	8	5	7	8	2	6	11	4	3
Three types of aid	9	9	9	9	9	7	9	15	7	11	14	6	4	12	10	5
Loan/Fellowship or Scholarship/ Other	1	1	2	1	1	1	1	2	1	1	1	3	-	2	1	1
Pell/Loan/Other	2	2	2	2	2	-	3	2	2	2	3	1	1	3	3	1
Pell/Loan/Fellowship or Scholarship	1	1	1	1	-	1	-	2	1	1	2	-	-	1	2	1
Four or more types of aid	5	4	5	5	3	3	6	8	3	6	8	2	1	6	5	2

- Represents zero.
[1] Numbers in thousands.

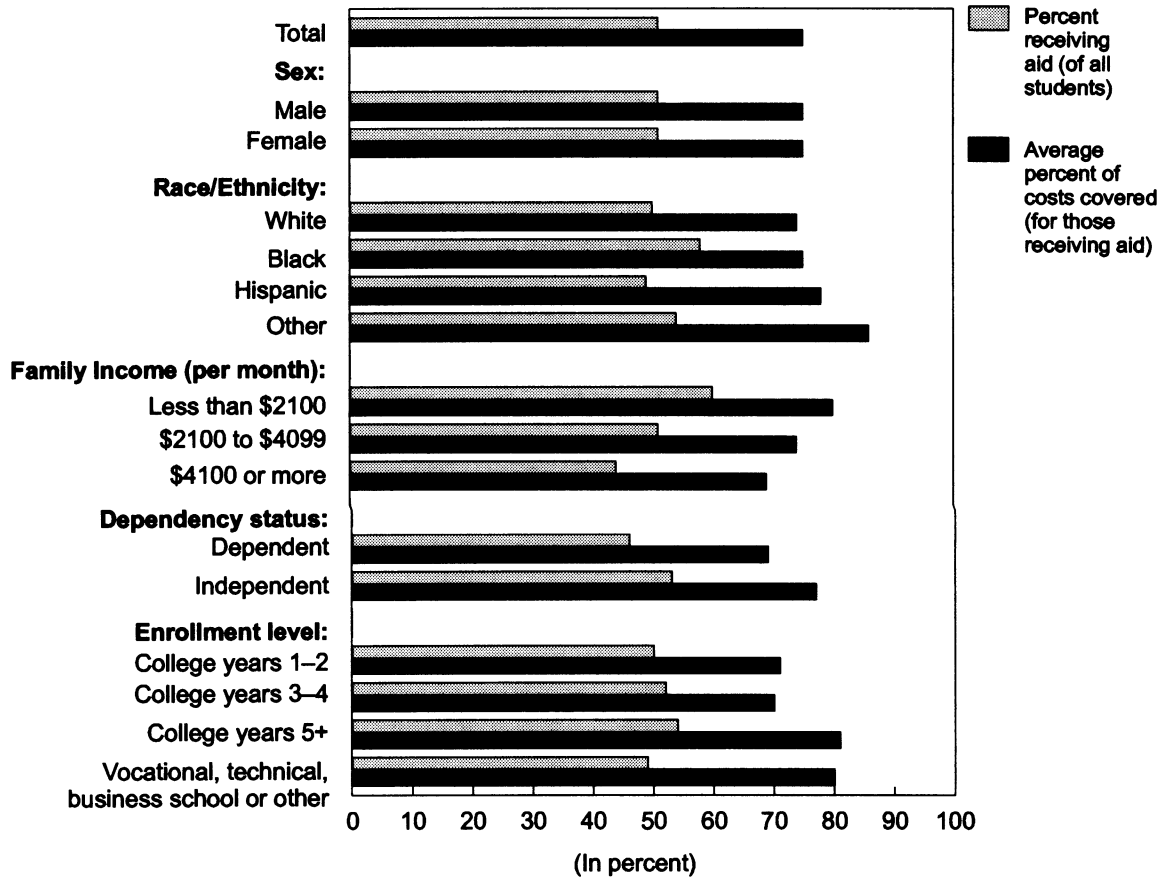
instead of computing net costs we consider the proportion of all costs that were covered for each student, then on average, about 75 percent of costs were taken care of by aid.[20]

In general, there was relatively little variation in the proportion of costs that were covered, as figure 4 shows, with most groups close to the overall level of 75 percent. Some differences are evident across different levels of school, with slightly higher cost proportions covered at the graduate and noncollegiate postsecondary levels (around 80 percent). Independent students had a higher proportion of their costs covered on average than did dependent students. However, the major variation in cost coverage is seen along lines of family income. About 60 percent of the students from the lowest income category received aid, and among these, about 80 percent of their costs were covered. By contrast, 44 percent of the students from the highest family income category received any kind of aid, and 69 percent of their costs were covered. Higher income families are usually better able to afford the costs of schooling, and much of the "financial aid" that lower income students receive comes in the form of loans which must be paid back at a later date.

Table 6 extends this discussion by showing the distribution in quartiles of the proportion of costs that are covered. As can be seen, a sizable group — 19 percent — of all students had more than 100 percent of their costs covered. This group ranged from a high of 29 percent of students from families with income of less than $2,100 a month, to 13 percent of those from families with incomes of $4,100 a month or more. Nevertheless, while many students who did receive aid had large proportions of their costs covered, it is important to remember that a substantial proportion of

[20] Note that this method assigns a coverage rate of 100 percent to all persons covered at a level of 100 percent or more. Thus, proportions exceeding 100 percent are not allowed to artificially raise the overall rate of coverage.

Figure 4.
Proportion of Students Receiving Aid and Proportion of Costs Covered: 1990-1991



students had *none* of their costs covered (49 percent). An additional 13 percent of all students had up to half of their costs covered.

MULTIVARIATE ANALYSES

Thus far, our examination of financial aid recipients and the amounts of aid received has concentrated on simple patterns of association with a variety of demographic and economic variables, considered one at a time. However, it is possible to examine the joint effects of these variables by using multivariate modeling techniques such as regression. The multivariate regression techniques allow us to simultaneously assess the influence that multiple conditions have on the variables of interest — the likelihood of receiving financial aid and the amount of aid received.

Table C shows the results of a multiple logistic regression which estimates the likelihood of receiving financial aid of any kind. Most of the variables that have been discussed in the univariate context are included in the model predicting the receipt of financial aid. These include: gender, race, family income, schooling costs, level of enrollment, dependency status, and household size. The results indicate statistically significant effects for several of the variables in the multivariate context.[21] For example, persons from low-income households had

[21]Parameter effects are interpreted in the following way: a positive value indicates that the predicted phenomenon (receiving aid) is more likely when the condition is present, while a negative number means it is less likely. The "average" condition is determined based on the excluded categories from the model. For example, White is the excluded race category in these models. The effect of any other race is then the deviation from the White category.

Table C. **Logistic Regression for Odds of a Student to Receive Financial Aid by Dependency Status: 1990-1991**

Characteristic	All students		Dependency status			
			Dependent students		Independent students	
	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error
Demographic Chacteristics:						
Sex						
(Female)	...	...	...	...	...	...
Male	0.014	0.080	−0.138	0.150	0.073	0.096
Race						
(White)	...	...	...	...	...	...
Black	*0.256	0.141	**0.641	0.239	0.005	0.176
Hispanic	−0.068	0.178	**0.745	0.322	**−0.466	0.220
Other	−0.021	0.214	0.251	0.422	−0.138	0.249
Average monthly family income						
($2,100 to $4,099)	...	...	...	...	...	...
Less than $2,100	**0.364	0.103	0.284	0.217	**0.408	0.118
$4,100 or more	**−0.306	0.097	**−0.621	0.179	−0.138	0.117
Number of persons in households						
(Persons)	**0.065	0.030	*0.101	0.057	0.045	0.035
Educational Characteristics:						
Dependency status						
(Independent student)	...	...	(X)	(X)	(X)	(X)
Dependent student	**−0.391	0.101	(X)	(X)	(X)	(X)
Enrollment level						
(College year 1 to 2)	...	...	...	...	...	...
College years 3 to 4	0.003	0.105	−0.126	0.167	0.085	0.138
College years 5 or higher	0.078	0.121	−0.010	0.454	0.054	0.133
Vocational, technical, business school, or other	0.035	0.120	0.403	0.286	−0.001	0.137
Log of total cost of schooling (dollars)	**0.120	0.023	**0.209	0.060	**0.110	0.026
Constant	**−0.923	0.205	**−2.004	0.549	**−0.854	0.231
Likelihood χ^2	**152.42		**94.70		**89.61	
Degrees of freedom	12		11		11	
Number of cases (unweighted)	4,502		1,342		3,160	

Note: Individual categories listed in parentheses following factor headings indicate reference categories in the models.

X Not applicable.
... Reference categories
* Statistically significant at the 90-percent confidence level.
** Statistically significant at the 95-percent confidence level.

a much higher likelihood of receiving aid (compared to middle-income households, the excluded comparison category), while persons from high income households had lower than average chances of receiving aid. The receipt of aid was also positively related to schooling costs. Dependent students were somewhat less likely to receive aid, while Black students were slightly more likely to have received it. Finally, household size was positively related to the receipt of aid. The likelihood of receiving aid does not vary across level of school or gender, once other factors are controlled.

Models for the receipt of aid were run separately for dependent and independent students, since they are viewed as two very different groups. The model for independent students indicates that higher costs and lower income were both significantly related to an increased likelihood of receiving aid, but that Hispanics had a significantly lower likelihood of getting financial aid. The model for dependent students shows that Hispanics and Blacks both had higher likelihoods of receiving aid, and that costs and household size were also positively related to aid receipt. While the chances of getting aid did not increase for persons from low income families compared to those from middle income families, those from high income backgrounds were much less likely than the middle income group to receive assistance.

Table D shows the results of a multiple regression model designed to predict the amount of total aid received by aid recipients. The results of this estimation indicate that the amount of aid received rises with increasing costs, for dependent students, and for higher levels of college. The amount decreases with rising family income, as well as for persons in vocational, technical or business schools (which generally have lower tuition than colleges).

By stratifying the estimation procedure by dependency status, a pattern of effects similar to the total is revealed for independent students, with the exception that persons of other races also have significantly higher expected amounts of financial aid, controlling for other factors. The model for dependent students is less involved, showing significant effects only for costs, and for the two higher categories of college (junior/senior,

Table D. **Multiple Regression Coefficients for the Log of Total Aid (in Dollars) Received by Dependency Status: 1990-1991**

Characteristic	All students		Dependency status			
			Dependent students		Independent students	
	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error
Demographic Chacteristics:						
Sex						
(Female)	...	...	...	...	...	...
Male	0.053	0.065	0.048	0.107	0.065	0.080
Race						
(White)	...	...	...	...	...	...
Black	0.043	0.108	-0.182	0.149	0.229	0.143
Hispanic	0.077	0.147	-0.047	0.196	0.134	0.200
Other	0.251	0.171	0.262	0.292	*0.364	0.206
Log of income (dollars)	**-0.212	0.026	-0.022	0.044	**-0.288	0.032
Number of persons in households (Persons)	0.014	0.024	-0.041	0.037	0.030	0.030
Educational Characteristics:						
Dependency status						
(Independent student)	...	...	(X)	(X)	(X)	(X)
Dependent student	**0.562	0.083	(X)	(X)	(X)	(X)
Enrollment level						
(College years 1 to 2)	...	...	...	...	...	...
College years 3 to 4	**0.285	0.085	*0.217	0.118	**0.322	0.113
College years 5 or higher	**0.674	0.097	*0.567	0.322	**0.724	0.110
Vocational, technical, business school, or other	*-0.187	0.098	-0.022	0.190	*-0.215	0.116
Log of total cost of schooling (dollars)	**0.250	0.017	**0.220	0.039	**0.247	0.020
Constant	**6.668	0.243	**6.275	0.455	**7.180	0.295
R^2	0.312		0.139		0.316	

Note: Individual categories listed in parentheses following factor headings indicate reference categories in the models.

(X) Not applicable.
... Reference categories
* Statistically significant at the 90-percent confidence level.
** Statistically significant at the 95-percent confidence level.

and graduate level). One of the encouraging aspects of these models is that for the most part they show relatively few significant effects for race or gender. While we might reasonably expect the receipt and amount of aid to vary with things like costs, level of schooling and family income, factors such as race and gender should have little or no independent effect on whether or not a student gets aid or how much they receive.

SUMMARY

Over the past several decades, opportunities in higher education have been opened to millions of new students, but not without financial cost. The analysis of the SIPP data shown in this report indicates that students continue to utilize a wide array of resources to finance their postsecondary education. Despite the availability and use of these sources, many students receive no assistance at all in paying for their schooling. On the other hand, a sizable minority of students manage to cover most or all of their costs, often by using a combination of aid sources. While there is some variability in who receives aid and how much they get, the distribution of financial aid appears reasonably distributed across demographic groups, as well as in regard to the degree of financial need of the student (or their family). In short, postsecondary financial aid, while not as pervasive as many students might wish, continues to make higher education possible for many persons.