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ABSTRACT

This study examines the debt of 1992-93 bachelor's degree recipients in light of their financial circumstances in 1997, approximately 4 years after they earned their degrees. First, it reviews the amount they borrowed as undergraduates, including amounts borrowed through student loan programs, from parents, and from other private sources. It also describes any additional borrowing by those who had enrolled in a graduate degree program. Next, it examines the progress that borrowers had made in repaying their loans by 1997. Finally, the study describes their debt burden by examining the relationship between student loan payments and income and by searching for other indications of the impact of borrowing. Borrowers at various levels are compared to nonborrowers in terms of their expenditures for certain major items such as rent or a mortgage, a car, and credit card purchases, and their specific lifestyle choices such as family formation, buying a home or car, and savings. The analysis uses data collected through the 1992-93 Baccalaureate and Beyond Longitudinal Study and two follow-ups conducted in 1994 and 1997. Conclusions show that about one-half of all 1992-93 bachelor's degree recipients borrowed to help pay for their undergraduate education, and about one-half of those that went on to graduate school also borrowed. By 1997, 62% of the 1992-93 bachelor's degree recipients were debt free. Among those with no further enrollment after their bachelor's degree, those who still had debt in 1997 owed and average of $7,100, and were making loan payments averaging $151 per month. Eighty-eight percent were employed full-time, earning an average of $35,300. Overall, borrowing does not appear to affect major lifestyle choices, purchases, or the propensity to save. Contains 21 tables, 6 figures, and 14 references. (EMS)

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Postsecondary Education Descriptive Analysis Reports

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NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report November 2000

Postsecondary Education Descriptive Analysis Reports

Debt Burden Four Years After College

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Executive Summary

Federal student loan programs are a major source of financial aid for students in postsecondary education. Loans provide students lacking the financial resources to attend college with a way to invest in their futures. However, excessive borrowing can cause problems later. Therefore, it is important to identify and describe the postgraduation consequences of borrowing and to understand what levels of borrowing may cause trouble later on.

This study examines the debt of 1992–93 bachelor's degree recipients in light of their financial circumstances in 1997, approximately 4 years after they earned their degree. First, it reviews the amount they borrowed as undergraduates and describes any additional borrowing by those who had enrolled in a graduate degree program. Amounts borrowed through student loan programs, from parents, and from other private sources are all included. Next, it examines the progress that borrowers had made in repaying their student loans by 1997. Finally, the study describes their debt burden by examining the relationship between student loan payments and income and by searching for other indications of the impact of borrowing. It does this by comparing borrowers at various levels with nonborrowers in terms of their expenditures for certain major items such as rent or a mortgage, a car, and credit card purchases, and by examining how borrowing affects specific lifestyle choices such as family formation, buying a home or car, and saving. The analysis uses data collected through the 1992–93 Baccalaureate and Beyond Longitudinal Study (B&B:1993) and the two follow-ups conducted in 1994 and 1997 (B&B:1993/1994 and B&B:1993/1997).

The analysis distinguishes among three groups of undergraduate borrowers: 1) those with no further postsecondary enrollment by 1997 (53 percent of all undergraduate borrowers); 2) those who enrolled for further postsecondary education after receiving their bachelor's degree but nevertheless were in repayment in 1997 (24 percent of all undergraduate borrowers); and 3) those who enrolled for further education but were not in repayment in 1997 (23 percent of all undergraduate borrowers).

Borrowing for Education

One-half of all 1992–93 bachelor's degree recipients borrowed to help pay for their undergraduate education. Those who took out loans borrowed an average of $10,100. By 1997, 29 percent of all bachelor's degree recipients had enrolled in a graduate degree or first-professional degree program. One-half of them (14 percent) had borrowed to help pay for their graduate education, and the other half had not.

The amount borrowed for education varied with graduates' postbaccalaureate experience. For those with no further enrollment after the bachelor's degree, 51 percent had borrowed for undergraduate education; the average amount borrowed was $10,500. Among undergraduate borrowers who had completed a master's degree by 1997, 69 percent had borrowed to help pay for their education at one or both levels, and the average total amount borrowed (including both levels) was

$20,800. Among undergraduate borrowers who had completed a first-professional degree by 1997, 9 out of 10 had borrowed, with an average of $63,400 borrowed in total.

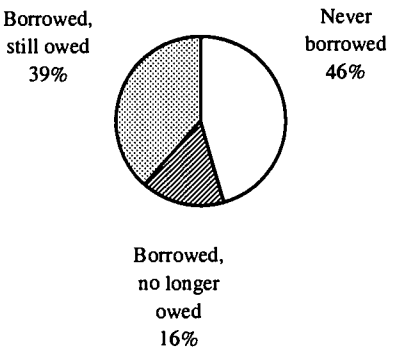
Undergraduate borrowing appears to have a minor discouraging effect on further enrollment in the short term. Undergraduates who borrowed $5,000 or more were slightly less likely than non-borrowers to have enrolled for further education by 1994 (16 percent versus 20 percent). This effect persisted even after controlling for sex, race/ethnicity, age when they received their degree, type of institution from which they graduated, undergraduate major, and grade point average (Choy and Geis 1997). However, the early negative impact of borrowing had disappeared by 1997, when (controlling for the same factors) there was no statistically significant relationship between undergraduate borrowing and enrolling in either a graduate degree program or any other postsecondary program.

Debt Status in 1997

The debt status of the 1992–93 bachelor's degree recipients in 1997 can be summarized as follows: 46 percent did not owe any money because they had never borrowed at either the undergraduate or graduate levels; another 16 percent had borrowed at one or both levels, but no longer owed on those loans; and the remaining 39 percent still owed on education loans (figure A).

Figure B shows the percentages who borrowed, still owed, and were in repayment in 1997, by education status as of 1997. It also shows the associated average amounts in each case. Too few doctoral students had completed their degrees by 1997 for reliable estimates of their debt status. The difference between the percentages who borrowed and who still owed represents the propor-

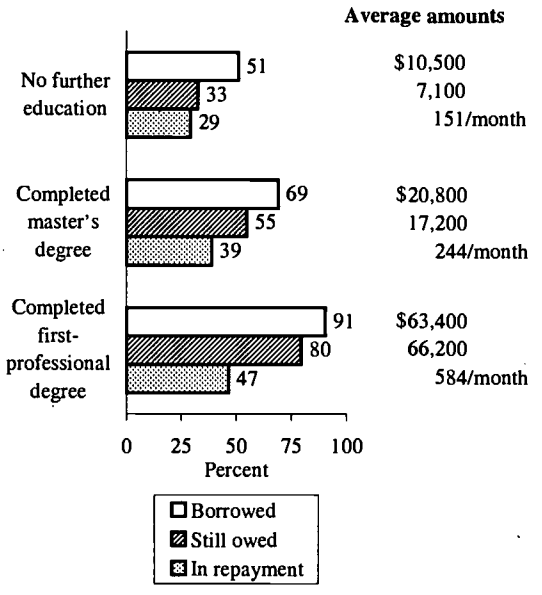
Figure A—Percentage distribution of 1992–93 bachelor's degree recipients according to debt status in 1997



NOTE: Based on borrowing at both undergraduate and graduate levels. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Figure B—Percentages of 1992–93 bachelor's degree recipients who had borrowed for education, still owed, and were in repayment, by level of education after bachelor's degree: 1997



NOTE: Based on borrowing at both undergraduate and graduate levels.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

tion who had repaid their loans (or had them forgiven) by 1997. The difference between the percentages who still owed and who were in repayment represents the proportion with deferments, who were in default, or who were not required to repay loans at that time. Figure B also shows the average amounts borrowed and owed, and the average being paid on a monthly basis.

The 1992–93 bachelor's degree recipients who had borrowed as undergraduates but had not enrolled for any further education had made some progress in eliminating their debt by 1997. Among 1992–93 bachelor's degree recipients who had not enrolled for any additional postsecondary education by 1997, 51 percent had borrowed for their undergraduate education, and 33 percent still owed on those loans in 1997. Thus, 18 percent had paid off their education debts (or had them forgiven). Almost all of those who owed were in repayment (the difference between the 33 percent who owed and the 29 percent who were in repayment is not statistically significant).

Among 1992–93 bachelor's degree recipients who had earned a master's degree by 1997, 69 percent had borrowed at one or both levels. By 1997, about 14 percent had been able to discharge their debt despite earning a second degree, and 55 percent still had outstanding loans. Thirty-nine percent were making payments, which means that about 16 percent were not being required to make payments, most likely because they had just recently completed their degree and were still in deferment. The average amount still owed by master's degree holders was substantially greater than the amount still owed by those who had not enrolled for further education ($17,200 versus $7,100).

Among 1992–93 bachelor's degree recipients who had earned a first-professional degree by 1997, 91 percent had borrowed to help pay for their education, and most (80 percent) still owed on their loans. Because first-professional programs usually take at least three or four years to complete, most would have graduated very recently. Thus, a comparatively low proportion (47 percent) were in repayment in 1997. The average amount owed by this group ($66,200) was substantially higher than the average amount owed by those who had completed a master's degree ($17,200), This difference reflects higher tuition, more frequent full-time enrollment, limited time to work while enrolled, and little time after undergraduate enrollment to accumulate savings.

Although it appears that the average amount owed is greater than the average amount borrowed for those who had completed a first-professional degree ($66,200 versus $63,400), the difference is not statistically significant. It is likely that the few who no longer owed had taken out relatively small loans, leaving those with high loan amounts still owing. This would have the effect of raising the average amount owed after the smaller loans were removed. Furthermore, some borrowers may have had the accrued interest on their loans added to the principal while they were enrolled and thus increased the amount owed.

Debt Burden

Monthly Loan Payments as a Percentage of Income

The undergraduate borrowers with no further enrollment by 1997 were well positioned to repay their loans. Almost all (88 percent) were employed full time, and their average income in 1996 was $35,300. The median monthly debt burden (the percent of monthly income used to repay loans) for those in repayment was 5 percent. Approximately 8 out of 10 had debt burdens of less

than 10 percent. To place this debt burden in context, housing lenders typically use an 8 percent rule for student loan debt.

The median debt burden of those who had further enrollment but were repaying their loans was similar to the median debt burden of those with no further enrollment (6 percent).

About half of undergraduate borrowers were married in 1997. The median household debt burden was 3 percent for those without further enrollment. Even among those where the total amount borrowed by both spouses was $15,000 or more, the median debt burden was 5 percent. Thus, the added income of a spouse appears to lessen the burden of student loans.

Other Indicators of Debt Burden

Among 1992–93 bachelor's degree recipients, there is no evidence that borrowing for education affects lifestyle choices such as the timing of marriage or major purchases such as a car or house. One-half (50 percent) of nonborrowers were married in 1997, as was also true for borrowers. The percentages who were married in 1997 did not differ among any of the three groups of borrowers (those with no further enrollment, those with further enrollment but in repayment, and those with further enrollment and not in repayment) or between any of these groups of borrowers and nonborrowers. Also, no differences were observed in the percentages owning a car or another vehicle in 1997: about 9 out of 10 did so regardless of borrowing or enrollment status.

There was one difference regarding the purchase of a house or condominium. Those who borrowed for undergraduate education, enrolled for further education, and were not in repayment were less likely to own a house or condominium in 1997 (34 percent) than were nonborrowers or borrowers with no further enrollment (43 percent each). This finding might reflect the fact that many of those with further enrollment who were not in repayment were still enrolled in 1997.

The percentages of 1992–93 bachelor's degree recipients who were saving money might also provide clues as to whether education debt causes economic hardship for undergraduate borrowers. If repaying education loans were causing serious financial stress, one might expect to see those with high debt burdens less likely to save. However, this was not the case. Among those who borrowed for their undergraduate education but did not enroll for further education, 70 percent were saving for some purpose in 1997, the same percentage as nonborrowers. A similar proportion of those who enrolled for further education and were repaying their loans in 1997 were saving (66 percent). Among those who enrolled for further education and were not repaying their loans in 1997, 60 percent were saving. This was a smaller percentage than that for borrowers who had not continued their education or for nonborrowers (70 percent each); however, some were still enrolled and therefore might not be expected to be saving.

Conclusion

About one-half of all 1992–93 bachelor's degree recipients borrowed to help pay for their undergraduate education, and about one-half of the 28 percent who went on to graduate school borrowed, either as new or continuing borrowers. By 1997, approximately four years after they graduated, 62 percent of the 1992–93 bachelor's degree recipients were debt free (46 percent had never borrowed at either level and 16 percent had borrowed but no longer owed).

Among those with no further enrollment after their bachelor's degree, those who still had debt in 1997 (33 percent) owed an average of $7,100, and were making education loan payments averaging $151 per month. Most were well positioned financially to make these payments: 88 percent were employed full time in April 1997 and if employed full time were earning an average of $35,300. The median debt burden (monthly payments as a percentage of monthly income) was 5 percent. Being married tended to reduce debt burden. Overall, borrowing does not appear to affect major lifestyle choices or purchases or the propensity to save.

For 1992–93 bachelor's degree recipients, undergraduate borrowing did appear to have a slight negative effect on graduate enrollment by 1994. However, the effect had disappeared by 1997.

Reference

Choy, S.P. and Geis, S. (1997). *Early Labor Force Experiences and Debt Burden* (NCES 97–286). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Foreword

This report examines the debt burden of 1992–93 bachelor's degree recipients in 1997, 4 years after they graduated. First, it reviews the amounts they borrowed as undergraduates and describes any additional borrowing by those who enrolled in graduate degree programs. Second, it examines the progress that borrowers had made in repaying their student loans by 1997. Third, it describes their debt burden (the relationship between their student loan payments and income) and examines the relationship between their student loan debt and expenditures for other major items (including payments for rent or a mortgage, a car, and credit card purchases) and certain lifestyle choices such as family formation, buying a home or car, and saving. The analysis focuses on three groups of borrowers: 1) those with no further postsecondary enrollment by 1997; 2) those who enrolled for further postsecondary education after receiving their bachelor's degree but nevertheless were in repayment in 1997; and 3) those who enrolled for further education but were not in repayment in 1997 (usually because they were still enrolled).

The report uses data collected through the 1992–93 Baccalaureate and Beyond Longitudinal Study (B&B:1993) and the two follow-ups conducted in 1994 and 1997 (B&B:1993/1994 and B&B:1993/1997). The B&B Study tracks the experiences of a cohort of college graduates who received their bachelor's degrees during the 1992–93 academic year and were first interviewed as part of the 1992–93 National Postsecondary Student Aid Study (NPSAS:1993). The B&B panel used for this report consists of the 83 percent of NPSAS:1993 respondents who participated in all three rounds of interviews. This panel was weighted to represent all 1992–93 bachelor's degree recipients. Detailed information on this survey is available on the NCES website: http://nces.ed.gov.

The estimates presented in this report were produced using the B&B:1993/1997 Data Analysis System (DAS). The DAS is a microcomputer application that allows users to specify and generate their own tables from the B&B:1993/1997 data and is available for public use through the NCES website. The DAS produces the design-adjusted standard errors necessary for testing the statistical significance of differences shown in these tables. Additional information about the DAS is included in appendix B of this report and on the NCES website at http://nces.ed.gov/das.

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Special thanks for their careful reviews and thoughtful comments are due to the following: Dennis Carroll, Paula Knepper, Roslyn Korb, Michael Cohen, Stephen Broughman, and William Hussar, of NCES; Daniel Goldenberg from the Office of the Undersecretary, and Jacqueline King from the American Council on Education.

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Introduction

Federal student loan programs are a major source of financial aid for students in postsecondary education. In 1998–99, 58 percent of all federal aid was awarded in the form of loans (The College Board 1999). In that same year, undergraduate and graduate students borrowed a total of $22.6 billion through the Federal Family Education Loans Program.

Loans provide students lacking the financial resources to attend college with a way to invest in their futures. However, ever since the beginning of federal student loan programs, many have worried about potential negative consequences of student borrowing (Hansen 1987; Hansen and Rhodes 1988; Greiner 1996; Somers and Cofer 1998). One set of concerns has centered on fears of excessive borrowing and subsequent default, which has negative consequences for the students, their institutions, and the loan programs. Another set has focused on the possibility that the prospect of borrowing and incurring heavy debt may discourage students (especially minorities and others traditionally underrepresented in postsecondary education) from enrolling or cause them to drop out before they reach their educational goals. A third set of concerns has focused on the impact of debt on students' postgraduation lives. In other words, does it prevent them from continuing their education, entering a field that is socially beneficial but not necessarily well paying (such as teaching), or marrying or buying a home or a car at approximately the same times as their peers without student loans to repay? Empirical findings have been mixed, but the consensus at a symposium on student loan debt held in December 1997 was that growing loan debts were not a problem for most borrowers at that time (Davis and Merisotis 1998). Borrowing is most likely to be a problem for students who leave postsecondary education without earning a degree (King 1998).

Despite the potential negative consequences of borrowing, there is some evidence of a positive relationship between borrowing and persistence. A recent study found that students' persistence in postsecondary education appears to be negatively related to their working full time and attending part time, but positively related to borrowing (Cuccaro-Alamin and Choy 1998). It is possible that borrowing in and of itself may increase students' commitment to degree completion so they may be assured of earning an adequate salary when the time for repayment comes. Alternatively, students who are committed from the outset to completing their studies may be willing to borrow, while less committed students may choose to finance their education through work to avoid debt if they decide not to complete. Nevertheless, these findings suggest that bor-

rowing reasonable sums of money as a strategy for financing education may be preferable to working long hours or enrolling part time. Therefore, it is important to identify and describe the postgraduation consequences of borrowing and to understand what levels of borrowing might cause trouble later on.

Purpose of This Study

The purpose of this study is to examine the debt of 1992–93 bachelor's degree recipients in light of their financial circumstances in 1997, approximately 4 years after they graduated. An earlier study reported that about one-half (49 percent) of the 1992–93 bachelor's degree recipients borrowed from some source (including their families as well as through student loan programs) to help finance their undergraduate education (Choy and Geis 1997). The average total amount borrowed by those who took out loans was $10,200. Approximately one year after they graduated, 83 percent of those who had borrowed as undergraduates still owed money, an average of $9,100. Among borrowers who had started paying back their loans, their average monthly payment was $136, or about 9 percent of their April 1994 salary. Graduates with salaries less than $15,000 had the greatest average debt burden (15 percent).

This study examines this same group of undergraduate borrowers in 1997. First, it reviews the amount they borrowed as undergraduates and describes any additional borrowing by those who pursued graduate degree programs.[1] Next, it examines the progress that borrowers had made in repaying their student loans by 1997. Finally, the study describes their debt burden by examining the relationship between student loan payments and income and by searching for other indications of a negative impact of borrowing. It does this by comparing borrowers at various levels and nonborrowers in terms of their expenditures for certain major items such as rent or a mortgage, a car, and credit card purchases, and by examining how borrowing affects specific lifestyle choices such as family formation, buying a home or car, and saving.

The analysis distinguishes among three groups of undergraduate borrowers:

1) Those with no further postsecondary enrollment by 1997 (53 percent of all undergraduate borrowers).[2] In 1997, most of these borrowers would have been in repayment unless they had already paid back their loans. A few may have been in default or had deferments because of unemployment, hardship, or participation in a qualified service program.

[1]All references to graduate programs include the following first-professional programs as well: medicine (MD), chiropractic (DC or DCM), dentistry (DDS or DMD), optometry (OD), osteopathic medicine (DO), pharmacy (DPharm), podiatry (PodD or DPM), veterinary medicine (DVM), law (LLB or JD), and theology (MDiv, MHL, or BD).

[2]B&B 1993/1997 Data Analysis System, not shown in table.

2) Those who enrolled for further postsecondary education after receiving their bachelor's degree but nevertheless were in repayment in 1997 (24 percent of all undergraduate borrowers). This group consists of those who had completed another program or left postsecondary education at least 6 months before the follow-up and were therefore required to start repaying their loans; those who were enrolled for further education at the time of the follow-up, but were attending less than half time and therefore not able to defer repayment; those required to repay loans to their families or to nonfederal lenders that did not permit deferments for enrollment; and any who were voluntarily repaying their loans to reduce their indebtedness.

3) Those who enrolled for further education but were not in repayment in 1997 (23 percent of all undergraduate borrowers). This group includes those who were enrolled in postsecondary education at least half time or who had left postsecondary education within the previous 6 months and were not yet required to start repaying their loans. It also includes any undergraduate borrowers who had managed to repay their loans (or had them forgiven) despite further postsecondary enrollment.

This is a study of undergraduate borrowing and the circumstances in which the 1992–93 bachelor's degree recipients found themselves in 1997, which sometimes included new or continued borrowing at the graduate level. Therefore, total amounts borrowed for education for those with further enrollment are reported. However, this is not a comprehensive study of graduate borrowing, even for those who had completed a graduate degree program, because the percentages who borrowed at the graduate level and the amounts borrowed will not be typical of all graduate degree completers. The 1992–93 bachelor's degree recipients who completed a graduate degree program by 1997 will have been more likely than the typical graduate degree recipient to have enrolled full time and to have begun their program before having an opportunity to accumulate savings from working. Consequently, one might expect their borrowing levels to be higher than would be typical of graduate degree recipients overall.

Implication of Recent Increases in Borrowing for This Analysis

Borrowing grew dramatically after the 1992 Reauthorization of the Higher Education Act, which raised the maximum loan limits, instituted changes in need analysis, and created unsubsidized Stafford loans for students not meeting the financial need criteria for subsidized loans. In 1992–93 (the last academic year before reauthorization), undergraduate and graduate students borrowed a total of $17.2 billion through the Federal Family Education Loans Program (in constant 1998–99 dollars) (The College Board 1999). Borrowing grew by 38 percent to $23.8 billion the following year and reached a peak of $25.0 billion in 1994–95. The loan volume subsequently leveled off and began to decline, but, at a level of $22.6 billion in 1998–99, it remained well above the 1992–93 level.

Undergraduate borrowing by 1992–93 bachelor's degree recipients took place before this large increase in borrowing. Data from NPSAS:1996 show cumulative average amounts borrowed by graduating seniors of $11,800 for those who attended public 4-year institutions and $14,100 for those who attended private, not-for-profit institutions (Berkner 1998).

One can get some indication of the debt burden that more recent graduates can expect after 4 years by looking at the data presented in the tables of this report for 1992–93 graduates who borrowed amounts in this higher range. Caution must be taken in making direct comparisons, however. First, for borrowers at a given level, the incomes of the 1995–96 graduates 4 years after graduating may be higher, on average, than those of the 1992–93 graduates in 1997, which would give them greater financial resources for repaying the same size loans. Second, the increases in borrowing observed in the mid-1990s represented not only increased amounts borrowed by financially needy students but also an influx of borrowers from middle- and upper-income families, many taking out unsubsidized loans (King 1998). It is possible that parents of these students, typically in better financial circumstances than parents of previous borrowers, may intend to help the students repay the loans, thus reducing the debt burden assumed by the students themselves.

Data

The study uses data collected through the 1992–93 Baccalaureate and Beyond Longitudinal Study (B&B:1993) and the two follow-ups conducted in 1994 and 1997 (B&B:1993/1994 and B&B:1993/1997). The B&B Study tracks the experiences of a cohort of college graduates who received their bachelor's degrees during the 1992–93 academic year and were first interviewed as part of the 1992–93 National Postsecondary Student Aid Study (NPSAS:1993). The B&B panel used for this report consists of the 83 percent of NPSAS:1993 respondents who participated in all three rounds of interviews. This panel was weighted to represent all 1992–93 bachelor's degree recipients.

Borrowing for Education

Depending on the type of institution they attended, 1992–93 bachelor's degree recipients paid on the order of $45,000 to $100,000 to cover tuition, fees, and living expenses for their undergraduate education.[3] How they paid for this education depended on their families' ability and willingness to help, their eligibility for student financial aid, their willingness to assume loans, and the feasibility of working while enrolled. One-half of graduates borrowed through student loan programs or from family or friends to help pay for their education (table 1). By 1997, 29 percent of 1992–93 bachelor's degree recipients had enrolled in a graduate degree program, and about half had borrowed to help pay for their graduate education (some continuing a strategy of borrowing for education and others borrowing for the first time) (table 2). This section presents a detailed profile of borrowing for both groups of students.

Table 1—Percentage of 1992–93 bachelor's degree recipients who borrowed for their undergraduate education, average amount borrowed from all sources by those who borrowed, and percentage distribution of borrowers according to the amount borrowed, by institution type: 1997

	Percent who borrowed	Average amount borrowed	Amount borrowed				
			Less than $5,000	$5,000–9,999	$10,000–14,999	$15,000–19,999	$20,000 or more
Total	49.7	$10,142	28.6	28.2	20.6	11.1	11.5
Bachelor's degree-granting institution							
Public 4-year	46.8	8,633	33.5	30.1	19.3	9.6	7.6
Private, not-for-profit 4-year	54.6	12,812	20.4	24.0	23.3	13.5	18.9
Other*	62.0	10,382	23.5	35.9	17.4	13.8	9.4

*Includes private, for-profit institutions and public and private, not-for-profit other institutions. Among all bachelor's degree recipients, 65 percent graduated from 4-year public institutions, 31 percent from private, not-for-profit institutions, and 4 percent from "other" types of institutions.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

[3]Based on the average price of attending full time totaling $11,000 per year for tuition, fees, and living expenses at public 4-year institutions and $19,500 at private, not-for-profit 4-year institutions (Tuma and Geis 1995).

Table 2—Percentage distribution of 1992–93 bachelor's degree recipients according to graduate enrollment and borrowing status by 1997

	Enrolled in a graduate degree program		Did not enroll in a graduate degree program
	Borrowed	Did not borrow	
Total	14.1	14.4	71.5
Bachelor's degree-granting institution			
Public 4-year	13.4	13.8	72.9
Private, not-for-profit 4-year	16.0	15.9	68.1
Other	10.0	12.7	77.3
Undergraduate borrowing			
Did not borrow	12.9	17.2	70.0
Borrowed	15.4	11.7	72.9
Highest enrollment after bachelor's			
No enrollment	0.0	0.0	100.0
Master's degree	42.3	57.7	0.0
First-professional degree	82.9	17.1	0.0
Doctoral degree	58.1	41.9	0.0
Other than graduate degree	0.0	0.0	100.0
Highest degree earned after bachelor's[1]			
None	8.3	10.6	81.0
Master's	53.3	46.7	0.0
First-professional	86.3	13.7	0.0
All others except doctoral[2]	9.9	16.6	73.5

[1]Excluding doctoral degree recipients. Too few had completed their degrees by 1997 for reliable estimates.

[2]Although none of this group had earned a graduate degree, they had enrolled (and might still have been enrolled) in a graduate degree program in addition to earning some other degree or certificate.

NOTE: Percentages may not sum to 100 due to rounding. By 1997, 22 percent had enrolled in a master's degree program; 4 percent had enrolled in a first-professional degree program; and 3 percent in a doctoral degree program. Also by 1997, 9 percent had earned a master's degree and 2 percent had earned a first-professional degree.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

The 1992–93 bachelor's degree recipients reported on their cumulative undergraduate borrowing as part of the NPSAS:1993 survey (with the amounts borrowed added during the 1994 and 1997 follow-ups if not obtained earlier). Graduates were asked to report the total amount borrowed from all sources (even if already repaid). They were instructed to include amounts borrowed not only through student loan programs but also from family, friends, relatives, banks, savings and loan institutions, and credit unions. In the 1997 follow-up, those who had enrolled in a master's, doctoral, or first-professional degree program were asked about borrowing at the

graduate level, this time distinguishing between amounts borrowed from family and nonfamily sources.

Bachelor's degree recipients who enrolled in a nondegree program (8 percent)[4] or who sought a postbaccalaureate license (1 percent), another type of certificate or license (5 percent), an associate's degree (1 percent), or another bachelor's degree (3 percent) were not asked about additional borrowing. For this analysis, these enrollees were categorized as having enrolled for further education because this enrollment may have affected their ability and requirement to repay their undergraduate loans. However, if they borrowed to help pay for this additional education, the amounts could not be included in the estimates of total borrowing, because they were not asked to report them.

Undergraduate Borrowing

As indicated above, one-half of all 1992–93 bachelor's degree recipients borrowed for their undergraduate education (table 1). Among those who took out loans, the average amount borrowed from all sources (including family and other lenders as well as student loan programs) was $10,100.[5] Graduates of private, not-for-profit colleges and universities were more likely than their counterparts at public institutions to have borrowed (55 percent versus 47 percent), and if they did so, to have borrowed more (an average of $12,800 versus $8,600). About one out of five graduates (19 percent) of private, not-for-profit institutions borrowed $20,000 or more for their undergraduate education. Graduates of public institutions were much less likely to have borrowed this much (8 percent).

Graduate Degree Enrollment and Borrowing Status by 1997

By 1997, 29 percent of all 1992–93 bachelor's degree recipients had enrolled in a graduate degree program (master's, doctoral, or first-professional) (table 2). About one-half of them (14 percent) had borrowed to pay for their graduate education, and the other half had not. Undergraduate borrowers were slightly more likely than undergraduate nonborrowers to borrow again at the graduate level (15 percent versus 13 percent). This minor difference may simply indicate that those needing to borrow to finance their undergraduate education also needed to borrow to finance their graduate education.

[4]B&B 1993/1997 Data Analysis System, not shown in table.

[5]These amounts are not exactly the same as those reported in the earlier report (Choy and Geis 1997) on undergraduate debt burden (49 percent and $10,200) because missing information on undergraduate borrowing in 1994 was updated in 1997 when possible and the sample analyzed here consists of the graduates who participated in all three surveys.

Graduate borrowing was most common among those who enrolled in first-professional programs. Eighty-three percent of these students had borrowed by 1997, compared with 42 percent of those enrolled in master's programs and 58 percent enrolled in doctoral programs. The frequency of borrowing among first-professional students may be related to the fact that they typically face the highest average tuition charges and are the most likely to enroll full time (Choy and Moskovitz 1998). Doctoral students were more likely than master's students to have borrowed (58 percent versus 42 percent). Although master's and doctoral students face similar average annual tuition charges, doctoral programs last longer and doctoral students are more likely to attend full time, thus increasing their likelihood of needing to borrow (Choy and Moskovitz 1998).

Impact of Undergraduate Borrowing on Graduate and Other Postsecondary Enrollment

Based on the data presented in table 2, undergraduate borrowing appears to have had a minor discouraging effect on graduate degree enrollment, with undergraduate borrowers being slightly less likely than nonborrowers to have enrolled in a graduate degree program by 1997 (27 percent versus 30 percent). However, this finding does not take into account the various other factors that affect graduate degree enrollment or undergraduate borrowing. To overcome this limitation, a linear regression model was used to describe the relationship between undergraduate borrowing and graduate degree enrollment while adjusting for the covariance of independent variables.[6] The dependent variable was defined as the likelihood of enrolling in a graduate degree program between the time they graduated and when they were interviewed in 1997. The independent variables included sex, race/ethnicity, age when they received their degree, whether they borrowed from any source for their undergraduate education, type of institution from which they graduated, undergraduate major, cumulative undergraduate grade point average (GPA), and parents' education.

The results (shown in table 3) show no statistically significant relationship between enrollment in a graduate degree program and undergraduate borrowing after controlling for all the other characteristics shown in the table. Student characteristics associated with a higher likelihood of enrolling in a graduate degree program included earning a bachelor's degree by age 24 (rather than being older); majoring in engineering, mathematics, or science (rather than in business or an "other" field that excluded humanities/social sciences in addition to the fields already mentioned); achieving a GPA of at least 3.0 (rather than a lower GPA); and having at least one parent with some college attendance (rather than no education beyond high school).

[6]See appendix B for a detailed discussion of the technique used.

Table 3—Percentage of 1992–93 bachelor's degree recipients who enrolled in a graduate degree program by 1997 and the adjusted percentage after taking into account the covariation of the variables listed in the table

	Unadjusted percentages[1]	Adjusted percentages[2]	Least squares coefficient[3]	Standard error[4]
Total	29.8	29.8	51.9	3.1
Age received bachelor's degree				
24 years or younger	*31.9*[5]	*31.5*	†	†
25–29 years	21.7*	24.6*	-6.9	3.1
30 years or older	26.5*	26.2	-5.3	2.8
Bachelor's degree major				
Business and management	16.4*	17.4*	-22.9	3.2
Engineering, mathematics, or science	*40.8*	*40.3*	†	†
Humanities/social science	35.5*	34.4	-5.9	3.2
Others	29.5*	29.7*	-10.6	3.0
Race/ethnicity				
American Indian/Alaskan Native	20.8	27.0	-2.0	12.7
Asian/Pacific Islander	31.0	29.0	0.1	4.7
Black, non-Hispanic	31.6	37.8*	8.8	4.1
Hispanic	32.5	35.3	6.4	4.5
White, non-Hispanic	*29.5*	*28.9*	†	†
Amount borrowed for undergraduate education				
Did not borrow	*31.4*	*30.9*	†	†
Borrowed				
Less than $5,000	28.6	29.0	-1.9	3.0
$5,000 or more	27.9*	28.6	-2.3	2.2
Sex				
Male	*29.7*	*30.6*	†	†
Female	29.8	29.1	-1.5	2.0
Grade point average				
Less than 3.0	21.4*	21.2*	-15.4	2.0
3.0 or higher	*36.5*	*36.6*	†	†
Bachelor's degree-granting institution				
Public 4-year	*28.5*	*29.0*	†	†
Private, not-for-profit 4-year	33.0*	32.1	3.1	2.2
Other	24.9	24.3	-4.7	5.5
Parents' highest education				
High school or less	24.6*	26.4*	-6.3	2.3
Some postsecondary	26.9*	27.9	-4.8	2.7
Bachelor's or advanced degree	*34.2*	*32.7*	†	†

*$p < .05$.

†Not applicable for the reference group.

[1]The estimates are from the B&B:1993/1997 Data Analysis System.

[2]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[3]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[4]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

[5]The italicized group in each category is the reference group being compared.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

The earlier study of debt burden (Choy and Geis 1997), which examined the relationship between undergraduate borrowing and *any* further postsecondary education, showed that 1992–93 bachelor's degree recipients who borrowed $5,000 or more were slightly less likely than nonborrowers to enroll in further education by 1994. This was after taking into account sex, race/ethnicity, age, type of institution, major, and GPA. By 1997, however, the relationship between borrowing $5,000 or more as an undergraduate and any further postsecondary enrollment (controlling for the same other factors) no longer held once other characteristics were taken into account (table 4).[7] Thus, while undergraduate borrowing in excess of $5,000 originally appeared to discourage immediate further postsecondary enrollment, the effect appears to go away over the longer term.

Borrowing at the Graduate Level

Among the 1992–93 bachelor's degree recipients who went on to enroll in a graduate degree program by 1997, about one-half (49 percent) had borrowed to help pay for their graduate education (44 percent had borrowed from nonfamily sources and 11 percent from their families) (table 5).[8] Although undergraduate borrowers were more likely than nonborrowers to have borrowed at the graduate level (57 percent versus 43 percent), there were no statistically significant differences in the average amounts borrowed.

The amounts borrowed at the graduate level by 1997 were substantial, averaging $26,500 over and above any amounts borrowed by undergraduates (table 5). Twenty-two percent borrowed $40,000 or more (table 6). The implications of these numbers are difficult to assess, however, because of the varying amount of time the 1992–93 bachelor's degree recipients had spent in graduate school by 1997. Limiting consideration to those who had completed a graduate or first-professional degree by 1997, 53 percent of those who had earned a master's degree and 86 percent of those who had earned a first-professional degree had borrowed as a graduate student (table 5). The average amounts borrowed for graduate education by borrowers who had earned these degrees were $18,200 and $59,800, respectively. (Too few students had completed a doctoral degree to estimate the total amount borrowed to complete their degrees.)

Reflecting the higher cost of their education and the borrowing limits imposed by the major student loan programs, students who enrolled in first-professional programs were considerably more likely than those who enrolled in master's degree programs to have borrowed from their families (19 percent versus 9 percent). (The apparent difference between first-professional and

[7]Parents' education was not included in table 4 in order to maintain comparability to the earlier study.

[8]The percentages borrowing from nonfamily and family sources sum to more than the total percentage borrowing because some borrowed from both sources.

Table 4—Percentage of 1992–93 bachelor's degree recipients who enrolled in any postsecondary education by 1997 and the adjusted percentage after taking into account the covariation of the variables listed in the table

	Unadjusted percentages[1]	Adjusted percentages[2]	Least squares coefficient[3]	Standard error[4]
Total	48.0	48.0	64.5	3.1
Age received bachelor's degree				
24 years or younger	*49.5*[5]	*49.2*	†	†
25–29 years	40.3*	42.7*	-6.5	3.2
30 years or older	47.1	46.4	-2.8	2.8
Bachelor's degree major				
Business and management	30.8*	31.5*	-27.1	3.3
Engineering, mathematics, or science	*58.3*	*58.6*	†	†
Humanities/social science	55.1	54.6	-4.0	3.3
Others	49.4*	49.1*	-9.5	3.1
Race/ethnicity				
American Indian/Alaskan Native	43.1	45.7	-1.3	13.3
Asian/Pacific Islander	56.0	54.3	7.2	4.9
Black, non-Hispanic	47.3	51.5	4.5	4.3
Hispanic	52.4	53.2	6.1	4.7
White, non-Hispanic	*47.4*	*47.1*	†	†
Amount borrowed for undergraduate education				
Did not borrow	*49.4*	*49.2*	†	†
Borrowed				
Less than $5,000	49.1	49.0	-0.3	3.1
$5,000 or more	45.5	45.8	-3.5	2.3
Sex				
Male	*45.9*	*46.9*	†	†
Female	49.6*	48.8	1.9	2.1
Grade point average				
Less than 3.0	41.1*	41.3*	-11.8	2.1
3.0 or higher	*53.6*	*53.2*	†	†
Bachelor's degree-granting institution				
Public 4-year	*47.9*	*48.1*	†	†
Private, not-for-profit 4-year	48.2	48.0	-0.1	2.3
Other	47.8	46.1	-2.0	5.7

*p < .05.

†Not applicable for the reference group.

[1]The estimates are from the B&B:1993/1997 Undergraduate Data Analysis System.

[2]The percentages are adjusted for differences associated with other variables in the table (see appendix B).

[3]Least squares coefficient, multiplied by 100 to reflect percentage (see appendix B).

[4]Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).

[5]The italicized group in each category is the reference group being compared.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Table 5—Among 1992–93 bachelor's degree recipients who enrolled in a graduate degree program, percentage who borrowed for graduate education from nonfamily and family sources by 1997, and the average amount borrowed by those who borrowed

	All sources		Nonfamily sources		Family[1]	
	Percent	Average	Percent	Average	Percent	Average
Total	49.4	$26,458	43.9	$27,245	10.8	$9,799
Bachelor's degree-granting institution						
Public 4-year	49.1	24,374	43.3	25,300	10.9	8,930
Private, not-for-profit 4-year	50.3	30,341	45.2	30,853	11.1	11,342
Other	44.1	22,233	40.9	22,863	5.0	—
Undergraduate borrowing						
Did not borrow	43.0	27,123	36.3	28,072	11.5	12,726
Borrowed	56.8	25,845	52.7	26,548	10.2	6,104
Less than $5,000	50.6	25,470	47.3	26,092	8.8	4,749
$5,000 or more	59.3	25,974	54.9	26,708	10.7	6,553
Highest enrollment after bachelor's						
Master's degree	42.3	15,294	37.1	16,005	9.3	5,923
First-professional degree	82.9	54,679	75.4	54,098	19.1	21,430
Doctoral degree	58.1	33,586	53.2	35,008	11.4	7,247
Highest degree earned after bachelor's[2]						
None	44.0	24,585	38.7	25,292	10.2	9,721
Master's	53.3	18,150	48.4	18,514	10.5	6,571
First-professional	86.3	59,790	78.7	60,106	14.6	—
All others except doctoral	37.4	22,556	27.0	28,404	14.5	—

—Too few cases for a reliable estimate.

[1]Family includes parents and other relatives but excludes spouses.

[2]Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

doctoral students is not statistically significant.) The average amount borrowed by first-professional students who borrowed from their families was $21,400, indicating that families are a significant source of financial resources for some students.

Seventy percent of those who had completed a first-professional degree by 1997 had borrowed $40,000 or more (from all sources) (table 6). One reason that first-professional degree completers had borrowed such large amounts is that, given the durations of these programs, those who had finished by 1997 must have started their first-professional education soon after

Table 6—Among 1992–93 bachelor's degree recipients who borrowed for graduate education from any source by 1997, percentage distribution according to the amount borrowed

	Less than $5,000	$5,000–9,999	$10,000–14,999	$15,000–19,999	$20,000–29,999	$30,000–39,999	$40,000 or more
Total	14.7	16.7	11.4	11.5	15.5	8.3	21.9
Bachelor's degree-granting institution							
Public 4-year	16.9	16.9	10.5	12.5	15.9	8.1	19.3
Private, not-for-profit 4-year	11.4	16.9	11.9	9.9	14.7	8.5	26.9
Other	6.7	10.1	26.1	12.6	16.7	13.6	14.2
Undergraduate borrowing							
Did not borrow	14.7	17.1	9.7	11.5	13.3	8.9	24.9
Borrowed	14.7	16.4	12.8	11.6	17.3	7.9	19.3
Less than $5,000	16.9	20.3	12.8	8.7	14.9	6.9	19.4
$5,000 or more	14.0	15.1	12.8	12.6	18.1	8.2	19.2
Highest enrollment after bachelor's							
Master's degree	19.7	21.4	14.4	14.8	15.5	8.3	6.0
First-professional degree	0.8	4.3	4.3	4.2	13.5	9.5	63.3
Doctoral degree	13.9	14.6	8.3	7.7	19.1	6.4	30.0
Highest degree earned after bachelor's*							
None	19.2	18.5	10.4	10.1	14.3	6.8	20.7
Master's	11.5	19.1	15.7	17.1	18.3	10.0	8.4
First-professional	1.2	3.4	1.9	3.7	10.6	9.4	69.7
All others except doctoral	26.5	13.3	12.6	3.7	18.9	6.9	18.2

*Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

completing their bachelor's degree and attended primarily full time. Thus, they would not have had much time to accumulate savings to pay for further education or to earn much while enrolled.

The relative contribution of family borrowing is easiest to understand by calculating the average amounts borrowed from nonfamily and family sources including zero amounts for those who did not borrow. The average total amount borrowed by all those who enrolled in a graduate degree program (including those with zero amounts) was $13,100, of which about $12,000 was borrowed from nonfamily sources and $1,100 from family sources.[9] Thus, although the average

[9]B&B 1993/1997 Data Analysis System, not shown in table.

for those who borrowed from their families was $9,800 (table 5), the overall contribution of family loans to financing graduate education was relatively small.

Summary of Borrowing for Education by 1997

The following summarizes the borrowing status of all 1992–93 bachelor's degree recipients as of 1997: 44 percent had never borrowed for education; 42 percent had borrowed only as undergraduates; 7 percent had borrowed only as graduate students; and 8 percent had borrowed at both levels (table 7). The average total amount borrowed for education by 1997 was $15,600 (this includes amounts borrowed as undergraduates or graduates by all who borrowed at either level).

Table 7—Percentage distribution of 1992–93 bachelor's degree recipients according to undergraduate and graduate borrowing status by 1997 and average total amount borrowed for education

		Borrowed as			
	Did not borrow for either	Under-graduate only	Graduate only	Both under-graduate and and graduate	Average total amount borrowed
Total	43.7	42.1	6.5	7.7	$15,612
Bachelor's degree-granting institution					
Public 4-year	46.4	40.2	6.7	6.7	13,623
Private, not-for-profit 4-year	39.1	44.8	6.3	9.9	19,528
Other	34.8	55.1	3.4	6.7	13,266
Undergraduate borrowing					
Did not borrow	87.1	(*)	12.9	(*)	27,123
Borrowed	(*)	84.6	(*)	15.4	14,116
Highest enrollment after bachelor's					
No enrollment	49.0	51.0	(*)	(*)	10,475
Master's degree	33.8	23.9	17.6	24.7	16,940
First-professional degree	12.2	4.7	44.8	38.3	57,430
Doctoral degree	26.6	14.9	31.1	27.4	32,284
Other than graduate degree	49.6	50.4	(*)	(*)	9,339
Highest degree earned after bachelor's†					
None	45.8	45.9	3.8	4.6	13,247
Master's	30.8	15.7	24.0	29.5	20,767
First-professional	9.5	4.1	45.2	41.1	63,372
All others except doctoral	46.8	43.3	4.7	5.3	12,268

*Not applicable.

†Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Among those who had completed a master's degree by 1997, 69 percent had borrowed for education: 16 percent only at the undergraduate level, 24 percent only at the graduate level, and 29 percent at both levels. Those who borrowed only at the undergraduate level may have been supported by grants or assistantships for their master's degree or worked while enrolled and did not need to borrow. Those who borrowed only at the graduate level may have received parental support as undergraduates, worked more, or attended a less expensive institution than they did as graduate students.

Among those who had completed a first-professional degree by 1997, almost all (90 percent) had borrowed to help pay for their education at one or both levels: 45 percent had borrowed at the graduate level only; 41 percent had borrowed at both levels; and 4 percent had borrowed as undergraduates only.

The total amount borrowed varied considerably depending on the amount of further education the bachelor's degree recipients had completed. Among those with no further enrollment after the bachelor's degree, the average amount borrowed was $10,500. In contrast, among those who had completed a master's degree, the average was $20,800, and for those who had completed a first-professional degree, it was $63,400.

Among the 1992–93 bachelor's degree recipients who had completed master's or first-professional degrees by 1997, most of their borrowing was at the graduate level. This pattern is most easily seen by computing the average total amounts borrowed including zero amounts for those who did not borrow at one of the levels. Those who had earned master's degrees by 1997 and borrowed for education at one or both levels borrowed an average of $4,700 as undergraduates, and an average of $9,700 as graduate students. Those who had earned a first-professional degree borrowed an average of $5,500 as undergraduates, and $51,600 after that.[10]

[10]B&B 1993/1997 Data Analysis System, not shown in table.

Amounts Owed and Being Repaid

The 1992–93 bachelor's degree recipients who borrowed to help pay for their undergraduate education were in various positions with respect to their undergraduate debt by 1997. As discussed earlier, 53 percent of undergraduate borrowers did not enroll for any further postsecondary education and would therefore have been required to start repaying their federal student loans by the end of 1993. This group is the easiest to study from the perspective of undergraduate debt burden, because their situation is not complicated by further enrollment and borrowing.

Another 24 percent of undergraduate borrowers enrolled for further postsecondary education but nevertheless were in repayment in 1997. This group includes borrowers who had finished or left their program at least 6 months earlier or were attending less than half time (eliminating the possibility of deferment). It might also include some who were voluntarily repaying federal loans or were repaying other loans that did not allow deferments for enrollment. The amounts they owed and were repaying in 1997 also reflect borrowing at the graduate level, but analysis of this group's situation is complicated by the fact that they have spent varying amounts of time in graduate school. However, by concentrating on those who completed a degree program, some assessment of the cumulative effects of undergraduate and graduate borrowing is possible.

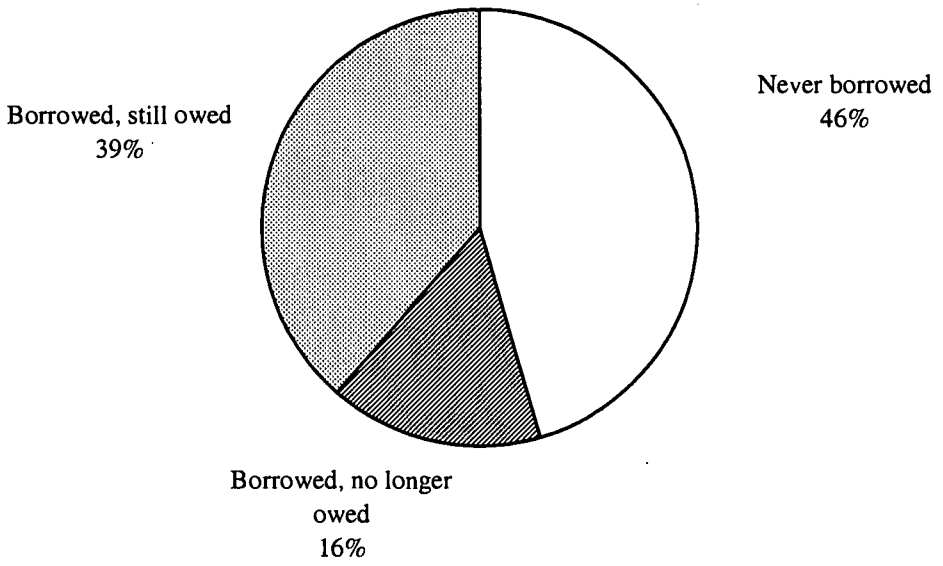
The remaining 23 percent of undergraduate borrowers enrolled for further education but were not in repayment. This group includes those who were still enrolled (at least half time) in 1997 or who had just recently (within 6 months) ended their enrollment. Because it is impossible to know what the circumstances of this group will be when they eventually start repaying their loans—for example, how much they will have borrowed and what their incomes will be—it is extremely difficult to determine the impact of borrowing on this group.

Because of the varying circumstances of these groups, the following analysis of the amounts owed distinguishes between undergraduate borrowers with and without further enrollment. The analysis of the amounts being repaid subdivides the group with further enrollment into two: those in repayment and those not in repayment.

Amounts Owed

By 1997, approximately 4 years after graduating, the majority of all 1992–93 bachelor's degree recipients were free of education debt (figure 1 and table 8).[11] Some graduates (46 percent) were in this position because they had never borrowed for either undergraduate or graduate education, and another 16 percent were debt free because their student loans had been repaid or forgiven. This left 39 percent of all graduates still owing money for education. Fewer of those who had no further enrollment (33 percent) still owed.

Figure 1—Percentage distribution of 1992–93 bachelor's degree recipients according to debt status in 1997



NOTE: Based on borrowing at both undergraduate and graduate levels. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

[11]The percentage who never borrowed shown in figure 1 and table 8 (46 percent) is not exactly the same as the percentage shown in table 7 (44 percent) because of missing data on whether money was still owed.

Table 8—Percentage distribution of 1992–93 bachelor's degree recipients according to debt status in 1997, by postbaccalaureate education

	Borrowed for undergraduate or graduate education		Did not borrow, did not owe[1]
	Owed	Did not owe	
Total	38.6	15.6	45.9
Highest enrollment after bachelor's			
No enrollment	32.6	16.5	51.0
Master's degree	49.5	14.5	36.0
First-professional degree	76.5	5.9	17.6
Doctoral degree	59.4	10.9	29.7
Other than graduate degree	30.4	17.5	52.2
Highest degree earned after bachelor's[2]			
None	35.9	16.3	47.8
Master's	54.8	11.9	33.4
First-professional	79.5	7.5	13.0
All others except doctoral	35.7	14.8	49.5

[1]The percentages shown in this column are not exactly the same as those shown in the first column of table 7 because of missing data on whether money was still owed.

[2]Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Borrowed as Undergraduates, No Further Enrollment

A number of undergraduate borrowers with no further enrollment in postsecondary education were able to eliminate their debt by 1997, especially if they had borrowed modest amounts (table 9). Among those who borrowed as undergraduates but did not enroll for any further education, 84 percent owed money in 1994, dropping to 66 percent in 1997. The average amount owed in 1994 was $9,100, and in 1997, it was $7,100. Although a small proportion (3 percent) of the borrowers who did not enroll for further education still owed $20,000 or more in 1997, 41 percent owed less than $5,000.

Among those who had borrowed less than $5,000, about two-thirds had discharged their education debt by 1997: 64 percent had owed money in 1994, declining to 32 percent by 1997. If they still had debt in 1997, the average amount owed was $1,700. Those who had borrowed $15,000 or more were less likely than those who had borrowed less than $5,000 to have paid off

Table 9—Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, percentage who had education debt in 1994 and 1997, average amount owed by those with debt, and percentage distribution of those with debt in 1997 according to the amount owed, by further enrollment as of 1997

	1994		1997		Amount owed in 1997			
	Percent who owed	Average amount owed	Percent who owed	Average amount owed	Less than $5,000	$5,000–9,999	$10,000–19,999	$20,000 or more
				No further enrollment				
Total	83.7	$9,086	66.4	$7,080	40.5	32.9	23.3	3.3
Bachelor's degree-granting institution								
Public 4-year	81.5	7,786	60.9	6,145	46.0	33.1	19.5	1.4
Private, not-for-profit 4-year	86.3	11,346	74.7	8,490	31.2	34.3	28.5	6.0
Other	96.3	8,843	86.1	7,107	48.3	17.8	28.6	5.3
Amount borrowed for undergraduate education								
Less than $5,000	63.9	2,221	31.8	1,679	100.0	0.0	0.0	0.0
$5,000–9,999	88.5	5,777	74.3	3,870	68.2	31.8	0.0	0.0
$10,000–14,999	95.4	10,493	85.7	7,466	15.9	60.3	23.8	0.0
$15,000 or more	90.5	17,023	81.5	12,469	6.8	24.6	57.4	11.2
Bachelor's degree major								
Business and management	80.9	8,708	62.4	7,516	37.5	33.8	23.7	5.0
Engineering, mathematics, or science	78.8	9,287	61.4	6,596	41.7	36.8	18.9	2.6
Humanities or social science	87.2	8,622	72.4	6,797	43.1	31.2	23.3	2.4
Others	85.9	9,500	68.8	7,083	40.8	31.7	24.7	2.9
Total income in 1996								
Less than $20,000	87.0	8,573	71.7	6,869	41.2	31.2	25.5	2.1
$20,000–24,999	86.0	8,353	67.4	6,500	44.2	29.5	25.0	1.3
$25,000–34,999	85.7	9,248	68.0	6,900	37.2	38.4	21.6	2.9
$35,000–49,999	81.9	9,135	65.3	7,423	41.5	33.1	20.1	5.3
$50,000 or more	76.7	9,549	58.6	7,877	39.3	30.0	24.8	6.0

Table 9—Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, percentage who had education debt in 1994 and 1997, average amount owed by those with debt, and percentage distribution of those with debt in 1997 according to the amount owed, by further enrollment as of 1997—Continued

	1994		1997		Amount owed in 1997			
	Percent who owed	Average amount owed	Percent who owed	Average amount owed	Less than $5,000	$5,000–9,999	$10,000–19,999	$20,000 or more
				Further enrollment				
Total	83.6	$8,985	72.2	$16,426	28.6	24.8	21.9	24.6
Total amount borrowed for education								
Less than $5,000	65.3	2,495	33.8	1,877	100.0	0.0	0.0	0.0
$5,000–9,999	86.8	5,717	73.4	4,168	58.8	41.2	0.0	0.0
$10,000–19,999	90.0	10,539	83.0	8,909	13.1	45.1	41.8	0.0
$20,000 or more	89.6	13,591	91.0	33,899	3.6	6.1	24.1	66.3
Borrowing for graduate degree								
Did not borrow	80.6	8,360	60.6	7,031	42.7	33.0	20.3	4.1
Borrowed	89.7	10,060	94.8	28,280	10.7	14.9	23.9	50.5
Highest enrollment after bachelor's								
Master's degree	81.8	8,948	75.1	13,521	25.8	24.8	24.0	25.5
First-professional degree	93.1	10,020	91.4	55,025	4.2	7.2	9.4	79.3
Doctoral degree	89.6	9,282	82.4	30,438	19.0	11.9	24.5	44.6
Other than graduate degree	83.3	8,766	63.5	7,235	41.5	32.3	22.0	4.3
Highest degree earned after bachelor's*								
None	82.4	9,084	69.6	13,623	31.4	27.8	21.7	19.0
Master's	83.1	9,227	79.5	17,155	19.0	16.0	28.9	36.1
First-professional	93.8	10,225	89.2	66,214	2.2	6.1	4.5	87.2
All others except doctoral	87.6	7,787	69.9	8,983	40.5	32.0	18.3	9.2

*Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

their debt (82 percent still owed in 1997). In 1997, those who had borrowed $15,000 or more as undergraduates still owed an average of $12,500.

Reflecting the larger average amounts they had borrowed, borrowers who attended private, not-for-profit institutions were more likely than those from public institutions to still owe money in 1997 (75 percent versus 61 percent). They also tended to owe more ($8,500 versus $6,100).

The percentage who still owed money in 1997 did not vary with income. About two-thirds of undergraduate borrowers with 1996 incomes between $20,000 and $50,000 still owed on their education loans in 1997. While there appeared to be a difference at the extremes (below $20,000 or above $50,000), the difference was not statistically significant.

Borrowed as Undergraduates, Enrolled for Further Education

Because of the higher level of borrowing at the graduate than undergraduate level, undergraduate borrowers who had enrolled in a graduate degree program owed considerably more in 1997 than their counterparts without further enrollment ($16,400 versus $7,100) (table 9). Those who had completed a master's degree owed an average of $17,200, and those with a first-professional degree, a much larger average of $66,200. Although it appears that the average amount owed is greater than the average amount borrowed for those completing a first-professional degree ($66,200 versus $63,400) (tables 9 and 7), the difference is not statistically significant. It is likely that the few who no longer owed were those with relatively small loans, leaving those with high loan amounts still owing. This would have the effect of lowering the average loan amount for all borrowers and raising the average amount owed after the smaller loans were removed. Furthermore, some borrowers may have had the accrued interest on their loans added to the principal while they were enrolled and thus increased the amount owed.

Repayment Status

Most student loan programs require borrowers to begin repaying their loans 6 months after they leave school. The typical Stafford loan calls for a 10-year repayment schedule, with a minimum monthly payment of $50, although income-sensitive and graduated repayment schedules are also options. In addition, borrowers can consolidate federal loans. Deferments can be obtained for number of reasons, such as further enrollment in postsecondary education (at least half time), participation in a qualifying service program such as the Peace Corps, or an approved medical or financial hardship. Under some circumstances, forbearance may be granted (allowing borrowers to postpone payment) or loans cancelled. Repayment schedules for loans from families or other private sources are negotiated by the parties involved and, in the case of families, may be formal

or informal. No information is available on these arrangements. However, borrowers were asked to report what they were repaying for *all* loans.

In 1997, 29 percent of all 1992–93 bachelor's degree recipients were making payments on education loans (table 10). These loans may have been assumed at either the undergraduate or graduate level or both. Another 27 percent were not making payments because they no longer owed, had a deferment because they were enrolled in postsecondary education at least half time or for some other reason, were in default, or had nonfederal loans they were not required to repay at that time. The remaining 44 percent were not making payments because they had never borrowed.

Borrowed as Undergraduates, No Further Enrollment

Of those who had borrowed as undergraduates but had no further postsecondary enrollment, 57 percent were repaying their loans in 1997 (table 11). Their average monthly payment

Table 10—Percentage distribution of 1992–93 bachelor's degree recipients according to repayment status in 1997, by postbaccalaureate education

	Borrowed for undergraduate or graduate education		
	In repayment	Not in repayment	Not in repayment, never borrowed[1]
Total	29.2	27.1	43.8
Highest enrollment after bachelor's			
No enrollment	29.2	21.8	49.0
Master's degree	33.5	32.2	34.3
First-professional degree	28.4	55.4	16.2
Doctoral degree	17.0	54.7	28.3
Other than graduate degree	25.7	24.7	49.6
Highest degree earned after bachelor's[2]			
None	27.9	26.3	45.7
Master's	38.8	29.6	31.6
First-professional	46.7	40.7	12.7
All others except doctoral	25.6	27.2	47.3

[1]The percentages shown in this column are not exactly the same as those in the last column of table 8 because of missing data on repayment.

[2]Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Table 11—Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, percentage who were repaying education loans, average monthly payment for those in repayment, and percentage distribution of those in repayment according to the amount paid, by further enrollment as of 1997

	Percent in repayment	Average monthly payment	Monthly payment: Less than $100	$100–149	$150–199	$200 or more
			No further enrollment			
Total	57.2	$151	31.8	29.2	17.2	21.9
Amount borrowed for undergraduate education						
Less than $5,000	27.6	64	84.4	12.1	1.9	1.7
$5,000–9,999	64.3	102	48.9	37.8	8.1	5.2
$10,000–14,999	72.0	152	12.5	42.3	32.0	13.3
$15,000 or more	70.2	241	7.6	16.3	20.4	55.8
			Further enrollment			
Total	50.1	194	27.6	24.6	14.0	33.8
Total amount borrowed for education						
Less than $5,000	27.8	85	79.8	10.6	3.0	6.7
$5,000–9,999	55.0	106	47.1	37.8	8.1	7.1
$10,000–19,999	64.6	167	15.6	33.0	24.3	27.1
$20,000 or more	53.0	330	5.7	10.1	11.5	72.7
Borrowing for graduate degree						
Did not borrow	49.4	139	35.9	29.4	14.9	19.8
Borrowed	54.0	290	13.0	15.4	12.3	59.3
Highest enrollment after bachelor's						
Master's degree	54.2	197	24.9	22.3	14.9	37.9
First-professional degree	34.8	467	11.5	7.0	4.0	77.5
Doctoral degree	28.4	357	29.4	16.1	2.8	51.7
Other than graduate degree	50.9	143	33.0	30.6	15.0	21.4
Highest degree earned after bachelor's*						
None	47.6	161	32.5	27.1	13.9	26.6
Master's	58.5	244	16.7	17.1	15.5	50.7
First-professional	48.3	584	3.5	2.8	4.3	89.4
All others except doctoral	51.8	147	29.2	31.7	14.8	24.3

*Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

was $151. For those who had borrowed less than $5,000 as undergraduates, the average monthly payment was $64 per month. The monthly payment increased with the amount borrowed—to $102 for those who borrowed $5,000–9,999, to $152 for those who borrowed $10,000–14,999, and to $241 for those who had borrowed $15,000 or more. However, a large majority (78 percent) were paying less than $200 per month.

Borrowed as Undergraduates, Enrolled for Further Education

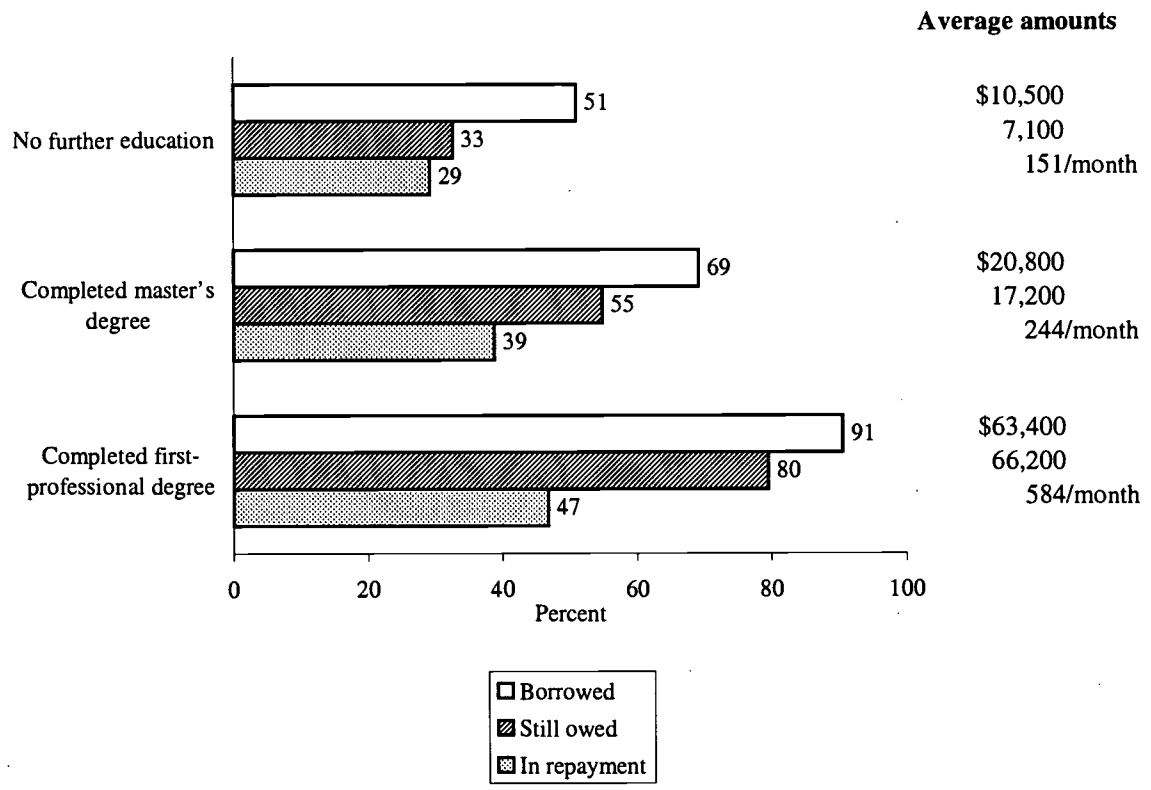
Undergraduate borrowers who enrolled for further education after earning their bachelor's degree and still had education debt in 1997 would normally be in repayment if they had completed or dropped out by mid-1996 or were enrolled less than half time. Those who were still enrolled in 1997 (half time or more) or had just recently graduated would likely have deferments from most student loan programs, but might vary in their obligations for repaying loans from their families. Some (if they had the necessary financial resources) might be repaying their loans even if they were not required to do so.

Of those who had borrowed as undergraduates and had enrolled for additional education by 1997, 50 percent were repaying their loans (table 11). Among those in repayment, the average monthly payment was $194, which was considerably higher than the average amount being paid by those who did not enroll for further education. This reflects the fact that many undergraduate borrowers took out loans at the graduate level as well (table 7). Among those who had borrowed at both levels, the average monthly payment was $290, compared with $139 if they had borrowed only as undergraduates. Undergraduate borrowers who had completed a master's degree by 1997 were paying an average of $244 per month to cover their undergraduate and graduate borrowing. However, the average for those who had completed a professional degree was much higher—$584 per month.

Summary of Debt Status

Figure 2 illustrates the education debt status of the 1992–93 bachelor's degree recipients. It shows the percentages who borrowed, owed, and were in repayment for those with no further enrollment, those who had completed a master's degree, and those who had completed a first-professional degree. Not enough doctoral students had completed their degrees by 1997 for reliable estimates of the debt status of completers. The difference between the percentages who borrowed and who owed represents the proportion who had repaid their loans (or had them forgiven) by 1997. The difference between the percentages who owed and who were in repayment represents the proportion with deferments, in default, or not being required to repay loans (it is impos-

Figure 2—Percentages of 1992–93 bachelor's degree recipients who had borrowed for education, still owed, and were in repayment, by level of education after bachelor's degree: 1997



NOTE: Based on borrowing at both undergraduate and graduate levels.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

sible to know how many were in each category). Figure 2 also shows the average amounts borrowed and owed, and the average being paid on a monthly basis.

Among 1992–93 bachelor's degree recipients who had not enrolled for any additional postsecondary education by 1997, 51 percent had borrowed for their undergraduate education, and 33 percent still owed on those loans in 1997. Thus, 18 percent had paid off their loans (or had them forgiven). Almost all of those who owed were in repayment (the difference between 33 percent and 29 percent is not statistically significant).

Among 1992–93 bachelor's degree recipients who had earned a master's degree by 1997, 69 percent had borrowed at one or both levels. By 1997, about 14 percent had been able to discharge their debt despite earning a second degree, and 55 percent still owed money. Thirty-nine

percent were making payments, which means that about 16 percent were not being required to make payments, most likely because they had just recently completed their degree. The average amount owed was substantially greater than the amount for those who had not enrolled for further education ($17,200 versus $7,100).

Among 1992–93 bachelor's degree recipients who had earned a first-professional degree by 1997, 91 percent had borrowed to help pay for their education, and most (80 percent) still owed money. Because most first-professional programs take at least 3 or 4 years to complete, most would have graduated very recently. Thus, a comparatively low proportion (47 percent) were in repayment in 1997. The average amount owed by this group ($66,200) was substantially higher than the average amount owed by those who had completed a master's degree ($17,200). As indicated earlier, this reflects higher tuition, more frequent full-time enrollment, limited time to work while enrolled, and little time after undergraduate enrollment to accumulate savings.

Debt Burden

Understanding the extent to which the payments just described impose a financial burden on the borrowers requires knowing something about the borrowers' financial circumstances as well as the size of their payments. For instance, a $100 monthly payment is not likely to be a major hardship for a borrower who is earning $36,000 per year (the loan payment would amount to 3 percent of the borrower's monthly gross income). In contrast, the same monthly loan payment would be a much greater burden for someone with only a part-time job paying $15,000 per year.

As background to the discussion of debt burden, the section begins by describing the borrowers' income and employment status to provide an indication of their overall financial circumstances in 1997 and their capacity to meet their loan repayment obligations. The discussion is limited to borrowers who have begun repaying their loans. It focuses on those with no further enrollment because some of those with further enrollment may have been enrolled during part of 1996, making meaningful interpretation of their income data difficult.

The rest of the section discusses various indicators of debt burden, the most useful of which is the size of a borrower's loan payment relative to income. Other indications of debt burden are provided by examining household loan payments relative to household income for married graduates and links between debt burden and lifestyle choices such as spending for other major items, marriage, and saving.

Income

In 1996, undergraduate borrowers with no further enrollment earned an average of $32,500 (table 12). The range of incomes from earnings was quite wide, however. About one-third (32 percent) had incomes between $25,000 and $34,999, but 18 percent had incomes of less than $20,000, and 14 percent incomes of $50,000 or more. Average income ($33,600) was similar to average earnings, suggesting that at this stage in their careers, most of this cohort had few other sources of income.

Table 12—Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, average earnings in 1996, percentage distribution according to 1996 earnings, and average total income in 1996, by enrollment/repayment status: 1997

	Average earnings	Earnings: Less than $20,000	$20,000–24,999	$25,000–34,999	$35,000–49,999	$50,000 or more	Total income
				No further enrollment			
Total	$32,490	17.5	15.9	31.5	21.1	13.9	$33,580
Age received bachelor's degree							
24 years or younger	30,840	18.5	17.5	33.9	19.2	11.0	31,716
25–29 years	35,233	15.9	13.5	27.5	24.5	18.7	36,258
30 years or older	35,721	16.0	12.6	26.7	24.8	19.8	37,711
Bachelor's degree major							
Business and management	34,368	12.0	17.4	33.8	19.9	16.9	35,869
Engineering, mathematics, or science	39,149	11.7	5.7	21.2	39.5	21.9	39,896
Humanities or social science	27,999	26.5	20.6	29.9	15.4	7.5	29,066
Others	30,528	20.0	16.5	34.5	17.5	11.6	31,388
Occupation in April 1997							
Business and management	35,330	13.6	9.9	33.9	24.5	18.1	36,610
School teacher	25,462	17.5	30.6	42.7	8.0	1.2	26,325
Professional	34,794	13.8	12.8	30.6	27.9	15.0	35,935
Administrative, clerical, support	27,501	27.0	22.3	28.7	13.9	8.0	28,278
Sales, service	31,740	18.1	18.1	28.5	20.3	15.1	32,979
Others	33,167	20.9	14.9	31.1	13.6	19.5	34,899
Employment status in April 1997							
Full-time	33,628	13.9	16.1	32.8	22.3	14.9	34,837
Part-time	20,568	61.1	12.3	15.9	5.0	5.7	22,122
Unemployed	19,826	38.6	28.3	25.7	7.4	0.0	20,999
Out of the labor force	21,852	53.5	6.9	18.6	16.1	4.9	21,222
				Further enrollment, repaying loans			
Total	28,094	26.6	17.8	30.7	18.0	7.0	29,806
Age received bachelor's degree							
24 years or younger	27,889	26.3	18.5	30.7	17.9	6.7	29,539
25–29 years	30,050	28.6	14.4	27.5	21.5	8.0	30,730
30 years or older	27,337	25.9	17.9	33.3	15.7	7.3	30,023
Bachelor's degree major							
Business and management	32,871	13.8	20.0	32.3	23.2	10.7	33,972
Engineering, mathematics, or science	33,223	20.7	9.7	21.3	36.7	11.6	34,542
Humanities or social science	24,276	37.6	16.0	29.6	11.2	5.6	27,007
Others	26,677	26.6	21.6	34.6	12.5	4.7	28,179

Table 12—Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, average earnings in 1996, percentage distribution according to 1996 earnings, and average total income in 1996, by enrollment/repayment status: 1997—Continued

	Average earnings	Earnings: Less than $20,000	$20,000–24,999	$25,000–34,999	$35,000–49,999	$50,000 or more	Total income
		Further enrollment, repaying loans—Continued					
Highest enrollment after bachelor's							
Master's degree	$28,865	23.2	18.9	31.1	19.5	7.2	$30,520
First-professional degree	23,326	53.7	9.5	13.8	9.8	13.2	28,410
Doctoral degree	19,114	63.6	6.3	18.7	7.7	3.7	19,854
Other than graduate degree	28,309	25.0	18.2	32.9	17.8	6.2	29,793
Highest degree earned after bachelor's*							
None	29,264	24.6	17.5	31.3	18.4	8.4	31,083
Master's	25,356	31.8	15.2	29.6	19.7	3.8	26,460
First-professional	18,370	58.9	12.0	15.3	11.4	2.4	21,196
All others except doctoral	29,101	19.8	25.5	32.8	15.6	6.3	30,809
Occupation in April 1997							
Business and management	31,603	16.1	14.5	33.3	26.8	9.4	35,372
School teacher	24,524	17.9	30.3	45.0	6.0	0.8	24,990
Professional	30,284	28.4	11.9	24.5	25.0	10.2	32,297
Administrative, clerical, support	23,355	39.1	17.0	28.1	13.2	2.6	24,099
Sales, service	29,283	34.5	17.5	23.9	13.4	10.8	31,680
Others	29,155	29.2	18.0	27.6	17.1	8.1	30,891
Employment status in April 1997							
Full-time	30,190	19.6	17.7	34.6	20.4	7.8	31,834
Part-time	15,361	64.7	18.9	9.9	4.8	1.8	18,614
Unemployed	15,231	68.0	14.9	9.3	7.8	0.0	15,507
Out of the labor force	20,291	60.6	21.5	7.4	6.8	3.7	21,100

*Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Total income for this group varied in predictable ways with age, bachelor's degree major, occupation, and employment status:

- Graduates who were 24 years or younger when they earned their degree had lower incomes in 1996, on average, than older graduates.
- Graduates who majored in engineering/mathematics/science or business had higher average incomes in 1996 than did those who majored in humanities/social science or "other" fields.

- Graduates who were school teachers had lower incomes than those in any other occupation except administrative, clerical, and support.
- Graduates who were working full time in April 1997 had higher incomes in 1996 than those who were working part time, unemployed, or out of the labor force in April 1997.

The average 1996 income for those who borrowed as undergraduates but had no further enrollment was higher than that for those who did enroll but nevertheless were in repayment in 1997 ($33,600 versus $29,800). This does not indicate that there were no economic returns to further enrollment, however. As indicated above, the first group may have worked more, on average, during 1996.

Among the 1992–93 bachelor's degree recipients who were employed full time in April 1997, the average annualized salary from their primary job at that time was $34,200 (table 13), whereas in April 1994 it had been $24,600. Thus, in three years, the average salary for full-time workers had increased by almost $10,000. Each year, the salaries of those who borrowed as undergraduates and had no further enrollment were similar to those of all bachelor's degree recipients.

Employment Status in April 1997

Eighty-eight percent of undergraduate borrowers with no further enrollment were employed full time in April 1997 (table 14). Graduates who were 30 years or older when they earned their bachelor's degree were more likely than those who were 24 years or younger to be working part time (9 percent versus 4 percent).

Those who had enrolled for further education since earning their bachelor's degree but who nevertheless were repaying their loans in 1997 were slightly less likely than those without further education to be employed full time (83 percent versus 88 percent). Several factors might contribute to this lower full-time employment rate, such as having had less time to establish themselves in the labor force, or choosing to work less than full time if still enrolled (if they were enrolled less than half time, usually they would be required to repay their loans).

Among those who had at some point enrolled for further education and were in repayment in 1997, 67 percent were employed and not enrolled in April 1997 (table 15). About 19 percent were enrolled in April 1997, but only part time. Those enrolled less than half time would have been required to start repaying their student loans. Some (about 9 percent) were enrolled full time, which would normally mean that they were not required to be in repayment. They may have been voluntarily repaying their student loans or repaying loans to their parents or other lenders who did not provide deferments for enrollment.

Table 13—Average annualized April salaries for all 1992–93 bachelor's degree recipients who were employed full time and for those who borrowed as undergraduates, had no further enrollment as of 1997, and were employed full time: 1994 and 1997

	Total		Borrowed as undergraduate, no further enrollment	
	1994	1997	1994	1997
Total	$24,585	$34,208	$24,731	$35,293
Sex				
Male	27,246	38,394	26,381	39,354
Female	22,320	30,530	23,144	30,993
Race/ethnicity				
American Indian/Alaskan Native	24,491	36,493	—	—
Asian/Pacific Islander	24,771	39,924	26,198	41,493
Black, non-Hispanic	23,056	31,449	21,705	28,205
Hispanic	23,675	33,085	23,232	33,188
White, non-Hispanic	24,723	34,164	25,065	35,907
Age received bachelor's degree				
24 years or younger	22,557	33,143	23,238	34,071
25–29 years	25,142	35,601	26,377	37,489
30 years or older	32,916	37,661	28,906	37,737
Bachelor's degree major				
Business and management	26,933	37,364	26,235	37,022
Engineering, mathematics, or science	27,226	39,233	27,545	40,636
Humanities or social science	21,187	31,925	21,732	33,056
Others	23,917	31,366	23,749	32,626
Occupation in April 1997				
Business and management	26,826	38,182	27,146	38,256
School teacher	20,849	26,106	21,175	26,668
Professional	25,940	35,680	26,034	37,126
Administrative, clerical, support	21,274	30,560	20,166	30,211
Sales, service	23,780	36,262	23,541	36,432
Others	25,733	34,335	26,387	35,273

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Table 14—Percentage distribution of 1992–93 bachelor's degree recipients who borrowed for their undergraduate education according to their employment status in April 1997, by enrollment/ repayment status: 1997

	Full-time[1]	Part-time	Unemployed	Out of the labor force
		No further enrollment		
Total	88.4	5.0	2.1	4.5
Age received bachelor's degree				
24 years or younger	90.4	3.7	1.7	4.2
25–29 years	86.0	5.6	3.4	5.0
30 years or older	83.8	9.3	2.3	4.7
Bachelor's degree major				
Business and management	92.6	2.2	2.2	3.1
Engineering, mathematics, or science	93.3	2.5	1.7	2.6
Humanities or social science	83.2	6.0	2.2	8.6
Others	85.9	7.6	2.1	4.4
Occupation in April 1997				
Business and management	92.8	1.8	1.8	3.6
School teacher	91.9	1.3	1.4	5.5
Professional	89.0	6.6	2.1	2.4
Administrative, clerical, support	85.1	8.7	3.0	3.3
Sales, service	93.7	3.6	1.0	1.7
Others	90.4	5.5	3.0	1.1
		Further enrollment, repaying loans		
Total	82.9	9.3	2.4	5.4
Age received bachelor's degree				
24 years or younger	85.2	7.6	2.8	4.4
25–29 years	77.7	13.2	2.9	6.2
30 years or older	79.1	12.0	0.6	8.3
Bachelor's degree major				
Business and management	88.7	6.4	1.4	3.5
Engineering, mathematics, or science	86.9	6.5	1.5	5.1
Humanities or social science	81.5	10.6	2.7	5.1
Others	80.5	10.4	2.8	6.3
Highest enrollment after bachelor's				
Master's degree	83.8	8.9	2.4	4.9
First-professional degree	69.5	12.1	6.5	12.0
Doctoral degree	62.4	17.1	3.4	17.1
Other than graduate degree	85.1	8.7	1.7	4.4

Table 14—Percentage distribution of 1992–93 bachelor's degree recipients who borrowed for their undergraduate education according to their employment status in April 1997, by enrollment/repayment status: 1997—Continued

	Full-time[1]	Part-time	Unemployed	Out of the labor force
	Further enrollment, repaying loans—Continued			
Highest degree earned after bachelor's[2]				
None	84.8	8.3	1.7	5.2
Master's	81.4	9.2	3.3	6.1
First-professional	62.5	18.3	10.3	8.9
All others except doctoral	81.3	11.6	2.1	5.0
Occupation in April 1997				
Business and management	89.4	5.9	0.4	4.3
School teacher	88.4	7.3	1.8	2.5
Professional	85.2	9.8	1.3	3.8
Administrative, clerical, support	73.1	11.1	8.6	7.2
Sales, service	75.1	16.6	3.1	5.2
Others	80.3	10.7	2.6	6.4

[1]Full-time is defined as 35 hours or more per week.

[2]Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Table 15—Percentage distribution of 1992–93 bachelor's degree recipients according to enrollment and employment status in April 1997, by enrollment/repayment status: 1997

	Full-time enrolled		Part-time enrolled		Not enrolled but employed	Neither enrolled nor employed
	Employed	Not employed	Employed	Not employed		
Total	4.3	4.2	8.7	0.5	76.3	6.1
Enrollment/repayment status						
Borrowed as undergraduate						
No further enrollment	0.0	0.0	0.0	0.0	93.4	6.6
Further enrollment, repaying loans	6.8	2.2	18.7	0.7	66.7	4.9
Further enrollment, not repaying loans	12.8	12.2	19.7	1.2	48.7	5.4
Did not borrow as undergraduate	4.2	5.1	8.5	0.5	75.6	6.1

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Monthly Loan Payments as a Percentage of Monthly Income

Calculating the size of borrowers' monthly loan payments as a percentage of their monthly income is a useful way to measure debt burden, because it takes into account both the borrower's financial obligation and financial capacity. While the calculation is easily made with the appropriate data, there is no firm consensus on what level of debt burden is acceptable and what is excessive. Various studies have suggested that 10 percent (Westat 1992), 10 to 15 percent depending on income (Hansen and Rhodes 1988), and 8 percent (Greiner 1996) are acceptable levels of debt burden. Currently, housing lenders typically use an 8 percent rule for student loan debt, based on underwriting standards that limit monthly mortgage payments (including principal, interest, insurance, and taxes) to 25 to 29 percent of the borrower's monthly gross income and total monthly debt service payments (including, for example, car and credit card payments as well as student loans) to 36 to 41 percent of monthly gross income (Scherschel 1998). If one argues that graduates should not expect to buy a home, new car, or other expensive items immediately, a monthly student loan debt burden greater than 8 percent could be considered acceptable. Nevertheless, assuming that graduates might need 25–30 percent of their income for rent, an education debt higher than 10–15 percent would probably not be considered manageable. Although specifying an acceptable level of debt burden is beyond the scope of this analysis, the current policies of the lending industry provide a context for viewing the debt burden of the borrowers studied here.

Two measures of income were available to use as a base for calculating debt burden: the April 1997 salary for the primary job and the 1996 income. The April salary is useful for examining the increase in earning power during the early years in the labor force after earning a bachelor's degree. However, the 1996 income was judged to be a more appropriate base for calculating debt burden (monthly payments divided by monthly income) because it uses more information (total income versus just earnings, and 12 months of experience rather a single month). For 1992–93 bachelor's degree recipients without further education, the total 1996 income divided by 12 should, in most cases, be a reasonable proxy of monthly income in 1997. For those who had just finished graduate school and may not have worked during all of 1996 (or worked only part time), this method might underestimate their monthly income, resulting in an overstatement of their debt burden.

There are other reasons why the 1996 total income divided by 12 might not be an accurate denominator for calculating borrowers' debt burden, such as a major change in employment status (between full- and part-time, for example) or income (up or down) due to a job change. For this analysis, all those with debt burdens more than 50 percent were dropped. Most of those

dropped had very low incomes. Unless these graduates had other resources, such as savings or financial help from someone, it is likely that either their 1996 income was incorrectly reported or their financial situations had changed by April 1997. To minimize the impact of extreme values on the analysis, medians as well as averages are reported. Where debt burden for 1994 is reported, those with debt burdens of more than 50 percent were dropped as well.

Borrowed as Undergraduates, No Further Enrollment

The average monthly debt burden in 1997 for those with no further enrollment was 6 percent, and the median was 5 percent (table 16). More than 80 percent had debt burdens of less than 10 percent (for 45 percent it was less than 5 percent, and for another 38 percent, 5–9 percent). Among undergraduates with no further education who were in repayment in 1997, the median debt burden decreased from 7 percent 1994 to 5 percent in 1997, but this apparent difference is not statistically significant.[12] Caution is necessary in comparing debt burdens from year to year, because debt burden can be calculated only for those making payments at the time. Thus, all those who paid back their loans between 1994 and 1997 are excluded from the 1997 calculation.

High debt burden can be caused by borrowing a large amount (and thus having large monthly payments), having a low income, or both. Debt burden increased with the amount borrowed. Among graduates with no further enrollment by 1997, those who borrowed less than $5,000 had a median debt burden of 3 percent in 1997, while those who borrowed $15,000 or more had a median debt burden of 7 percent (figure 3). In addition, debt burden decreased as income increased. For the same graduates, those with incomes less than $20,000 had a median debt burden of 10 percent in 1997, compared with 2 percent for those whose incomes were $50,000 or more (table 16).

Borrowed as Undergraduates, Further Enrollment, Repaying Loans

The median 1997 debt burdens of those who had no further enrollment and those who had additional enrollment but were repaying their loans were similar (5 percent and 6 percent, respectively) (table 16). This reflects the fact that only about 15 percent of undergraduate borrowers went on to a graduate degree program and borrowed for graduate education (table 2); for the 12 percent who enrolled in a graduate degree program but did not borrow at the graduate level, the amounts being repaid were for undergraduate borrowing only, which would tend to make their debt similar to that of undergraduate borrowers with no further enrollment.

[12]The average debt burdens for 1994 are higher than the averages reported earlier (Choy and Geis 1997) because table 16 includes only those who were in repayment in 1997. Some of those with low debt burdens in 1994 no longer owed in 1997.

Table 16—Among 1992–93 bachelor's degree recipients who borrowed for their undergraduate education and were in repayment in 1997, average and median debt burdens in 1994 and 1997 and percentage distribution of those with debt burden according to the amount, by enrollment/ repayment status: 1997

	Debt burden				Debt burden in 1997			
	1994		1997		Less tha	5–9	10–14	15 percent
	Average	Median	Average	Median	5 percent	percent	percent	or more
				No further enrollment				
Total	9.1	6.9	6.4	4.8	45.3	38.4	9.1	7.2
Amount borrowed for undergraduate education								
Less than $5,000	4.1	3.2	3.4	2.8	84.0	11.9	2.5	1.7
$5,000–9,999	7.0	5.7	5.0	4.0	63.1	27.3	5.8	3.8
$10,000–14,999	10.3	8.2	6.8	6.1	31.2	53.7	8.5	6.7
$15,000 or more	12.6	9.9	8.7	7.4	21.4	48.9	16.0	13.7
Amount owed for undergraduate education in 1997								
Less than $5,000	6.4	5.1	4.3	3.2	73.3	19.6	4.3	2.8
$5,000–9,999	9.8	7.9	6.4	6.0	33.5	54.1	7.9	4.5
$10,000 or more	12.9	9.9	9.6	7.8	16.2	48.0	18.2	17.7
Total income in 1996								
Less than $20,000	12.0	8.8	11.7	9.7	19.1	28.3	22.6	29.9
$20,000–24,999	9.8	7.8	7.0	5.8	34.1	47.8	10.8	7.3
$25,000–34,999	9.1	8.1	5.9	4.9	38.5	50.0	9.5	2.0
$35,000–49,999	7.5	5.8	5.1	3.9	55.3	37.9	3.8	3.1
$50,000 or more	7.0	6.1	3.0	2.2	84.9	14.6	0.1	0.4
				Further enrollment, repaying loans				
Total	9.8	7.0	8.9	5.8	34.6	37.3	13.8	14.4
Total amount borrowed for education								
Less than $5,000	4.7	3.3	4.7	3.0	78.5	12.2	5.1	4.2
$5,000–9,999	8.6	6.8	5.4	3.9	54.8	36.8	5.1	3.3
$10,000–19,999	11.0	8.5	8.0	6.0	24.8	49.8	16.4	9.1
$20,000 or more	13.2	11.5	14.7	10.4	10.3	33.1	22.2	34.5
Total amount owed for education in 1997								
Less than $5,000	7.3	4.9	4.8	3.0	67.2	24.9	4.8	3.2
$5,000–9,999	10.9	8.6	7.7	5.9	28.0	54.1	10.3	7.6
$10,000–19,999	12.0	9.0	10.1	8.4	11.8	48.1	23.1	17.0
$20,000 or more	12.0	10.3	17.8	12.6	7.3	20.2	26.4	46.1

Table 16—Among 1992–93 bachelor's degree recipients who borrowed for their undergraduate education and were in repayment in 1997, average and median debt burdens in 1994 and 1997 and percentage distribution of those with debt burden according to the amount, by enrollment/ repayment status: 1997—Continued

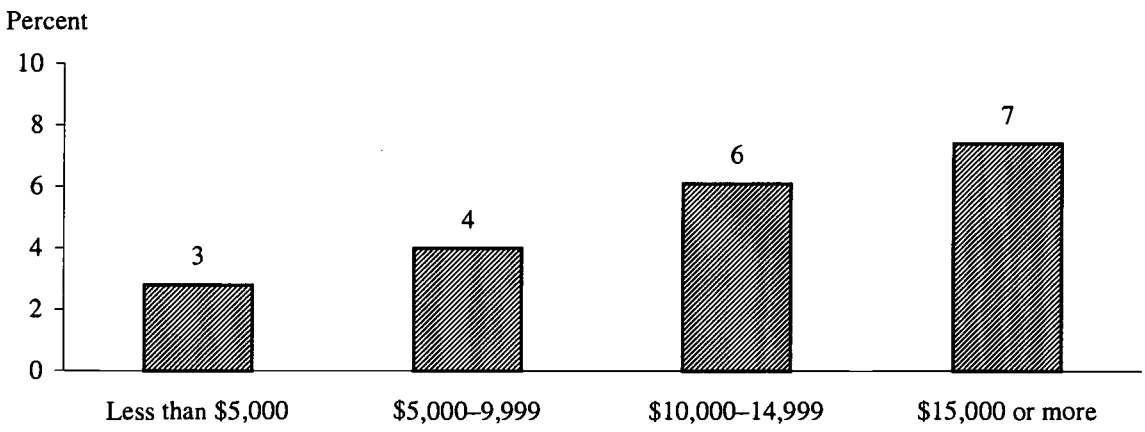
	Debt burden				Debt burden in 1997			
	1994		1997		Less than	5–9	10–14	15 percent
	Average	Median	Average	Median	5 percent	percent	percent	or more
				Further enrollment, repaying loans—Continued				
Total income in 1996								
Less than $20,000	12.4	9.8	16.2	11.0	12.7	28.1	19.8	39.4
$20,000–24,999	12.2	9.8	9.2	7.6	21.0	44.4	21.8	12.8
$25,000–34,999	9.3	7.5	7.2	5.7	34.9	44.8	11.9	8.4
$35,000–49,999	7.0	6.0	5.5	3.9	52.5	38.1	5.5	3.9
$50,000 or more	5.8	5.1	4.3	2.7	71.7	16.8	8.5	3.0
Highest degree earned after bachelor's*								
None	10.3	7.7	7.7	5.7	37.6	41.4	11.2	9.7
Master's	8.4	5.9	11.8	8.2	21.4	31.3	20.2	27.1
All others except doctoral	8.0	6.7	6.9	5.3	44.8	31.6	16.2	7.4

*Excluding doctoral and first-professional degree recipients. Too few had completed their degrees and entered repayment by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Figure 3—Median debt burden for 1992–93 bachelor's degree recipients with no further postsecondary education, by amount borrowed: 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Although the median debt burdens were similar for those with and without further education, those with further education were more likely to have a debt burden of 10–14 percent (14 percent versus 9 percent) or of 15 percent or more (14 percent versus 7 percent) (table 16).

Household Debt Burden

Student financial aid policy must assume that the borrower will have sole responsibility for repaying the loan. In reality, however, many students either are married when they borrow or marry before their education loans are repaid, and this may affect their ability to repay them. In some cases, the burden may be lessened, and in others, increased. For some borrowers, marriage may mean additional income to help repay their education loans; for others, it may mean additional responsibilities but no additional income; and for still others, if their spouses borrowed for their own education, it may mean additional education debt, with or without additional income. Therefore, when evaluating education debt burden, it is useful to take the household perspective and take into account the payments and incomes of both spouses.

The median household education debt burden for married borrowers without further enrollment was 3 percent in 1997 (table 17).[13] Comparing this with the individual median debt burden of 5 percent for those without further enrollment (table 16) suggests that being married tends to lessen the burden of education loans. Seventy-two percent of married borrowers with no further education had household debt burdens of less than 5 percent, and another 22 percent had debt burdens of 5–9 percent. The pattern appeared similar for married undergraduate borrowers with additional enrollment. However, the difference between the household debt burden (4 percent) and the individual debt burden (6 percent) was not statistically significant.

Expenditures for Other Items

Although complete information on the financial obligations of the 1992–93 bachelor's degree recipients is not available, data were collected on how much they were paying per month for certain major items: mortgage or rent, auto loans, and other debt. One might expect that if undergraduate borrowers felt financially burdened by their education loan debt, they might spend less than nonborrowers. One might also expect to find both high debt burdens (that is, high monthly loan payments as a percentage of monthly income) and large amounts owed on education loans to be associated with lower spending on these items. To determine if this was the case, the amounts spent by borrowers and nonborrowers on noneducation items were compared, and these expenditures were then examined in relation to household income and household education debt.

[13] About half (52 percent) of those without further enrollment were married or cohabiting as married in 1997 (table 19).

Table 17—Among 1992–93 bachelor's degree recipients who borrowed for their undergraduate education, percentage distribution of married graduates according to their household education debt burden and their average and median household education debt burdens in 1997, by enrollment/ repayment status: 1997

	Household education debt burden in 1997				1997	
	Less than 5 percent	5–9 percent	10–14 percent	15 percent or more	Average	Median
			No further enrollment			
Total	71.7	22.3	4.2	1.8	4.0	2.9
Household income in 1996						
Less than $20,000	—	—	—	—	—	—
$20,000–24,999	—	—	—	—	—	—
$25,000–34,999	42.5	46.2	6.6	4.7	6.3	5.0
$35,000–49,999	52.4	38.1	6.6	2.9	5.5	3.9
$50,000 or more	85.3	12.7	1.2	0.8	2.9	2.2
Total amount borrowed for education by household						
Less than $5,000	96.5	2.7	0.9	0.0	1.9	1.0
$5,000–9,999	93.4	2.7	3.9	0.0	2.4	1.9
$10,000–14,999	80.6	15.1	2.1	2.1	3.9	2.8
$15,000 or more	48.1	42.0	6.5	3.4	5.4	4.8
Total amount owed for education by household in 1997						
Less than $5,000	93.1	3.8	0.6	2.5	2.8	1.9
$5,000–9,999	84.4	11.8	3.6	0.2	3.2	3.1
$10,000 or more	39.6	48.9	8.4	3.2	5.9	4.9
Monthly education loan payment for household						
Less than $100	96.8	3.2	0.0	0.0	1.8	1.9
$100–199	82.3	15.4	2.2	0.1	3.2	3.1
$200–249	53.8	42.7	2.7	0.8	5.0	4.0
$250 or more	20.0	54.0	16.4	9.7	8.5	6.6

Table 17—Among 1992–93 bachelor's degree recipients who borrowed for their undergraduate education, percentage distribution of married graduates according to their household education debt burden and their average and median household education debt burdens in 1997, by enrollment/ repayment status: 1997

	Household education debt burden in 1997					
	Less than 5 percent	5–9 percent	10–14 percent	15 percent or more	1997 Average	1997 Median
			No further enrollment			
Total	71.7	22.3	4.2	1.8	4.0	2.9
Household income in 1996						
Less than $20,000	—	—	—	—	—	—
$20,000–24,999	—	—	—	—	—	—
$25,000–34,999	42.5	46.2	6.6	4.7	6.3	5.0
$35,000–49,999	52.4	38.1	6.6	2.9	5.5	3.9
$50,000 or more	85.3	12.7	1.2	0.8	2.9	2.2
Total amount borrowed for education by household						
Less than $5,000	96.5	2.7	0.9	0.0	1.9	1.0
$5,000–9,999	93.4	2.7	3.9	0.0	2.4	1.9
$10,000–14,999	80.6	15.1	2.1	2.1	3.9	2.8
$15,000 or more	48.1	42.0	6.5	3.4	5.4	4.8
Total amount owed for education by household in 1997						
Less than $5,000	93.1	3.8	0.6	2.5	2.8	1.9
$5,000–9,999	84.4	11.8	3.6	0.2	3.2	3.1
$10,000 or more	39.6	48.9	8.4	3.2	5.9	4.9
Monthly education loan payment for household						
Less than $100	96.8	3.2	0.0	0.0	1.8	1.9
$100–199	82.3	15.4	2.2	0.1	3.2	3.1
$200–249	53.8	42.7	2.7	0.8	5.0	4.0
$250 or more	20.0	54.0	16.4	9.7	8.5	6.6

Borrowed as Undergraduates, No Further Enrollment

Undergraduate borrowers with no further enrollment spent an average of about $1,000 per month for mortgage (or rent), auto loans, and other debt in 1997 (table 18). As one might expect, the amount spent was sensitive to household income, increasing from $516 for those with household incomes less than $20,000 to $1,365 for those with household incomes of $50,000 or more. As one might also expect, monthly expenditures for these major items were sensitive to debt burden. Households with an education debt burden of less than 5 percent spent more, on average, on the major noneducation items listed above ($1,162) than did households with larger education debt burdens ($906 or less). As education loan payments use up an increasing proportion of monthly income, less is available for other items.

Nevertheless, there was no evidence that, as a group, undergraduate borrowers with no further enrollment were operating on tighter budgets than nonborrowers. In fact, on average, the borrowers with no further enrollment spent slightly more, not less, per month than the nonborrowers on the major items listed above ($1,007 versus $927) (table 18). Furthermore, average monthly expenditures did not vary with the average amount owed by the household. That is, the existence of outstanding loans did not seem to be sufficiently daunting to discourage current spending.

Borrowed as Undergraduates, Further Enrollment, Repaying Loans

For undergraduate borrowers with additional enrollment but who were in repayment in 1997, the average monthly expenditure for the major noneducation expenses itemized above was $973, similar to that of borrowers without further enrollment. There were other patterns that were similar for the two groups of borrowers. Among both those with and without any further enrollment, monthly expenditures increased with household income, and households with an education debt burden of less than 5 percent had higher expenditures than those with greater education debt burdens. Also, for both groups, the total amount owed for education did not appear to affect their current spending on other items.

Borrowed as Undergraduates, Further Enrollment, not Repaying Loans

For this group, average monthly expenditures for the noneducational items listed above were slightly less than for those who had not continued their education ($909 versus $1,007), reflecting the fact that many were still enrolled. Other patterns were similar between the two groups, however. Average expenditures increased with household income, and the total amount owed by the household for education debt was not a factor.

Table 18—Percentage distribution of 1992–93 bachelor's degree recipients according to expenses other than education loan payments and average expenses, by enrollment/repayment status: 1997

	None	Less than $500	$500–999	$1,000–1,499	$1,500 or more	Average
			Did not borrow			
Total	4.9	18.1	38.4	23.3	15.3	$927
			Borrowed, no further enrollment			
Total	2.5	15.8	37.4	26.7	17.6	1,007
Age received bachelor's degree						
24 years or younger	2.8	17.6	40.4	24.5	14.8	946
25–29 years	1.6	16.4	31.2	33.0	17.9	1,033
30 years or older	2.7	8.8	32.3	28.4	27.8	1,204
Amount owed for education by household in 1997						
None	4.5	15.4	33.8	30.4	15.8	1,003
Less than $5,000	1.3	18.9	41.0	22.2	16.7	959
$5,000–9,999	1.0	17.5	38.2	24.4	18.9	1,016
$10,000 or more	2.0	11.7	37.8	28.0	20.6	1,073
Household debt burden in 1997						
Less than 5 percent	0.4	10.3	34.0	29.2	26.2	1,162
5–9 percent	1.2	17.1	47.7	24.1	10.0	906
10–14 percent	2.5	30.2	45.5	19.0	2.9	709
15–49 percent	4.5	19.0	45.1	16.4	15.0	840
Household income in 1996						
Less than $20,000	6.8	53.1	34.5	4.1	1.4	516
$20,000–24,999	2.1	30.3	55.2	8.1	4.4	669
$25,000–34,999	4.6	17.4	55.9	17.9	4.3	782
$35,000–49,999	1.8	9.3	45.1	33.1	10.7	976
$50,000 or more	0.5	4.6	20.3	38.3	36.3	1,365
			Borrowed, further enrollment, repaying loans			
Total	3.0	17.7	38.9	24.6	15.9	$973
Age received bachelor's degree						
24 years or younger	3.8	19.4	41.0	23.2	12.6	886
25–29 years	1.4	12.0	34.2	32.4	19.9	1,146
30 years or older	1.6	16.1	35.5	23.2	23.6	1,131
Amount owed for education by household in 1997						
Less than $5,000	3.8	17.7	36.2	24.8	17.5	941
$5,000–9,999	2.6	17.7	44.3	22.2	13.2	932
$10,000–19,999	2.1	14.8	42.4	21.8	18.9	1,025
$20,000 or more	3.6	20.9	36.2	26.2	13.1	917

Table 18—Percentage distribution of 1992–93 bachelor's degree recipients according to expenses other than education loan payments and average expenses, by enrollment/repayment status: 1997 —Continued

	None	Less than $500	$500–999	$1,000–1,499	$1,500 or more	Average
	Borrowed, further enrollment, repaying loans—Continued					
Household debt burden in 1997						
Less than 5 percent	1.7	10.0	35.1	30.6	22.6	$1,110
5–9 percent	1.5	18.5	43.2	23.2	13.5	949
10–14 percent	7.0	20.4	48.4	18.0	6.2	752
15–49 percent	5.5	33.9	35.4	17.2	8.0	752
Household income in 1996						
Less than $20,000	8.1	49.2	33.0	7.2	2.5	516
$20,000–24,999	2.7	33.6	50.4	11.3	2.0	658
$25,000–34,999	3.6	14.5	59.5	18.1	4.2	766
$35,000–49,999	0.3	10.7	41.2	34.7	13.1	1,042
$50,000 or more	1.7	3.2	22.9	35.5	36.7	1,365
	Borrowed, further enrollment, not repaying loans					
Total	5.9	18.7	36.6	23.2	15.6	909
Age received bachelor's degree						
24 years or younger	5.7	20.4	38.8	23.5	11.7	858
25–29 years	7.5	14.1	40.8	21.7	16.0	889
30 years or older	5.6	15.3	25.9	23.6	29.7	1,113
Amount owed for education by household in 1997						
None	7.9	17.9	34.8	21.0	18.4	939
Less than $5,000	9.3	15.4	34.5	23.7	17.2	889
$5,000–9,999	2.4	12.0	44.2	23.6	17.9	949
$10,000–19,999	3.0	33.5	29.7	23.2	10.6	844
$20,000 or more	6.0	23.0	45.0	13.0	13.0	798
Household income in 1996						
Less than $20,000	11.4	45.8	34.3	4.2	4.3	507
$20,000–24,999	4.3	21.2	50.4	23.5	0.7	694
$25,000–34,999	5.6	10.8	49.7	31.4	2.5	795
$35,000–49,999	1.3	11.9	43.3	30.8	12.7	924
$50,000 or more	0.9	5.2	22.4	30.7	40.8	1,418

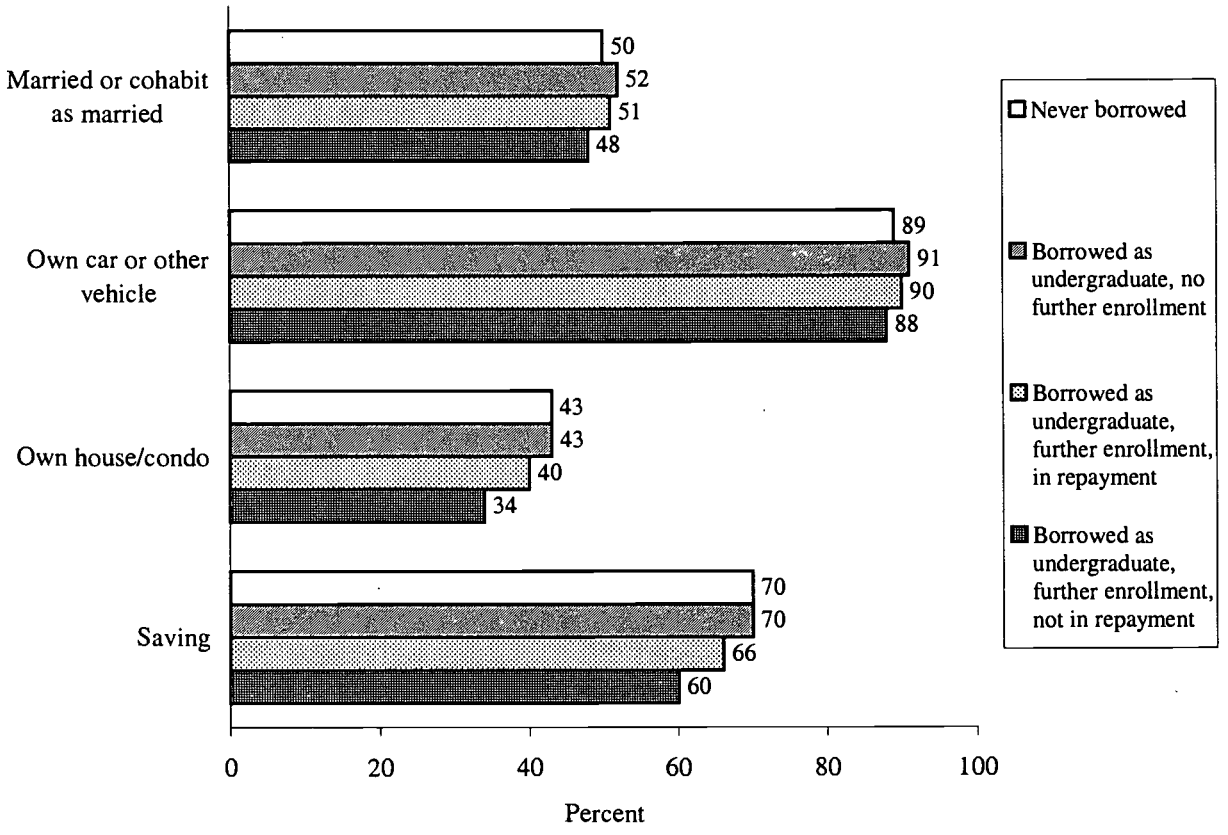
NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing. Expenses include mortgage or rent, auto loans, and other debt.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Lifestyle Choices: Marriage and Major Purchases

As indicated in the Introduction, concern exists that heavy borrowing for education may affect lifestyle choices, such as delaying marriage or making major purchases such as buying a car or house. Among 1992–93 bachelor's degree recipients, there is no evidence of such effects. One-half (50 percent) of nonborrowers were married or cohabiting as married in 1997 (figure 4 and table 19), as was also true for borrowers. The percentages who were married or cohabiting as married in 1997 did not differ among any of the three groups of borrowers (those with no further enrollment, those with further enrollment but in repayment, and those with further enrollment and not in repayment) or between any of them and nonborrowers. Also, no differences were observed in the percentages owning a car or another vehicle in 1997: about 9 out of 10 did so regardless of borrowing or enrollment status.

Figure 4—Percentages of 1992–93 bachelor's degree recipients in various lifestyle circumstances in 1997, by borrowing and repayment status in 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Table 19—Percentage distribution of 1992–93 bachelor's degree recipients according to marital status in April 1994 and 1997, and percentages owning a car or house, by enrollment/repayment status: 1997

	1994			1997			1997 owns	
	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Car or other vehicle	House or condo
				Did not borrow				
Total	68.3	29.1	2.6	46.0	50.1	3.9	89.0	42.7
				Borrowed, no further enrollment				
Total	60.5	34.3	5.1	41.5	52.0	6.5	91.1	42.7
Total amount owed for education in 1997								
None	57.8	37.1	5.1	40.4	53.7	5.9	92.5	49.7
Less than $5,000	64.0	31.1	4.9	42.9	50.1	7.0	90.4	42.0
$5,000–9,999	63.3	32.3	4.4	42.6	52.4	5.0	93.0	37.7
$10,000 or more	57.3	35.9	6.8	40.3	50.7	9.0	87.3	36.4
Debt burden in 1997								
None	58.3	35.9	5.8	40.8	52.7	6.5	91.1	47.1
Less than 5 percent	59.9	36.2	3.9	38.6	55.1	6.3	93.5	45.6
5–9 percent	67.5	27.5	5.0	49.2	44.9	5.9	92.6	33.3
10–14 percent	66.5	28.0	5.5	39.1	55.3	5.6	88.4	32.4
15–49 percent	52.6	38.8	8.6	36.9	49.8	13.3	84.1	38.0
Earnings in 1996								
Less than $20,000	54.8	39.5	5.7	37.8	54.6	7.6	83.8	35.9
$20,000–24,999	65.6	30.5	3.9	45.6	49.1	5.3	91.1	34.3
$25,000–34,999	66.2	27.8	6.0	46.8	45.7	7.5	93.4	39.1
$35,000–49,999	62.5	31.9	5.6	43.5	50.6	5.9	93.9	44.4
$50,000 or more	50.0	46.5	3.6	29.8	64.6	5.6	93.6	64.7
Total income in 1996								
Less than $20,000	56.1	38.6	5.3	38.5	54.7	6.9	83.8	35.7
$20,000–24,999	64.2	31.6	4.3	45.6	48.3	6.1	90.2	35.5
$25,000–34,999	67.6	27.6	4.8	48.2	45.8	6.0	93.0	37.0
$35,000–49,999	61.3	31.5	7.3	41.5	50.8	7.7	94.2	45.5
$50,000 or more	50.1	46.3	3.7	29.6	64.9	5.5	93.8	63.6
Age received bachelor's degree								
24 years or younger	76.3	23.4	0.4	52.1	46.0	2.0	89.6	33.6
25–29 years	48.9	45.4	5.8	32.5	61.2	6.3	92.2	51.5
30 years or older	14.9	63.1	21.9	12.1	64.3	23.5	95.2	66.7

Table 19—Percentage distribution of 1992–93 bachelor's degree recipients according to marital status in April 1994 and 1997, and percentages owning a car or house, by enrollment/repayment status: 1997—Continued

	1994			1997			1997 owns	
	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Car or other vehicle	House or condo
				Borrowed, further enrollment, repaying loans				
Total	62.2	30.8	7.0	41.1	50.5	8.4	89.7	39.6
Total amount owed for education in 1997								
Less than $5,000	58.8	34.5	6.7	38.5	52.8	8.7	90.3	47.6
$5,000–9,999	58.7	35.4	6.0	37.0	54.6	8.4	91.7	42.8
$10,000–19,999	64.0	29.3	6.8	40.9	51.7	7.4	89.4	34.3
$20,000 or more	71.7	18.7	9.7	52.2	39.1	8.8	85.8	26.9
Debt burden in 1997								
Less than 5 percent	58.9	33.8	7.3	38.2	51.9	9.9	90.6	50.3
5–9 percent	65.0	28.4	6.6	40.5	50.7	8.9	91.8	34.7
10–14 percent	64.1	26.6	9.4	47.0	47.5	5.5	91.5	33.9
15–49 percent	72.6	19.4	8.0	51.9	40.5	7.7	83.8	26.7
50 percent or more	47.4	44.8	7.8	35.3	57.3	7.4	84.0	39.6
Earnings in 1996								
Less than $20,000	63.8	29.1	7.1	47.8	45.5	6.8	83.6	24.8
$20,000–24,999	58.5	33.3	8.1	39.5	50.7	9.8	94.8	37.3
$25,000–34,999	65.7	27.3	7.1	42.9	48.4	8.8	92.8	42.7
$35,000–49,999	64.8	27.0	8.2	39.9	52.6	7.6	89.7	46.3
$50,000 or more	51.2	44.1	4.7	22.1	66.4	11.5	90.9	64.7
Total income in 1996								
Less than $20,000	64.1	28.6	7.3	46.9	46.2	6.9	83.1	25.1
$20,000–24,999	58.9	34.6	6.5	40.6	51.1	8.3	93.8	34.9
$25,000–34,999	66.9	26.3	6.9	44.3	46.9	8.8	92.4	41.1
$35,000–49,999	64.7	25.5	9.8	40.3	51.0	8.7	90.3	46.5
$50,000 or more	47.8	46.4	5.9	22.3	66.7	11.0	92.4	64.5
Age received bachelor's degree								
24 years or younger	78.9	20.0	1.2	51.2	46.1	2.8	87.7	29.1
25–29 years	50.5	46.3	3.3	33.7	58.6	7.7	90.1	48.7
30 years or older	14.9	55.5	29.6	12.9	59.4	27.7	96.0	68.1

Table 19—Percentage distribution of 1992–93 bachelor's degree recipients according to marital status in April 1994 and 1997, and percentages owning a car or house, by enrollment/repayment status: 1997—Continued

	1994			1997			1997 owns	
	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Single, never married	Married or cohabit as married	Divorced, separated, or widowed	Car or other vehicle	House or condo
	Borrowed, further enrollment, not repaying loans							
Total	67.2	27.5	5.3	46.4	47.6	6.1	87.6	34.2
Total amount owed for education in 1997								
None	59.9	35.7	4.5	40.0	53.5	6.5	92.1	46.7
Less than $5,000	68.9	26.1	5.0	44.5	46.9	8.7	86.9	28.6
$5,000–9,999	66.1	24.5	9.4	51.3	40.6	8.2	87.5	25.7
$10,000–19,999	74.6	22.0	3.4	55.9	40.0	4.1	82.4	26.7
$20,000 or more	85.9	10.8	3.4	67.4	29.1	3.5	76.7	9.7
Earnings in 1996								
Less than $20,000	70.8	25.1	4.0	54.9	38.9	6.2	81.1	21.0
$20,000–24,999	57.0	28.8	14.1	39.5	52.0	8.5	93.1	44.1
$25,000–34,999	66.7	28.2	5.2	41.0	52.4	6.6	90.4	40.3
$35,000–49,999	61.4	32.1	6.5	43.0	50.6	6.4	91.5	53.4
$50,000 or more	61.1	35.2	3.7	37.8	58.7	3.6	93.7	53.5
Total income in 1996								
Less than $20,000	71.3	24.7	4.0	55.1	39.5	5.4	81.5	22.3
$20,000–24,999	69.6	23.1	7.3	35.0	61.4	3.6	92.3	28.4
$25,000–34,999	67.2	26.2	6.7	41.4	50.4	8.3	89.3	39.6
$35,000–49,999	63.3	30.6	6.1	45.5	49.3	5.2	93.1	48.4
$50,000 or more	54.1	41.5	4.4	34.6	55.5	9.9	90.6	56.2
Age received bachelor's degree								
24 years or younger	82.4	16.8	0.9	54.7	43.6	1.7	85.3	24.5
25–29 years	54.6	38.4	7.1	43.7	51.9	4.4	94.0	40.1
30 years or older	19.9	59.7	20.5	17.4	59.0	23.6	91.5	64.9

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Those who borrowed for undergraduate education, enrolled for further education, but were not in repayment were less likely to own a house or condo in 1997 (34 percent) than were non-borrowers or borrowers with no further enrollment (43 percent each). This finding might be expected because many of those who enrolled for further education and were not in repayment were still enrolled in 1997.

Savings

The percentages of 1992–93 bachelor's degree recipients who were saving money might also provide clues as to whether education debt causes economic hardship. If repaying education loans were causing serious financial stress, one might expect to see those with high debt burdens less likely to save. However, this was not the case.

Borrowed as Undergraduates, No Further Enrollment

Among 1992–93 bachelor's degree recipients who borrowed for their undergraduate education but did not enroll for further education, 70 percent were saving for some purpose in 1997, the same percentage as nonborrowers (table 20). Almost half (47 percent) were saving for retirement; 41 percent were saving for a rainy day or emergency; and 32 percent were saving to purchase a house. Household debt burden was not a factor in the proportion who were saving (apparent differences are not statistically significant).

The proportion who saved was related to total household income, however. For example, 50 percent of those with household incomes less than $20,000 per year were saving, as were 80 percent of those earning $50,000 or more.

Borrowed as Undergraduates, Further Enrollment, Repaying Loans

Among 1992–93 bachelor's degree recipients who enrolled for further education and were repaying their loans in 1997, 66 percent were saving, a proportion that was not significantly less than that for nonborrowers or borrowers with no further education. Like borrowers with no further education, they were more likely to be saving if their household income was $50,000 or more (77 percent) than if it was less than $20,000 (46 percent). The proportion saving did not vary with household debt burden.

Borrowed as Undergraduates, Further Enrollment, not Repaying Loans

Among 1992–93 bachelor's degree recipients who enrolled for further education and were not repaying their loans in 1997, 60 percent were saving. This was a smaller percentage than that for borrowers who had not continued their education or for nonborrowers (70 percent each); however, some were still enrolled and therefore might not be expected to be saving. As with the other groups, saving was related to income: 76 percent of those with household incomes of $50,000 or more were saving, compared with 41 percent of those with household incomes of less than $20,000.

Table 20—Percentage of 1992–93 bachelor's degree recipients saving and percentages saving for various reasons, by borrowing/enrollment/repayment status: 1997

		Reason for saving if saved								
	Saving	Home purchase	Further education	Child's education	Retirement	Car or other vehicle	Vacation or trip	Wedding or birth of child	Rainy day or emergency	Other purposes
					Did not borrow					
Total	69.6	32.9	12.7	13.9	45.1	14.2	19.9	13.9	39.4	16.9
					Borrowed, no further enrollment					
Total	69.8	32.0	9.2	15.3	47.1	12.5	22.3	11.8	40.6	15.7
Age received bachelor's degree										
24 years or younger	70.5	36.1	10.6	9.0	43.9	12.8	22.2	15.5	41.1	14.7
25–29 years	70.6	33.8	7.8	23.4	49.8	11.9	20.7	7.4	39.3	15.2
30 years or older	66.0	14.2	5.1	30.8	56.2	12.0	24.2	2.4	40.0	20.4
Amount owed for education by household in 1997										
None	73.2	32.2	8.7	17.5	49.4	14.9	23.0	10.9	41.2	14.8
Less than $5,000	70.4	29.5	10.2	16.3	50.8	12.2	22.5	11.9	45.3	14.3
$5,000–9,999	69.2	33.1	8.5	14.8	47.6	10.5	21.4	12.5	41.7	17.0
$10,000 or more	69.3	31.9	8.8	11.6	41.2	11.0	21.9	12.9	34.3	15.5
Household debt burden in 1997										
None	70.0	34.1	9.3	16.5	48.1	15.5	23.7	10.0	40.9	15.7
Less than 5 percent	71.8	30.2	6.4	18.7	51.4	9.5	24.8	13.5	41.8	16.4
5–9 percent	68.5	37.7	10.5	9.1	44.6	9.6	19.7	11.5	40.2	11.7
10–14 percent	70.5	24.6	16.2	5.0	35.4	23.8	27.8	11.0	24.9	16.7
15–49 percent	61.9	16.1	9.2	4.0	32.5	5.4	5.3	15.1	36.5	20.5
Household income in 1996										
Less than $20,000	50.3	20.1	18.1	3.2	21.2	24.4	28.2	7.5	52.2	19.8
$20,000–24,999	63.3	22.3	14.2	7.7	40.7	18.6	22.4	11.8	38.7	12.6
$25,000–34,999	62.4	31.8	11.2	6.6	38.3	11.3	24.4	8.0	40.7	12.7
$35,000–49,999	72.1	39.1	7.8	11.4	49.8	8.7	18.0	12.6	39.3	15.1
$50,000 or more	79.7	33.0	5.9	23.6	55.3	11.8	24.0	13.1	39.4	16.3

Table 20—Percentage of 1992–93 bachelor's degree recipients saving and percentages saving for various reasons, by borrowing/enrollment/repayment status: 1997—Continued

		Reason for saving if saved								
	Saving	Home purchase	Further education	Child's education	Retirement	Car or other vehicle	Vacation or trip	Wedding or birth of child	Rainy day or emergency	Other purposes
					Borrowed, further enrollment, repaying loans					
Total	65.5	30.7	15.3	10.3	44.9	11.0	20.8	12.4	40.7	16.7
Age received bachelor's degree										
24 years or younger	67.5	36.6	15.9	8.3	39.6	12.0	19.8	15.7	41.4	17.3
25–29 years	63.3	19.4	13.5	10.5	53.9	10.6	28.0	7.8	39.9	15.2
30 years or older	60.7	17.7	14.3	17.4	57.2	7.5	18.9	3.1	39.0	15.4
Amount owed for education by household in 1997										
Less than $5,000	71.3	30.0	17.5	9.5	46.8	11.8	19.3	11.6	42.4	12.6
$5,000–9,999	66.6	31.4	15.0	9.8	41.6	10.4	22.8	13.3	37.9	17.6
$10,000 or more	60.8	30.3	13.8	10.2	44.2	10.7	20.6	12.2	40.8	19.1
Household debt burden in 1997										
Less than 5 percent	70.4	31.9	17.2	12.8	52.2	9.2	19.9	12.8	40.8	16.0
5–9 percent	63.3	35.3	14.7	6.7	40.3	12.0	21.6	14.2	40.4	16.2
10–14 percent	65.2	26.2	6.0	10.5	41.0	7.0	12.5	4.7	25.6	16.9
15–49 percent	60.2	24.6	13.6	5.6	25.3	14.6	23.5	13.5	49.0	20.3
Household income in 1996										
Less than $20,000	46.4	10.6	15.5	6.7	21.0	13.3	23.8	13.2	42.0	21.8
$20,000–24,999	61.3	25.0	17.6	6.2	21.8	4.0	13.0	6.2	28.5	26.1
$25,000–34,999	65.5	36.0	14.0	4.7	41.1	9.9	12.7	11.1	34.5	11.6
$35,000–49,999	64.6	41.7	15.6	8.8	46.8	9.9	21.2	13.7	42.9	18.3
$50,000 or more	76.7	30.4	13.7	15.9	59.0	12.3	23.6	13.9	43.7	14.8

Table 20—Percentage of 1992–93 bachelor's degree recipients saving and percentages saving for various reasons, by borrowing/enrollment/repayment status: 1997—Continued

		Reason for saving if saved								
	Saving	Home purchase	Further education	Child's education	Retirement	Car or other vehicle	Vacation or trip	Wedding or birth of child	Rainy day or emergency	Other purposes
					Borrowed, further enrollment, not repaying loans					
Total	60.0	33.3	19.1	15.6	44.4	18.0	23.1	13.3	39.8	13.4
Age received bachelor's degree										
24 years or younger	59.4	34.7	21.2	10.8	42.4	19.6	23.4	17.0	42.6	14.0
25–29 years	59.2	34.7	19.3	28.0	41.0	17.0	18.6	10.5	21.0	13.8
30 years or older	62.9	27.1	11.6	24.7	54.9	13.3	25.4	1.9	42.1	11.0
Amount owed for education by household in 1997										
None	76.1	35.3	18.1	19.2	49.3	16.6	21.1	12.1	39.5	11.6
Less than $5,000	47.6	34.9	31.3	11.1	49.1	26.3	27.5	9.6	30.3	14.5
$5,000–9,999	47.6	37.1	18.2	19.3	50.3	10.2	26.8	9.3	42.2	20.2
$10,000 or more	42.6	28.0	20.7	4.7	33.4	23.8	26.3	15.3	38.0	16.7
Household income in 1996										
Less than $20,000	41.2	11.6	30.6	5.9	25.1	19.0	22.5	8.8	35.4	28.8
$20,000–24,999	39.7	30.4	26.8	10.6	22.0	19.5	18.1	11.4	47.4	13.7
$25,000–34,999	51.7	25.0	30.5	15.5	43.9	18.8	22.0	14.7	39.4	8.7
$35,000–49,999	73.7	43.4	8.9	16.8	37.1	19.5	24.2	12.6	40.6	8.8
$50,000 or more	75.5	39.8	14.7	21.7	62.9	17.6	26.5	16.1	42.9	10.3

NOTE: Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

Summary and Conclusion

One-half of all 1992–93 bachelor's degree recipients borrowed to help pay for their undergraduate education. Of those who enrolled in a graduate degree program by 1997 (28 percent), one-half borrowed to help pay for their graduate education, and the other half did not. Some of those who borrowed at the graduate level were borrowing for the first time, while others were adding to their undergraduate debt. The purpose of this study was to examine the debt and financial situations of the 1992–93 bachelor's degree recipient borrowers 4 years after they graduated to determine the extent to which their borrowing for education had created financial or other hardships.

As a group, 62 percent of the 1992–93 bachelor's degree recipients were debt free in 1997: 46 percent had never borrowed at either the undergraduate or graduate levels, and 16 percent had borrowed but no longer owed any money, having either repaid their loans or had them forgiven. The rest were in varied circumstances depending on how much they borrowed, how much they earned, and whether or not they had enrolled for further education.

Among borrowers who had not enrolled for further education (53 percent of undergraduate borrowers), 33 percent still had debt in 1997. They owed an average of $7,100. The members of this group were generally well positioned financially to repay their loans: 88 percent were employed full time, and if employed full time, were earning an average annual salary of $35,300. Their median debt burden (monthly payments as a percentage of monthly income) was 5 percent, well below the 8 percent considered acceptable by the lending industry. Debt burden appeared a problem primarily for those with low incomes—10 percent for those with incomes less than $20,000. Being married appeared to reduce debt burden: the median household debt burden in 1997 for married graduates with no further postsecondary enrollment was 3 percent. Based on reported spending for major noneducation items such as rent or a mortgage, car payments, and other debt, there was no evidence that borrowers who had not enrolled for further education were on a tighter budget than nonborrowers or that their outstanding debt was inhibiting their current spending. Nor did education debt appear to cause delays in marrying, owning a car, buying a home, or saving.

Undergraduate borrowing appears to have a minor discouraging effect on enrollment for further education in the short term, with undergraduates who borrowed $5,000 or more slightly less likely than nonborrowers to enroll within a year of graduating. However, this effect had dis-

appeared by 1997, when there was no statistically significant relationship between borrowing and enrolling in either a graduate degree program or any postsecondary program when other factors affecting graduate school enrollment were taken into account—sex, race/ethnicity, age when they received their degree, type of institution they graduated from, undergraduate major, and grade point average.

Because of higher levels of borrowing at the graduate than undergraduate levels, undergraduate borrowers who enrolled in a graduate degree program owed considerably more in 1997 than their counterparts without further enrollment ($16,400 versus $7,100). Those who had completed a master's degree owed an average of $17,200, and those who had completed a first-professional degree, $66,200. Among those who were repaying their loans, the median debt burden was 6 percent. It is difficult to conclude much about the impact of this borrowing because of the relatively short time since degree attainment and the fact that all completers did not finish at the same time.

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Appendix A—Glossary

This glossary describes the variables used in this report. The variables were taken directly from the B&B:1993/1997 Data Analysis System (DAS), an NCES software application that generates tables from the B&B:1993/1997 data. A description of the DAS software can be found in appendix B.

In the index below, the variables are organized by general topic and, within topic, listed in the order they appear in the report. The glossary is in alphabetical order by variable label (displayed in capital letters to the right of the name). All variables labels beginning with B2 are based on data collected in 1997.

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Annualized April salary in 1994 **APRANSAL**

Indicates the respondent's annual salary based on his or her employment in April 1994. This composite variable was constructed by multiplying the salary per pay period by the number of pay periods a year. If the respondent had more than one job, the primary job was the one with the most hours worked; if the number of hours was equal, the job with the highest salary was selected.

Age received bachelor's degree **B2AGATBA**

Indicates the respondent's age when he or she received a bachelor's degree in 1992–93.

Occupation in April 1997 **B2AJOBOC**

Indicates the respondent's occupation in April 1997. For this analysis, the categories were aggregated as follows:

Business and management	Financial services professionals; managers—executive; managers—mid-level; and managers—supervisory, office, and other.
School teacher	Educators—K–12 teachers.
Professional	Legal professionals; medical practice professionals; medical licensed professionals; medical services; educators other than K–12; human services professionals; engineers, architects, software engineers; scientists, statistician professionals; and research assistants/lab technicians; technical and professional workers—other; computer systems and related professional technical workers; computer programmers; computer and computer equipment operators; editors, writers, reporters, and public relations workers; and performers and artists.
Administrative, clerical, support	Secretaries, specialized secretaries, and receptionists; cashiers, tellers, and sales clerks; clerks—data entry; clerical—other; business and financial support services; and legal support.
Sales, service	Personal services; sales and purchasing; customer service; and health and recreation services.
Other	Farmers, foresters, and farm and forest laborers; cooks, chefs, bakers, and cake decorators; laborers (other than farm); mechanics, repairers, and service technicians; craftsmen; skilled operatives; transport operatives (other than pilots); protective services, criminal justice administrators; military; and uncodable employed.

Earnings in 1996 **B2ANNINC**

Indicates response to the question "What was your personal income from all jobs in 1996?" Untaxed income and income from other sources such as interest, dividends, and capital gains were excluded.

Annualized April salary in 1997 **B2APRSAL**

Total annual salary of April 1997 job was calculated using items on pay periods and salary per pay period. A few cases that had a total salary of greater than $500,000 were set to $500,000. Note: Although the source salary variables were collected for the job held in April 1997 or current/most recent job, B2APRSAL was created only for those respondents who held a job during April 1997.

Bachelor's degree major **B2BAMAJR**

Identifies the graduate's undergraduate major field of study. For this analysis, the categories were aggregated as follows:

Business and management	Business and management.
Engineering, mathematics, or science	Engineering; biological sciences; and mathematics and other sciences.
Humanities or social sciences	Social science, history, humanities, and psychology.
Others	Education, health professions, public affairs/social services, and other majors not listed above.

Undergraduate and graduate borrowing status **B2BOR**

Indicates whether the respondent borrowed for undergraduate education, a graduate or first-professional degree program, both, or neither.

Did not borrow for either
Borrowed as undergraduate only
Borrowed as graduate only
Borrowed as both undergraduate and graduate

Enrollment/repayment status **B2BORCAT**

Indicates whether the respondent borrowed money for undergraduate education, and if so, whether he or she subsequently enrolled for further education, and if so, whether he or she was repaying any education loans in 1997.

Borrowed as undergraduate
  No further education
  Further enrollment, repaying loans
  Further enrollment, not repaying loans
Did not borrow as undergraduate

Total amount borrowed for education **B2BORTOT**

Indicates the amounts borrowed for undergraduate and graduate degree programs from all sources, family and non-family.

Owns a car or other vehicle in 1997 **B2CAR**

Indicates the response (yes/no) to the question "Do you (and your spouse/partner) own any cars, trucks, vans, or motorcycles?"

Debt burden in 1997 **B2EDPCT**

Monthly education loan payment in 1997 as a percentage of monthly income. Monthly income was calculated by dividing 1996 total income (B2TOTINC) by 12. When this variable was used in a table or figure, the table or figure included only respondents with a value of less than 50 percent on B2EDPCT.

Household debt burden in 1997 **B2EDPCTH**

Percentage of the respondent's and spouse's monthly income paid to their collective education debt. If the respondent was unmarried, or the spouse had no income or made no payments, the amount reflects only respondent's income and payments.

Employment status in April 1997 **B2EM9704**

Indicates the respondent's employment status in April 1997 as reported by the respondent.

Full-time
Part-time
Unemployed
Out of labor force

Race/ethnicity **B2ETHNIC**

Indicates the race and ethnicity of the respondent.

American Indian/Alaskan Native	A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.
Asian or Pacific Islander	A person having origins in any of the peoples of the Far East, Southeast Asia, the Indian subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.
Black, non-Hispanic	A person having origins in any of the black racial groups of Africa, not of Hispanic origin.
Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
White, non-Hispanic	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).

Amount borrowed for graduate school from family sources **B2FAMBOR**

Indicates the response to the question "How much money have you borrowed from your family for graduate education since receiving your bachelor's degree?" Only those who had enrolled in a graduate degree program were asked this question. The money borrowed includes money from parents, in-laws, aunts, uncles, grandparents, etc., but excludes financial support received from a spouse.

Amount borrowed for graduate school from nonfamily sources **B2GRSCDB**

Indicates the response to the question "Since receiving your bachelor's degree, how much money have you borrowed for graduate or professional education, not including loans from family?" The amount borrowed includes all nonfamily loans from federal, state, and institutional sources such as graduate school, banks, and savings and loans.

Highest degree earned after bachelor's **B2HDGPRG**

Identifies the highest degree earned after the 1992–93 bachelor's degree. For this analysis, the categories were aggregated as follows:

None	No postbaccalaureate degree.
Master's degree	Master's degree, MBA, post-master's certificate.
First-professional degree	First-professional degree.
All others except doctoral	Associate's degree, bachelor's degree, postbaccalaureate certificate, certificate or license, non-degree program. Doctoral degree recipients were excluded from this analysis because there were too few of them for reliable estimates.

Highest degree program enrolled after bachelor's **B2HENPRG**

Identifies the degree type for the highest degree program in which the respondent enrolled after earning a bachelor's degree. For this analysis, the categories were aggregated as follows:

No enrollment	No postsecondary enrollment after 1992–93 bachelor's degree.
Master's degree	Master's degree, MBA, post-master's certificate.
First-professional degree	First-professional degree.
Doctoral degree	Doctoral degree.
Other than graduate degree	Associate's degree, bachelor's degree, postbaccalaureate certificate, certificate or license, non-degree program.

Household income in 1996 **B2HHINC**

Indicates the combined household income of the respondent and his or her spouse. If an exact amount was missing for income then a different question, which provided income ranges, was used as a substitute. When using the range data, the midpoint of the range was used (e.g., if the respondent picked "at least $10,000 but less than $20,000" then $15,000 was used).

Own house/condominium in 1997 **B2HOUSE**

Indicates the response (yes/no) to the question "Do you (and your spouse/partner) own a house or condominium?"

Marital status in 1994 **B2MAR494**

Indicates respondent's martial status as of April 1994. For this analysis, the categories were defined as follows:

Single, never married
Married or cohabit as married
Divorced, separated, or widowed

Marital status in 1997 **B2MAR497**

Indicates respondent's martial status as of April 1997. For this analysis, the categories were defined as follows:

Single, never married
Married or cohabit as married
Divorced, separated, or widowed

Employment/enrollment status in April 1997 **B2NM9704**

Indicates the employment/enrollment status of respondent in April 1997.

Full-time enrolled
  Employed
  Not employed
Part-time enrolled
  Employed
  Not employed
Not enrolled but employed
Neither enrolled nor employed

Noneducation monthly expenses **B2OTHOWE**

Indicates the respondent's monthly payments for mortgage or rent, auto loans, and other debt at the time of the 1997 interview.

Education debt status in 1997 **B2OWE**

Indicates whether the respondent owed any money in 1997 on education loans from any source and if not, whether respondent had ever borrowed.

Owed
Did not owe, borrowed
Did not owe, did not borrow

Parents' highest education **B2PARED**

Indicates the highest education level attained by either parent.

High school or less	Less than high school, GED, or high school graduation.
Some postsecondary	Vocational, trade, or business school; associate's degree; some college but no degree.
Bachelor's or advanced degree	Bachelor's, master's, doctoral, first-professional, or other advanced professional degree.

Repayment status in 1997 **B2PAY**

Describes whether the respondent was repaying any loans for undergraduate or graduate education from family or nonfamily sources, and if not, whether respondent ever borrowed money for education.

In repayment
Not in repayment
Not in repayment, never borrowed

Total amount borrowed for education by household **B2RSBOR**

Sums the amounts the respondent borrowed for undergraduate and graduate education from all sources with spouse's total education borrowing from all sources. If the respondent was unmarried or the spouse did not borrow, the amount reflects only respondent's borrowing.

Sex **B2RSEX**

Male
Female

Amount owed for education by household **B2RSOWE**

Sums the amounts the respondent owed for undergraduate and graduate education from all sources with spouse's total education debt from all sources. If the respondent was unmarried or the spouse had no debt, the amount reflects only respondent's debt.

Monthly education loan payment for household **B2RSPAY**

Sums the amounts the respondent pays monthly on loans from all sources for undergraduate and graduate education with spouse's payments. If the respondent was unmarried or the spouse made no payments, the amount reflects only the respondent's payments.

Saving money for specific purposes

Indicates the response to the question "What have you been saving money toward?" All categories that were mentioned were coded as "yes."

Home purchase	**B2SAVE01**
Further education	**B2SAVE02**
Child's education	**B2SAVE03**
Retirement	**B2SAVE04**
Car or other vehicle	**B2SAVE05**
Vacation or trip	**B2SAVE06**
Wedding or birth of a child	**B2SAVE07**
Rainy day or emergency	**B2SAVE08**
Other purposes	**B2SAVE09**

Saving money for any reason **B2SAVING**

Indicates response (yes/no) to the question "During the past year, have you been actively saving money for any reason?"

Amount borrowed for graduate education from all sources **B2TOTGD**

Total amount the respondent borrowed to pay for graduate or professional education. Combines borrowing from family and nonfamily sources.

Graduate degree program enrollment and borrowing **B2TOTGDC**

Describes whether respondents enrolled in a graduate degree program and if so, whether they borrowed.

Enrolled in graduate degree program and borrowed
Enrolled in graduate degree program and did not borrow
Did not enroll in a graduate degree program

Total income in 1996 **B2TOTINC**

Indicates the response to the question "What was your personal income from all sources in 1996?" If the respondent did not know the exact amount, the midpoint of the range provided was used.

Total amount owed for education in 1997 **B2TOTOWE**

Indicates the total amount the respondent owed on loans for undergraduate and graduate education from all sources (family and nonfamily).

Monthly payment **B2TOTPAY**

Indicates total monthly payment respondent made on all education loans from family and nonfamily sources.

Amount borrowed for undergraduate education **B2TOTUDB**

Indicates the total amount of money the respondent borrowed for his or her undergraduate education. Includes the amounts in federal, state, or institutional loans from all sources. Also includes loans from family, friends, relatives, banks, savings and loans, and credit unions, and loans that have been repaid. Respondents were asked about undergraduate borrowing in 1997 only if the information had not been obtained in the 1994 followup.

Debt burden in 1994 **EDPCT**

Monthly education loan payment in 1994 as a percentage of monthly income. Monthly income was calculated by dividing the annualized April 1994 salary by 12. When this variable was used in a table or figure, the table or figure included only respondents with a value of 50 percent or less on EDPCT.

Grade point average **NORMGPA**

Respondent's normalized calculated undergraduate GPA, based on recorded grades at sample school (4.0 scale).

Bachelor's degree-granting institutions **SECTOR_B**

Institution type by level and control, combined of NPSAS:93, degree-granting institution. This analysis looks only at bachelor's degree-granting institutions.

Public 4-year	Public institutions are supported primarily by public funds and operated by publicly elected or appointed officials who control the programs and activities. Public 4-year institutions award bachelor's degrees or higher, including doctoral and first-professional degrees. First-professional degrees include chiropractic, pharmacy, dentistry, podiatry, medicine, veterinary medicine, optometry, law, osteopathic medicine, and theology.
Private, not-for-profit 4-year	Private, not-for-profit institutions are controlled by an independent governing board and incorporated under section 501(c)(3) of the Internal Revenue Code. Private, not-for-profit 4-year institutions offer the same range of degrees as public 4-year institutions.
Other	This residual category includes private, for-profit institutions and public and private, not-for-profit less-than-4-year institutions that award bachelor's degrees or higher. Private, for-profit institutions are privately owned and operated as profit-making enterprises. They include career colleges and proprietary institutions.

Amount owed for undergraduate education in 1994 **UNDGROWE**

Indicates the amount the respondent still owed in 1994 on loans from all sources for undergraduate education.

Appendix B—Technical Notes and Methodology

The Baccalaureate and Beyond Longitudinal Study[14]

The data analyzed in this report came from the First and Second Follow-ups of the Baccalaureate and Beyond Longitudinal Study (B&B:93/94 and B&B:93/97), a study that tracks the experiences of a cohort of college graduates who received baccalaureate degrees during the 1992–93 academic year and were first interviewed as part of the National Postsecondary Student Aid Study (NPSAS:93). This group's experiences in the areas of academic enrollments, degree completions, employment, public service, and other adult decisions have been followed through 1997. The data derived from this survey provide critical information about college graduates' postsecondary education outcomes, including graduate and professional program access, labor market experience, and rates of return on investment in education.

The B&B:93/94 survey was the first follow-up interview of NPSAS:93 participants who received their bachelor's degrees between July 1992 and June 1993. Of 12,500 NPSAS:93 respondents who were identified as potentially eligible for the first follow-up survey, about 1,500 were determined to be ineligible. A total of 10,080 eligible individuals completed the 1994 interview.

The B&B:93/97 survey is the second follow-up interview of the B&B cohort. The first followup interview (B&B:93/94) collected information from respondents 1 year after they received the bachelor's degree; the second follow-up (B&B:93/97) collected data 4 years after they received the bachelor's degree. Data collection for B&B:93/97 took place between April and December 1997. A total of 11,192 individuals in the B&B cohort were determined eligible for follow-up in 1997. For the second followup, the number of interviews completed was 10,093, yielding a response rate of 90 percent. A total of 9,274 individuals (83 percent of the sample) responded to all three rounds of the B&B study. Referred to as "the B&B panel sample," these respondents became the base sample of the analyses presented in this report.

The NPSAS:93 sample, while representative and statistically accurate, was not a simple random sample. Instead, the survey sample was selected using a more complex three-step proce-

[14]The text in this section is based on excerpts from the *Baccalaureate and Beyond Longitudinal Study: 1993/97 Methodology Report* (NCES 1999–159) (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1999).

dure with stratified samples and differential probabilities of selection at each level. Postsecondary institutions were initially selected within geographic strata. Once institutions were organized by zip code and state, they were further stratified by control (i.e., public; private, not-for-profit; or private, for-profit) and degree offering (less-than-2-year, 2- to 3-year, 4-year nondoctorate-granting, and 4-year doctorate-granting).[15]

For more information about the NPSAS:93 survey, refer to the *Methodology Report for the National Postsecondary Student Aid Study, 1992–93* (NCES 95–211, Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1995). For more information on procedures for the Baccalaureate and Beyond First Follow-up Study (B&B:93/94), consult the *Baccalaureate and Beyond Longitudinal Study: 1993/94 Methodology Report* (NCES 96–149, Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1996). For more information on procedures for the Baccalaureate and Beyond Second Follow-up Study (B&B:93/97), consult the *Baccalaureate and Beyond Longitudinal Study: 1993/97 Methodology Report* (NCES 1999–159, Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1999).

Sample weights. B&B:93/97 final weights were calculated by making a nonresponse adjustment to the baseline B&B weight calculated for B&B:93/94. This baseline B&B weight is an adjustment of the baseline NPSAS:93 weight. All analyses in this report are weighted to compensate for unequal probability of selection into the B&B sample and to adjust for nonresponse. The B&B panel weight, based on respondents who participated in all three surveys, is used. A complete description of the weighting methodology is available in the methodology reports cited above.

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of students, not on entire populations. Surveys of population universes are not subject to sampling errors. Estimates based on a sample will differ somewhat from those that would have been obtained by a complete census of the relevant population using the same survey instruments, instructions, and procedures. The standard error of a statistic is a measure of the variation due to sampling; it indicates the precision of the statistic obtained in a particular sample. In addition, the standard errors for two sample statistics can be

[15]The NPSAS universe excludes institutions offering only correspondence courses, institutions enrolling only their own employees, and U.S. service academies. For this B&B cohort, institutions were further stratified by the number of degrees in education they had awarded in the past.

used to estimate the precision of the difference between the two statistics and to help determine whether the difference based on the sample is large enough so that it represents the population difference.

Nonsampling errors occur not only in sample surveys but also in complete censuses of entire populations. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all students in all institutions in the sample (some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data. Although nonsampling errors due to questionnaire and item nonresponse can be reduced somewhat by the adjustment of sample weights and imputation procedures, correcting nonsampling errors or gauging the effects of these errors is usually difficult.

Data Analysis System

The estimates presented in this report were produced using the B&B:93/97 Data Analysis System (DAS). The DAS software makes it possible for users to specify and generate their own tables from the B&B:93/97 data. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[16] and weighted sample sizes for these estimates. For example, table B1 contains estimated standard errors that correspond to the estimates presented in table 9 and was generated by the B&B:93/97 DAS. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), the DAS prints the message "low N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally compute standard errors based on an assumption of simple random sampling, the standard errors must be adjusted with the design effects to take into account B&B's complex sample design. (See discussion under "Statistical Procedures" below for the adjustment procedure.)

[16]The B&B sample is not a simple random sample, and therefore simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

Table B1—Standard errors for table 9: Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, percentage who had education debt in 1994 and 1997, average amount owed by those with debt, and percentage distribution of those with debt in 1997 according to the amount owed, by further enrollment as of 1997

	1994		1997		Amount owed in 1997			
	Percent who owed	Average amount owed	Percent who owed	Average amount owed	Less than $5,000	$5,000–9,999	$10,000–19,999	$20,000 or more
				No further enrollment				
Total	1.01	$243	1.28	$184	1.61	1.49	1.49	0.53
Bachelor's degree-granting institution								
Public 4-year	1.32	290	1.64	194	2.07	1.83	1.89	0.36
Private, not-for-profit 4-year	1.59	465	2.11	361	2.52	2.54	2.47	1.23
Other	2.28	1,083	4.68	1,150	10.57	7.89	9.33	2.82
Amount borrowed for undergraduate education								
Less than $5,000	2.39	136	2.32	93	0.00	0.00	0.00	0.00
$5,000–9,999	1.66	230	2.39	117	2.79	2.79	0.00	0.00
$10,000–14,999	0.94	367	1.72	180	2.05	2.81	2.60	0.00
$15,000 or more	1.70	488	2.13	391	1.41	2.78	3.17	1.76
Bachelor's degree major								
Business and management	2.34	542	2.72	454	3.54	3.45	3.19	1.47
Engineering, mathematics, or science	2.82	511	3.18	375	4.16	4.03	3.84	1.04
Humanities or social science	1.59	466	2.56	331	3.41	3.21	2.88	0.79
Others	1.29	375	1.84	268	2.27	2.13	2.24	0.67
Total income in 1996								
Less than $20,000	2.19	446	2.84	365	3.77	3.48	3.16	0.97
$20,000–24,999	2.62	549	3.54	437	4.79	3.91	3.94	0.83
$25,000–34,999	1.67	508	2.35	290	2.77	2.84	2.73	0.83
$35,000–49,999	2.50	437	2.86	425	3.57	3.32	2.71	1.47
$50,000 or more	3.26	791	3.76	743	4.67	4.45	4.98	2.16

Table B1—Standard errors for table 9: Among 1992–93 bachelor's degree recipients who borrowed as undergraduates, percentage who had education debt in 1994 and 1997, average amount owed by those with debt, and percentage distribution of those with debt in 1997 according to the amount owed, by further enrollment as of 1997—Continued

	1994		1997		Amount owed in 1997			
	Percent who owed	Average amount owed	Percent who owed	Average amount owed	Less than $5,000	$5,000–9,999	$10,000–19,999	$20,000 or more
				Further enrollment				
Total	1.13	$219	1.24	$684	1.30	1.24	1.24	1.30
Total amount borrowed for education								
Less than $5,000	3.06	199	2.72	106	0.00	0.00	0.00	0.00
$5,000–9,999	2.29	234	2.62	143	3.22	3.22	0.00	0.00
$10,000–19,999	2.15	408	2.16	215	1.81	2.60	2.63	0.00
$20,000 or more	1.50	458	1.44	1,414	0.75	1.11	1.98	2.21
Borrowing for graduate degree								
Did not borrow	1.55	280	1.66	240	1.97	1.78	1.60	0.68
Borrowed	1.49	389	0.83	1,359	1.26	1.65	1.95	2.35
Highest enrollment after bachelor's								
Master's degree	1.63	287	1.69	527	1.79	1.75	1.80	1.79
First-professional degree	2.48	832	2.72	3,814	1.74	2.17	3.12	3.89
Doctoral degree	4.69	616	5.07	3,386	3.69	3.04	4.43	5.06
Other than graduate degree	1.89	399	2.17	304	2.45	2.28	1.94	0.92
Highest degree earned after bachelor's*								
None	1.45	276	1.54	670	1.67	1.67	1.55	1.49
Master's	2.58	449	2.49	870	2.32	1.89	2.70	3.02
First-professional	3.25	1,600	5.14	5,736	1.42	3.64	2.37	4.49
All others except doctoral	2.82	546	3.65	914	4.74	4.29	3.97	2.12

*Excluding doctoral degree recipients. Too few of them had completed their degrees by 1997 for reliable estimates.

NOTE: Percentages may not sum to 100 due to rounding. Only bachelor's degree recipients who enrolled in a graduate degree program were asked about graduate borrowing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:1993/1997), Data Analysis System.

For more information about the B&B:93/97 and other Data Analysis Systems, consult the NCES DAS website (www.nces.ed.gov/das) or contact:

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Statistical Procedures

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error,[17] or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \quad (1)$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. This formula is valid only for independent estimates. When estimates are not independent, a covariance term must be added to the formula:

$$\frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1\, se_2}} \quad (2)$$

where *r* is the correlation between the two estimates.[18] This formula is used when comparing two percentages from a distribution that adds to 100. If the comparison is between the mean of a subgroup and the mean of the total group, the following formula is used:

[17] A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample was drawn, when no such difference is present.

[18] U.S. Department of Education, National Center for Education Statistics, A Note from the Chief Statistician, no. 2, 1993.

$$\frac{E_{sub} - E_{tot}}{\sqrt{se_{sub}^2 + se_{tot}^2 - 2p\, se_{sub}^2}} \quad (3)$$

where p is the proportion of the total group contained in the subgroup.[19] The estimates, standard errors, and correlations can all be obtained from the DAS.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large t statistics may appear to merit special attention. This can be misleading since the magnitude of the t statistic is related not only to the observed differences in means or percentages but also to the number of students in the specific categories used for comparison. Hence, a small difference compared across a large number of students would produce a large t statistic.

A second hazard in reporting statistical tests for each comparison occurs when making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees both that the individual comparison would have $p \leq .05$ and that for k comparisons within a family of possible comparisons, the significance level for all the comparisons will sum to $p \leq .05$.[20]

For example, in a comparison of males and females, only one comparison is possible (males versus females). In this family, k=1, and the comparison can be evaluated without adjusting the significance level. When students are divided into five racial/ethnic groups and all possible comparisons are made, then k=10 and the significance level of each test must be $p \leq .05/10$, or $p \leq .005$. The formula for calculating family size (k) is as follows:

$$k = \frac{j(j-1)}{2} \quad (4)$$

[19]Ibid.

[20]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the t statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56 (1961): 52–64.

where j is the number of categories for the variable being tested. In the case of race/ethnicity, there are five racial/ethnic groups (American Indian/Alaskan Native; Asian/Pacific Islander; black, non-Hispanic; Hispanic; and white, non-Hispanic), so substituting 5 for j in equation 2,

$$k = \frac{5(5-1)}{2} = 10$$

Linear Trends

While most descriptive comparisons in this report were tested using Student's t statistic, some comparisons across categories of an ordered variable with three or more levels involved a test for a linear trend across all categories, rather than a series of tests between pairs of categories. In this report, when averages of a continuous variable were examined relative to a variable with ordered categories, Analysis of Variance (ANOVA) was used to test for a linear relationship between the two variables. To do this, ANOVA models included orthogonal linear contrasts corresponding to successive levels of the independent variable. The squares of the Taylorized standard errors (that is, standard errors that were calculated by the Taylor series method), the variance between the means, and the unweighted sample sizes were used to partition total sum of squares into within- and between-group sums of squares. These were used to create mean squares for the within- and between-group variance components and their corresponding F statistics, which were then compared with published values of F for a significance level of .05.[21] Significant values of both the overall F and the F associated with the linear contrast term were required as evidence of a linear relationship between the two variables. Means and Taylorized standard errors were calculated by the DAS. Unweighted sample sizes are not available from the DAS and were provided by NCES.

Adjustment of Means to Control for Background Variation

Tabular results are limited by sample size when attempting to control for additional factors that may account for the variation observed between two variables. For example, when examining the percentages of those who completed a degree or were still enrolled in postsecondary education 3 years after their initial enrollment, it is impossible to know to what extent the observed variation is due to socioeconomic status (SES) differences and to what extent it is due to differences in other factors related to SES, such as type of institution attended, intensity of enrollment, and so on. However, if a nested table were produced showing SES within type of institution attended within enrollment intensity, the cell sizes would be too small to identify the patterns.

[21] More information about ANOVA and significance testing using the F statistic can be found in any standard textbook on statistical methods in the social and behavioral sciences.

When the sample size becomes too small to support controls for another level of variation, one must use other methods to take such variation into account.

To overcome this difficulty, multiple linear regression was used to obtain means that were adjusted for covariation among a list of control variables.[22] Adjusted means for subgroups were obtained by regressing the dependent variable on a set of descriptive variables such as gender, race/ethnicity, SES, and so on. Substituting ones or zeros for the subgroup characteristic(s) of interest and the mean proportions for the other variables results in an estimate of the adjusted proportion for the specified subgroup, holding all other variables constant. For example, consider a hypothetical case in which two variables, age and gender, are used to describe an outcome, Y (such as attaining a degree). The variables age and gender are recoded into a dummy variable representing age, A, and a dummy variable representing gender, G:

Age	A
24 years or older	1
Less than 24 years old	0
and	
Gender	G
Female	1
Male	0

The following regression equation is then estimated from the correlation matrix output from the DAS:

$$\hat{Y} = a + b_1 A + b_2 G \tag{5}$$

To estimate the adjusted mean for any subgroup evaluated at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, suppose Y represents attainment, and is being described by age (A) and gender (G), coded as shown above, with means as follows:

Variable	Mean
A	0.355
G	0.521

Next, suppose the regression equation results in:

$$\hat{Y} = 0.15 + 0.17A + 0.01G \tag{6}$$

[22]For more information about weighted least squares regression, see Michael S. Lewis-Beck, *Applied Regression: An Introduction*, Vol. 22 (Beverly Hills, CA: Sage Publications, Inc., 1980); William D. Berry and Stanley Feldman, *Multiple Regression in Practice*, Vol. 50 (Beverly Hills, CA: Sage Publications, Inc., 1987).

To estimate the adjusted value for older students, one substitutes the appropriate parameter estimates and variable values into equation 6.

Variable	Parameter	Value
a	0.15	—
A	0.17	1.000
G	0.01	0.521

This results in:

$$\hat{Y} = 0.15 + (0.17)(1) + (0.01)(0.521) = 0.325$$

In this case, the adjusted mean for older students is 0.325 and represents the expected outcome for older students who resemble the average student across the other variables (in this example, gender). In other words, the adjusted percentage who attained after controlling for age and gender is 32.5 percent (0.325 x 100 for conversion to a percentage).

It is relatively straightforward to produce a multivariate model using the DAS, since one of the DAS output options is a correlation matrix, computed using pairwise missing values. In regression analysis, there are several common approaches to the problem of missing data. The two simplest are pairwise deletion of missing data and listwise deletion of missing data. In pairwise deletion, each correlation is calculated using all of the cases for the two relevant variables. For example, suppose you have a regression analysis that uses variables X1, X2, and X3. The regression is based on the correlation matrix between X1, X2 and X3. In pairwise deletion the correlation between X1 and X2 is based on the nonmissing cases for X1 and X2. Cases missing on either X1 or X2 would be excluded from the calculation of the correlation. In listwise deletion the correlation between X1 and X2 would be based on the nonmissing values for X1, X2, and X3. That is, all of the cases with missing data on any of the three variables would be excluded from the analysis.[23]

The correlation matrix can be used by most statistical software packages as the input data for least squares regression. That is the approach used for this report, with an additional adjustment to incorporate the complex sample design into the statistical significance tests of the parameter estimates (described below). For tabular presentation, parameter estimates and standard errors were multiplied by 100 to match the scale used for reporting unadjusted and adjusted percentages.

[23]Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to use an approach other than pairwise treatment of missing values or to estimate probit/logit models (which are the most appropriate for models with categorical dependent variables) can apply for a restricted data license from NCES. See John H. Aldrich and Forrest D. Nelson, Linear Probability, Logit and Probit Models (*Quantitative Applications in Social Sciences*, Vol. 45) (Beverly Hills, CA: Sage, 1984).

Most statistical software packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for the NPSAS and B&B surveys, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the design effect associated with the dependent variable (DEFT),[24] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and produced with the correlation matrix.

[24]The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds., *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).

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