STATS IN BRIEF

U.S. DEPARTMENT OF EDUCATION OCTOBER 2013 NCES 2014-011

Degrees of Debt

Student Borrowing and Loan Repayment of Bachelor's Degree Recipients 1 Year After Graduating: 1994, 2001, and 2009

AUTHOR
Jennie H. Woo
RTI International

PROJECT OFFICER
Matthew Soldner
National Center for Education Statistics

Statistics in Brief publications present descriptive data in tabular formats to provide useful information to a broad audience, including members of the general public. They address simple and topical issues and questions. They do not investigate more complex hypotheses, account for inter-relationships among variables, or support causal inferences. We encourage readers who are interested in more complex questions and in-depth analysis to explore other NCES resources, including publications, online data tools, and public- and restricted-use datasets. See nces.ed.gov and references noted in the body of this document for more information.

Rising student loan debt is an issue of urgent concern to policymakers, lawmakers, higher education officials, and researchers (Associated Press 2012; CBS News 2012; Stebner 2013). The increase in student loan debt is frequently attributed to increasing tuition and other related costs of postsecondary education (Dillon and Carey 2009); the average total price of attending both public and private nonprofit 4-year institutions (in both current and inflation-adjusted terms) has increased every year since 2002 (Baum and Ma 2011; Wei and Bersudskaya 2011). Other studies have shown that trends in both the rate of borrowing and the amount borrowed correspond to changes in the price of attendance and to the resources that students and their families have available (Berkner 1998; Choy 1994; Choy and Li 2006; Woo 2011). The College Board estimated that student loan volume, in constant 2011 dollars, increased from $23 billion in 1992–93 to $100 billion in 2007–08, with about $25 billion in 2007–08 borrowed from private loan sources (Baum and Payea 2011).

The growing debt burden of college graduates, especially among those who graduated during and after the 2008 recession and entered a weak job market, has led many to worry that students will have greater difficulty repaying their loans in full (Choi 2011; O'Shaughnessy 2012;

This report was prepared for the National Center for Education Statistics under Contract No. ED-07-CO-0104 with RTI International. Mention of trade names, commercial products, or organizations does not imply endorsement by the U.S. Government.

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

Rowley 2010). Some media reports suggest that high student loan debt might have other consequences that affect not only graduates with debt but also the larger economy (Chopra 2013; Federal Reserve Board 2013; Lowrey 2013; Martin and Lehren 2012; Trumbull 2012; Weisbaum 2012; Willis 2012; Wilson 2012). Even for those who are able to repay their loans, researchers and analysts have expressed concern that compared with previous generations, current graduates' level of debt may stall their ability to pursue graduate education, achieve financial independence from their parents, and in general delay their own family formation (Brown and Caldwell 2013; Consumer Financial Protection Bureau 2013; Martin and Lehren 2012; Minicozzi 2005; Roksa and Arum 2012; Stone, Van Horn, and Zukin 2012; Zhang 2013).

To help illuminate some of these issues, this Statistics in Brief examines three cohorts of recent college graduates 1 year after they attained their bachelor's degree. The graduation years for the three cohorts span a 15-year period: 1992–93, 1999–2000, and 2007–08. The latest cohort (2007–08) graduated in the midst of the 2008 recession. This Statistics in Brief first examines how borrowing for undergraduate education and graduates' cumulative debt changed over the three cohorts and then compares graduates' debt burden (ability to repay loans based on employment income) 1 year after graduation (1994, 2001, and 2009). Finally, for each of the cohorts, the analysis examines the relationship between level of debt and students' post-graduate activities in terms of graduate school enrollment and living arrangements (with parents or not).

DATA AND VARIABLES

The data for this study were collected through three administrations of the Baccalaureate and Beyond Longitudinal Study (B&B), which follows bachelor's degree recipients identified in the National Postsecondary Student Aid Study (NPSAS). NPSAS collects data on a sample of graduate and undergraduate students who represent all students enrolled at institutions eligible to participate in federal financial aid programs under Title IV of the Higher Education Act (sometimes referred to as "Title IV institutions"). In addition to their base-year NPSAS interview, bachelor's degree recipients in each B&B cohort (1992–93, 1999–2000, and 2007–08) completed a follow-up interview 1 year after graduating (as of 1994, 2001, and 2009). This Brief analyzes data from both base-year and first follow-up interviews. More information about data collected for these cohorts can be found at http://nces.ed.gov/surveys/b&b. In all three cohorts, cumulative debt included private loans and federal loans (Direct loans [formerly Stafford], Perkins loans, and Public Health Service loans, but not PLUS loans to parents).[1]

In 1994, but not in 2001 or 2009, cumulative debt also included loans from family and friends.[2] In this study, two cumulative debt burden measures are defined: one is based only on federal loans and the other is based on loans from all sources. The reason for the distinction is that federal loans are reported consistently across all three cohorts in the National Student Loan Data System (NSLDS), while loans from all sources (which are included in monthly repayment amounts) are self-reported and vary across cohorts as noted above.

To analyze debt burden 1 year after graduation, the analysis uses two measures. The first is the ratio of cumulative federal debt to annual income 1 year after graduation. For graduates who were unemployed 1 year after completing their degrees, the ratio is defined as 100 percent. The advantage of this measure is that it includes all graduates, regardless of repayment and employment status. Also, this debt burden measure is consistent across all three cohorts and is analogous to one used in a recent NCES report examining the federal loan debt burden of noncompleters (Wei and Horn 2013).

The second measure of debt burden is the ratio of monthly student loan payments to monthly earnings. Payments include those for all types of education loans, including federal and private loans. In 1994, payments also included

[1] In 2007–08, some 35 percent of undergraduates took out Direct loans (the primary federal loan), and 14 percent took out private loans. Among all those who borrowed, 27 percent took out both types of loans (Woo 2011).

[2] For this reason, cumulative debt from all sources in 1994 was overstated relative to the measure in later cohorts.

STUDY QUESTIONS

1 Among recent college graduates, how did the percentage who borrowed to pay for undergraduate education and their cumulative debt change across the three cohorts? Within cohorts, how did borrowing vary by factors related to price of attendance and student financial resources?

2 Among bachelor's degree recipients who borrowed, what percentage were repaying student loans 1 year after graduation? How did debt burden change over the three cohorts?

3 Within each cohort, how did students' level of debt vary with their subsequent enrollment in graduate education and living arrangements with their parents 1 year after graduation?

education loans from family and friends, which were excluded in 2001 and 2009. This measure was used in Choy and Li (2005, 2006). By definition, it excludes students not in repayment. Researchers and analysts suggest that a monthly loan payment greater than 12 percent of monthly income is burdensome to borrowers (Baum and O'Malley 2003; Baum and Schwartz 2006; Clark 2009; Greiner 1996; Hopkins 2012). So in this study, a debt burden greater than 12 percent is considered high.

When comparing changes in the rate of borrowing and the amount borrowed across cohorts, findings are broken out by key factors associated with the total price of attendance (institution control—public, private nonprofit)[3] and students' financial resources. Students' financial resources are analyzed in three ways: by income combined with whether or not students were financially dependent on their parents in their graduation year;[4] by Pell Grant status;[5] and by employment status while enrolled. Student income was divided into three categories: dependent students in the lower half of income distribution, dependent students in the upper half of income distribution, and all independent students.[6] These income and dependency groups were examined separately for students who graduated from public and private nonprofit institutions, but a small sample size precluded this breakout for private for-profit institutions.

When examining the relationship between debt and experiences after graduation (graduate school enrollment and moving back to live with parents), the amount that students owed was categorized into four levels of debt (lowest 25 percent, lower middle 25 percent, upper middle 25 percent, and highest 25 percent). Students who did not borrow were included as a fifth category.

All comparisons of estimates were tested for statistical significance using the Student's *t*-statistic, and all differences cited are statistically significant at the $p < .05$ level.[7]

[3] The total price of attendance (tuition, room and board, and other required expenses), on average, is higher at private institutions than at public ones and highest at private nonprofit institutions (Wei 2011).

[4] Independent students are age 24 or older or meet one of the following requirements: have children or other dependents, served in or are a veteran of the U.S. armed forces, or are an orphan or ward of the court.

[5] Pell Grants are federal grants awarded almost exclusively to low-income undergraduates; thus, they are used as a proxy for low-income status.

[6] Independent students are not divided by income level because most are low-income relative to median family income. Full borrowing rates by dependency and income level are available in Woo and Matthews (2013).

[7] No adjustments for multiple comparisons were made. The standard errors for the estimates can be found at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.

KEY FINDINGS

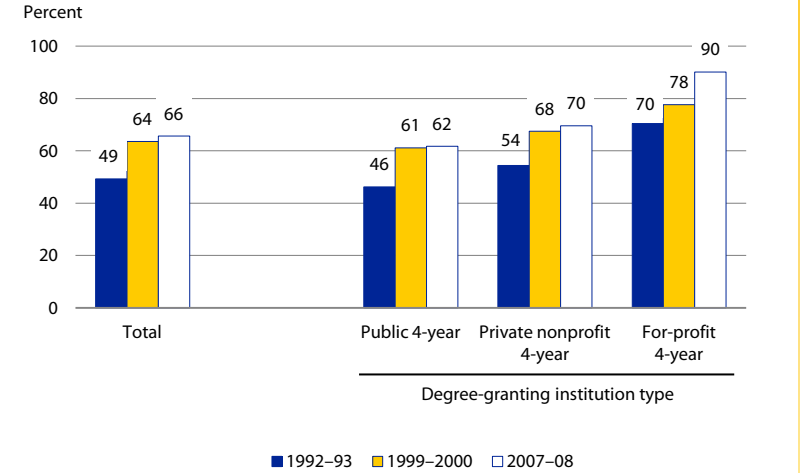
- The percentage of recent college graduates who borrowed for their undergraduate education was higher in each successive cohort (49, 64, and 66 percent, respectively, among graduates in 1992–93, 1999–2000, and 2007–08), though the difference between the first two cohorts was greater than the difference between the middle and latest cohort. Likewise, the average cumulative debt (in constant 2009 dollars) from all sources increased in each successive cohort, from $15,000 to $22,400 to $24,700.
- In all three cohorts, the rate of borrowing was highest among students at for-profit institutions (70 to 90 percent).
- Among students at public and private nonprofit institutions, the most frequent borrowers were lower income dependent students at private nonprofit institutions (70 to 80 percent borrowed) for all three cohorts.
- Proportionately fewer borrowers in the latest cohort (2009) were in repayment 1 year after graduation than were their counterparts in 1994 and 2001 (60 vs. 65 and 66 percent, respectively).
- Also in 2009, a larger percentage (31 percent) of graduates in repayment faced high monthly loan payments (greater than 12 percent of their monthly income), than their counterparts in 1994 and 2001 (22 and 18 percent, respectively).
- Levels of student debt were not consistently associated with students' subsequent graduate school enrollment or living arrangements with parents 1 year after graduation. Instead, both experiences varied with cohort year; graduate school enrollment was highest in 2009 (the year after the economic recession began), and moving back home to live with parents (among students age 24 or younger) was higher in both 1994 and 2009 (27 percent) than in 2001 (18 percent).

1 Among recent college graduates, how did the percentage who borrowed to pay for undergraduate education and their cumulative debt change across the three cohorts? Within cohorts, how did borrowing vary by factors related to price of attendance and student financial resources?

Overall, the percentage of recent college graduates who borrowed for their undergraduate education was higher in each successive cohort: from 49 percent in 1992–93, to 64 percent in 1999–2000, to 66 percent in 2007–08. However, the difference in borrowing rates between the earliest and middle cohorts was larger than the difference between the middle and latest cohorts (figure 1). Within cohorts, borrowing rates varied by institution type, which is related to price of attendance (i.e., public vs. private nonprofit and for-profit institutions); in particular, students in private for-profit institutions had the highest rate of borrowing across cohorts (70 percent to 90 percent).

FIGURE 1.

PROPORTION WHO BORROWED
Percentage of first-time bachelor's degree recipients who borrowed for their undergraduate education, by degree-granting institution type: 1992–93, 1999–2000, and 2007–08



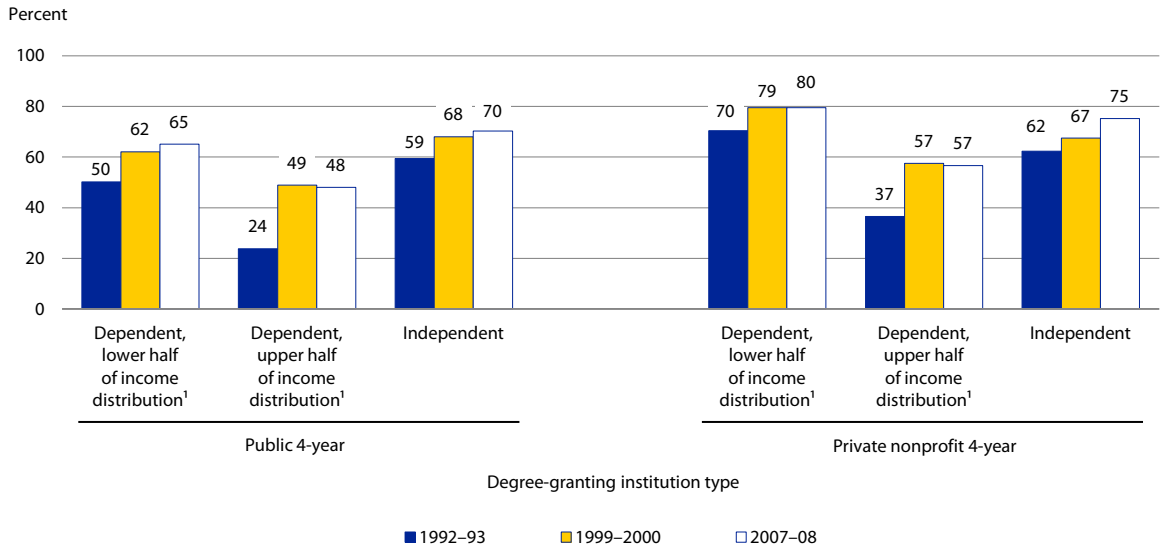
NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

Within public and private nonprofit institutions, borrowing was examined by key factors related to students' financial resources (income and whether or not students were financially dependent on their parents). In both types of institutions across all three cohorts, dependent students in the bottom half of the income distribution borrowed at higher rates than their dependent counterparts in the upper half of the income distribution (figure 2). In all three cohorts, the most frequent borrowers were lower income dependent students in private nonprofit institutions (70 percent to 80 percent). Dependent students (both lower and upper income) who graduated from public institutions borrowed at a lower rate than their dependent counterparts at private nonprofit institutions. For independent students, this pattern of borrowing—lower in public than private nonprofit institutions—was observed in the latest cohort (70 percent vs. 75 percent borrowed in 2007–08), but differences were not statistically significant in the earlier two cohorts.

FIGURE 2.

PROPORTION WHO BORROWED

Percentage of first-time bachelor's degree recipients who borrowed for their undergraduate education, by degree-granting institution type, dependency status, and income: 1992–93, 1999–2000, and 2007–08



[1] Includes loans from all sources. In 1994, loans from family and friends were included, while in 2001 and 2009, these loans were excluded. Dependency status is based on the final year of undergraduate enrollment. Upper and lower halves of the earned income distribution were designated for the dependent bachelor's degree recipients' family income as follows: 2007–08 based on 2006 dollars (cutoff at $89,197 or less for lower half); 1999–2000 based on 1998 dollars (cutoff at $64,108 or less for lower half); and 1992–93 based on 1991 dollars (cutoff at $55,000 or less for lower half).

NOTE: For-profit 4-year is not shown due to small sample sizes. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

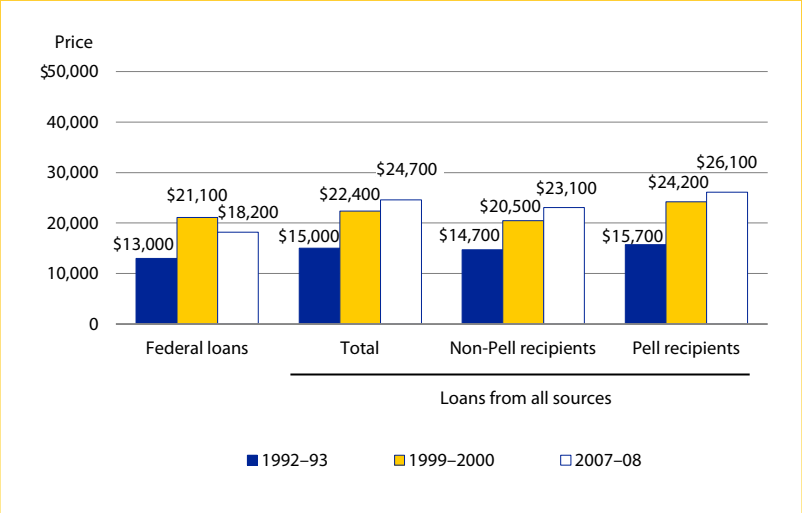
Comparing the average cumulative debt from all loan sources (in constant 2009 dollars) revealed a similar pattern to that observed for borrowing rates: the cumulative debt was higher in each successive cohort, from $15,000 in 1992–93, to $22,400 in 1999–2000, to $24,700 in 2007–08 (figure 3). However, the same pattern was not observed when comparing cumulative debt from federal loans, which was higher in the middle cohort than in the earliest and latest cohorts ($21,100 in 1999–2000 vs. $13,000 in 1992–93 and $18,200 in 2007–08). This finding is consistent with a change in federal Stafford loan limits that took effect just after the earliest cohort graduated, which made more funds available for later cohorts (Higher Education Amendments of 1992, P.L. No. 102-325). However, between the middle and latest cohorts, students' cumulative federal loan debt declined, which by definition means private loan debt increased. Some researchers have argued that limits on federal loans may have led to greater borrowing of private loans, thus leading to higher cumulative loan debt (Glater 2011).

A comparison of cumulative debt was made between exclusively low-income college graduates and their higher-income counterparts based on Pell Grant status. According to data previously published on the 2007–08 cohort, 37 percent of all bachelor's degree recipients received Pell Grants (Woo, Green, and Matthews 2012). Also for this same cohort, 87 percent of Pell Grant recipients had taken out student loans, while 66 percent of those who were not Pell Grant recipients had borrowed (Woo and Matthews 2013).

In this study, as with findings for all borrowers, Pell Grant recipients' cumulative debt was higher in each successive cohort: from $15,700 in 1992–93, to $24,200 in 1999–2000, to $26,100 in 2007–08 (in constant 2009 dollars) (figure 3). Their cumulative debt was also higher than their non-Pell Grant recipient counterparts in both the middle and latest cohorts, 1999–2000 and 2007–08, but not in the earliest cohort, 1992–93.

FIGURE 3.

AVERAGE AMOUNT BORROWED
Average cumulative debt of first-time bachelor's degree recipients for their undergraduate education in 2009 dollars, by loan type and Pell recipient status: 1992–93, 1999–2000, and 2007–08

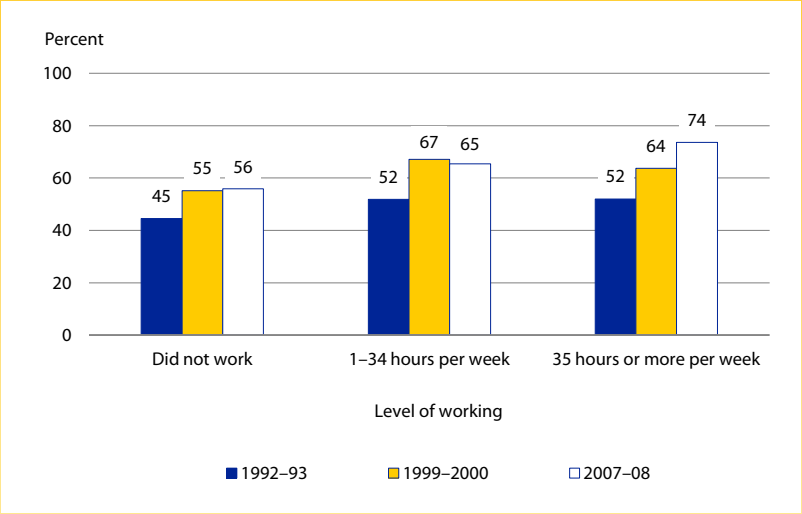


NOTE: In 1994, loans from all sources included loans from family and friends, and in 2001 and 2009, they did not. Estimates mates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

The final comparison of borrowing was made in relation to students' employment while they were enrolled in their last year of college. Income from working while attending school helps students pay for their education and most students work while enrolled. In 2007–08, for example, a previous report found that 75 percent of undergraduates reported working while enrolled (Staklis 2010). However, for all three cohorts of college graduates, employment while enrolled in college was not associated with lower borrowing rates. In fact, a larger percentage of students who worked (full or part time) while enrolled had borrowed than students who did not work (figure 4). And among 2007–08 graduates, working more hours was associated with higher borrowing rates: 74 percent of those who worked full time had borrowed, compared with 65 percent of those who worked part time and 56 percent of those who did not work.

FIGURE 4.

WORKING WHILE ENROLLED AND BORROWING
Percentage of first-time bachelor's degree recipients who borrowed for their undergraduate education, by hours worked while enrolled in final undergraduate year: 1992–93, 1999–2000, and 2007–08



NOTE: Includes loans from all sources. In 1994, loans from family and friends were included; in 2001 and 2009, they were not. These are the hours that bachelor's degree recipients reported working in their final year of undergraduate work. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

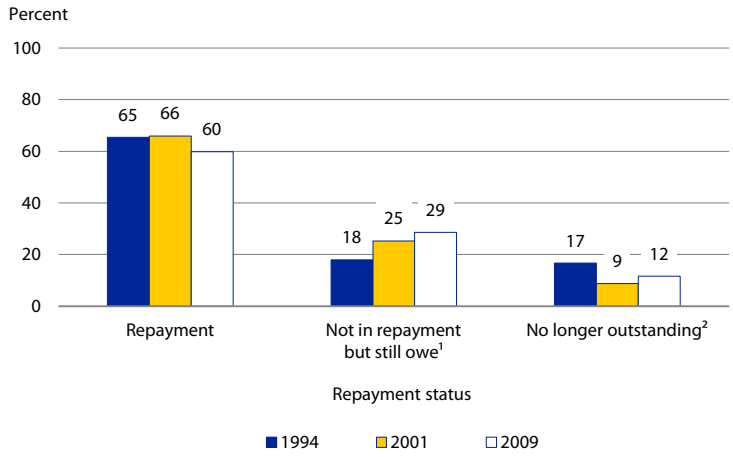
2 Among bachelor's degree recipients who borrowed, what percentage were repaying student loans 1 year after graduation? How did debt burden change over the three cohorts?

One year after graduation, about two-thirds of bachelor's degree recipients who had borrowed were repaying their loans in 1994 and 2001 (65 and 66 percent, respectively), while proportionately fewer were doing so in 2009 (60 percent) (figure 5). The percentage of graduates not in repayment but who still owed on their student loans (i.e., graduates with deferments for further education or for financial difficulties and those in forbearance or default)[8] was greater in each successive cohort (from 18 to 25 to 29 percent). Conversely, the percentage who had paid off or otherwise disposed of their loans as of 1 year after graduation dropped between the earliest cohort in 1994 (17 percent) and the two later cohorts (9 and 12 percent in 2001 and 2009, respectively).[9]

Measures of debt burden are based on the earnings of bachelor's degree recipients 1 year after graduation. The average earnings of graduates adjusted to 2009 constant dollars varied by cohort year. However, graduates in the middle cohort (2001) earned more annually than their counterparts in either 1994 or 2009: $39,300 versus $33,200 and $34,400 (table 1). This pattern held for almost all debt levels.[10] The lower average earnings in 2009 relative to 2001 is consistent with the 2008 economic contraction that depressed first-job salary levels, especially for new college graduates (Godofsky, Zukin, and Van Horn 2011).

FIGURE 5.

REPAYMENT STATUS
Percentage distribution of first-time bachelor's degree recipients who borrowed for their undergraduate education, by loan repayment status 1 year later: 1994, 2001, and 2009



[1] Borrowers can be not repaying but still owe when they have a deferment, forbearance, are in a grace period, or are in default. Borrowers are eligible for deferment, the temporary cessation of loan payments, for one of the following conditions: education, economic hardship, temporary disability, parental leave, unemployment, public service, or displaced homemaker. Most borrowers who obtain deferments do so to continue their education. Forbearance is granted at the discretion of the lender.
[2] "No longer outstanding" includes loans that have been paid in full or loans that met specific circumstances for federal loan forgiveness including school closure, death, disability, bankruptcy, and fraud by the school.
NOTE: Includes loans from all sources. In 1994, loans from family and friends were included; in 2001 and 2009, they were not. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

[8] The data did not allow these conditions to be further distinguished.
[9] The difference between 2009 and 2001 estimates (12 and 9 percent no longer outstanding) was not statistically significant.
[10] For the upper middle 25 percent, the difference between $34,100 in 1994 and $37,600 in 2001 was not statistically significant, as the figure in 1994 had a very high standard error.

TABLE 1.

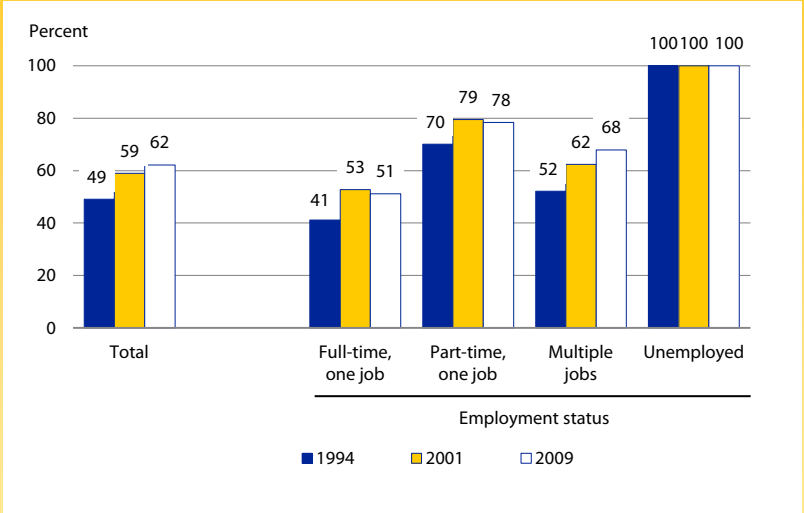
AVERAGE ANNUAL SALARY
Among first-time bachelor's degree recipients who were employed, average annual salary in 2009 dollars, by level of total undergraduate borrowing: 1994, 2001, and 2009

	In 2009 dollars		
	1994	2001	2009
Total	**$33,200**	**$39,300**	**$34,400**
Cumulative debt from all sources[1]			
Never borrowed	33,400	41,300	36,200
Amount borrowed in the			
Lowest 25 percent	31,700	38,500	33,600
Lower middle 25 percent	30,800	38,000	32,500
Upper middle 25 percent	34,100	37,600	34,500
Highest 25 percent	32,800	39,200	33,300

[1] In 1994, loans from family and friends were included; in 2001 and 2009, they were not.
NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

FIGURE 6.

RATIO OF LOANS TO INCOME
Average ratio of cumulative debt in federal loans to annual income among first-time bachelor's degree recipients who borrowed for their undergraduate education, by employment status 1 year after completing a bachelor's degree: 1994, 2001, and 2009



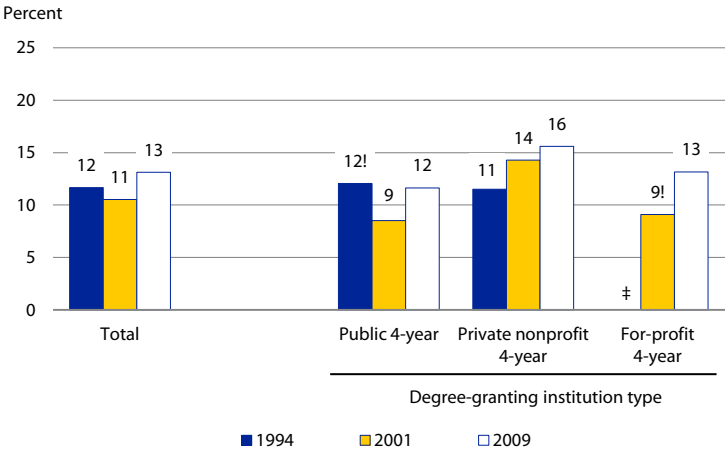
NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. They include graduates who were unemployed. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

Debt burden, defined as the ratio of total federal loan amounts to annual income, reflected the general patterns of borrowing over time noted earlier: debt burden increased from 49 percent to 59 percent to 62 percent in 1994, 2001, and 2009, respectively (figure 6). In other words, bachelor's degree recipients' cumulative federal debt in 2009 totaled 62 percent of their annual income 1 year after graduation. This pattern also held for students with multiple jobs 1 year after graduation (52 to 62 to 68 percent), but for those with one full-time or one part-time job, the difference between 2001 and 2009 was not statistically significant. By definition, cumulative federal student loan debt for those who were unemployed 1 year after graduating totaled 100 percent of their annual income.

Considering loan debt from all sources, debt burden, as defined by the average ratio of monthly loan payments to monthly income, revealed a different pattern. Debt burden in 2009 was highest (13 percent), but debt burden in 2001 (11 percent) was not significantly different than that in 1994 (12 percent). This finding also held for graduates from public 4-year colleges (figure 7).[11] Among those who graduated from private nonprofit institutions, on the other hand, the average debt burden was higher in 2009 (16 percent) than in 1994 (11 percent). Due in part to small sample sizes, the debt burden of those who graduated from for-profit institutions was not statistically significant between the two later cohorts (9 and 13 percent in 2001 and 2009).[12]

FIGURE 7.

RATIO OF MONTHLY LOAN PAYMENT TO MONTHLY INCOME
Average monthly loan payment as a percentage of monthly income among first-time bachelor's degree recipients who borrowed for their undergraduate education, were employed, and were repaying their loans 1 year after graduation, by degree-granting institution type: 1994, 2001, and 2009



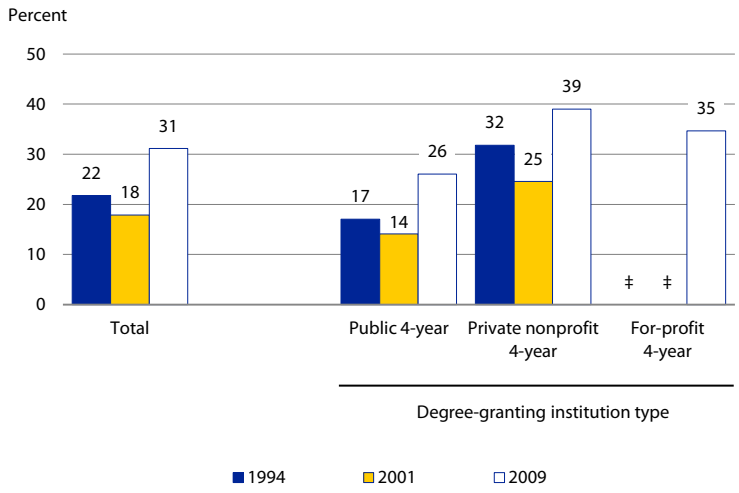
! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
‡ Reporting standards not met.
NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. They do not include graduates who were unemployed. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

[11] Because borrowing rates differed by type of degree-granting institution, average and high debt burden were also examined this way.
[12] Too few graduates who borrowed and were employed in 1994 had graduated from for-profit institutions to generate a reliable estimate.

Financial advisors and researchers recommend that graduates not owe more than 8 to 10 percent of their monthly income in student loan payments and suggest that over 12 percent is perceived by borrowers as a burden (Baum and O'Malley 2003; Baum and Schwartz 2006; Clark 2009; Greiner 1996; Hopkins 2012). Figure 8 displays the percentage of borrowers in repayment who faced a debt burden greater than 12 percent. In 2009, the percentage of graduates who faced such a debt burden (31 percent) was higher than in both 1994 and 2001 (22 percent and 18 percent, respectively). However, the difference in the percentage of graduates between 2001 and 2009 was larger than the difference between 1994 and 2001. This finding held for those who graduated from public and private nonprofit institutions. For all three cohorts, the percentage of graduates whose monthly debt burden was greater than 12 percent was lower among students who graduated from public 4-year institutions than among those who graduated from private nonprofit 4-year institutions.

FIGURE 8.

HIGH DEBT BURDEN
Percentage of first-time bachelor's degree recipients with ratio of monthly payments to monthly income over 12 percent among those who borrowed for their undergraduate education and were repaying their loans 1 year after graduation, by degree-granting institution type: 1994, 2001, and 2009



‡ Reporting standards not met.
NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. They do not include graduates who were unemployed. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

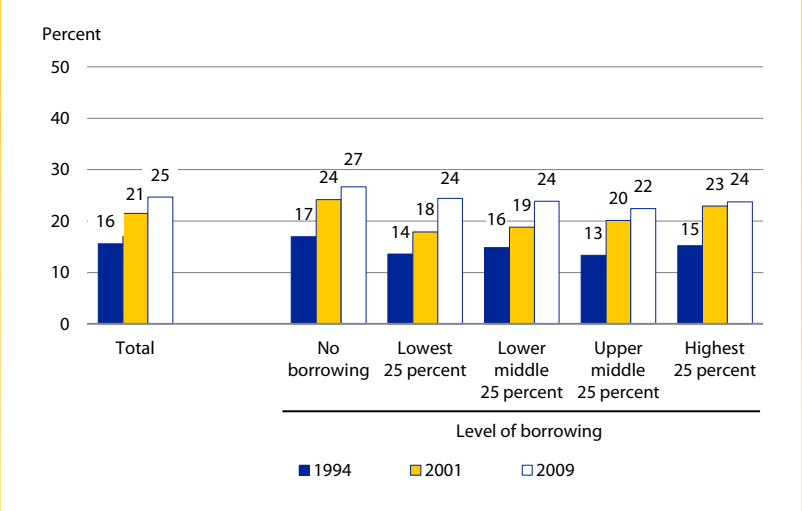
3 Within each cohort, how did students' level of debt vary with their subsequent enrollment in graduate education and living arrangements with their parents 1 year after graduation?

Whether or not college graduates had enrolled in graduate school or moved back home with their parents was not consistently associated with levels of student loan debt. Instead, changes in these behaviors tended to be associated with the year of graduation regardless of debt levels.

Graduate school enrollment 1 year after bachelor's degree attainment was higher in each successive cohort, from 16 to 21 to 25 percent, but differences relative to debt levels were not consistent. In all three cohorts, nonborrowers attended graduate school relatively more often than those in the upper middle borrowing group (17 to 27 percent vs. 13 to 22 percent, respectively) (figure 9).

FIGURE 9.

GRADUATE ENROLLMENT
Percentage of first-time bachelor's degree recipients ever enrolled in graduate or professional programs within 1 year of bachelor's degree completion, by level of total undergraduate borrowing: 1994, 2001, and 2009

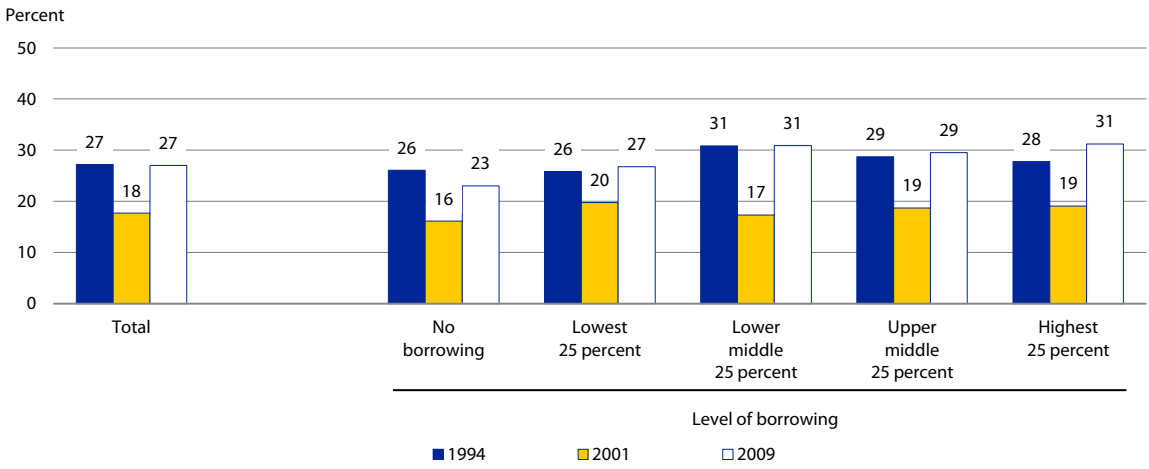


NOTE: Includes loans from all sources. In 1994, loans from family and friends were included; in 2001 and 2009, they were not. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

Similarly, moving back home with parents or in-laws in the year after completing college was not associated with debt levels except in 2009 (figure 10). Students included in this analysis were limited to those under age 24 at the time of the last interview because these students are still considered dependent on their parents for financial aid purposes. In 2009, borrowers in this age group who had not lived at home during their last year of undergraduate enrollment, and who borrowed at the three highest levels, moved in with parents or in-laws at a higher rate than those who borrowed little or not at all (29 to 31 percent of high borrowers vs. 23 percent of the nonborrowers and 27 percent of the lowest level borrowers). Looking across cohorts, the percentage who moved back with their parents or in-laws was higher in both 1994 and 2009 (27 percent in both years) than in 2001 (18 percent). This pattern largely held regardless of debt levels.[13]

FIGURE 10.

MOVING BACK HOME
Percentage of first-time bachelor's degree recipients under age 24 who did not live with family during their last year of undergraduate education but reported living with their parents or in-laws 1 year after graduation, by level of total undergraduate borrowing: 1994, 2001, and 2009



NOTE: Includes loans from all sources. In 1994, loans from family and friends were included; in 2001 and 2009, they were not. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/94, 2000/01, and 2008/09 Baccalaureate and Beyond Longitudinal Studies (B&B:93/94, B&B:2000/01, and B&B:08/09).

[13] The exception was graduates who borrowed the least, among whom the difference between 1992–93 graduates and 1999–2000 graduates 1 year later (in 1994 and 2001, respectively) was not statistically significant.

FIND OUT MORE

For questions about content or to order additional copies of this Statistics in Brief or view this report online, go to:

http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014011

More detailed information on trends in student debt for graduates can be found in Web Tables produced by the National Center for Education Statistics (NCES) using the Baccalaureate and Beyond Longitudinal Study data. They provide information about the borrowing, repayment, further education, employment, and life choices of first-time bachelor's degree recipients 1 year after they graduated.

Web Tables—Trends in Debt for Bachelor's Degree Recipients a Year After Graduating: 1994, 2001, and 2009 (NCES 2013-156). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2013156

Readers may also be interested in the following NCES products related to the topic of this Statistics in Brief:

2008–09 Baccalaureate and Beyond Longitudinal Study (B&B:08/09): A First Look at Recent College Graduates (NCES 2011-236). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011236

Dealing With Debt: 1992–93 Bachelor's Degree Recipients 10 Years Later (NCES 2006-156). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006156

Debt Burden: A Comparison of 1992–93 and 1999–2000 Bachelor's Degree Recipients a Year After Graduating (NCES 2005-170). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005170

Baccalaureate and Beyond: A Descriptive Summary of 1999–2000 Bachelor's Degree Recipients, 1 Year Later—With an Analysis of Time to Degree (NCES 2003-165). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003165

Debt Burden Four Years After College (NCES 2000-188). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000188

Early Labor Force Experiences and Debt Burden (NCES 97-286). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=97286

A Descriptive Summary of 1992–93 Bachelor's Degree Recipients: 1 Year Later, With an Essay on Time to Degree (NCES 96-158). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=96158

TECHNICAL NOTES

Survey Methodology

The estimates provided in this Statistics in Brief are based on data collected through the first follow-up of the *Baccalaureate and Beyond Longitudinal Studies of 1994, 2001, and 2009 (B&B:93/94 , B&B:2000/01, and B&B:08/09*). The B&B studies contain comprehensive data on enrollment, attendance, and student demographic characteristics and provide a unique opportunity to understand the immediate transitions of college graduates into work, graduate school, or other endeavors.

In B&B:93/94 and B&B:2000/01, students provided data through surveys administered over the telephone, and in B&B:08/09, through surveys administered over the Internet or by telephone. In addition to student responses, data were collected from the institutions that granted the sampled students' bachelor's degrees, and the U.S. Department of Education supplied respondent-level data on student loan and grant programs (i.e., the National Student Loan Data System) and federal student financial aid applications (i.e., the Central Processing System), matching student records using a common identifier.

The B&B studies are follow-ups of bachelor's degree recipients from the 1992–93, 1999–2000, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:93, NPSAS:2000, and NPSAS:08). NPSAS is based on a nationally representative sample of all students in postsecondary education institutions, including undergraduate and graduate students. For B&B, those members of the NPSAS sample who completed a bachelor's degree between July 1 and June 30 of the survey academic year were identified and contacted for a follow-up interview 1 year later. The estimates in this Brief are based on the results of surveys with approximately 10,000 bachelor's degree recipients, representing about 1.3 million bachelor's degree completers in both 1992–93 and 1999–2000, and 15,000 bachelor's degree recipients, representing about 1.6 million bachelor's degree completers in 2007–08. The weighted overall response rate for the eligible sample in 2009 was 88 percent. Table A-1 provides detailed information about the B&B:93/94, B&B:2000/01, and B&B:08/09 data collections.

Two broad categories of error occur in estimates generated from surveys: sampling and nonsampling errors. Sampling errors occur when observations are based on samples rather than on entire populations. The standard error of a sample statistic is a measure of the variation due to sampling and indicates the precision of the statistic. The complex sampling design must be taken into account when calculating variance estimates such as standard errors. NCES's online PowerStats, which generated the estimates in this Statistics in Brief, uses the balanced repeated replication (BRR) method to adjust variance estimation for complex sample designs (Kaufman 2004; Wolter 1985).

Nonsampling errors can be attributed to several sources: incomplete information about all respondents (e.g., some students or institutions refused to participate, or students participated but answered only certain items); differences among respondents in question interpretation; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Table A-1. Selected statistics on B&B:93/94, B&B:2000/01, and B&B:08/09 data collections

Statistic	B&B:93/94	B&B:2000/01	B&B:08/09
Target population	Bachelor's degree recipients in 1993–94	Bachelor's degree recipients in 1999–2000	Bachelor's degree recipients in 2008–09
Target population size	1.2 million	1.2 million	1.6 million
IPEDS[1] datafile(s) used as NPSAS sampling frame	1990–91 IPEDS IC file	1997–98 IPEDS IC file	2004–05 and 2005–06 IPEDS IC, Fall Enrollment, and Completion files
Number of sampled institutions (unweighted)	1,386	1,083	1,960
Number of eligible institutions (unweighted)	1,243	1,072	1,940
Number of participating institutions (unweighted)	1,098	999	1,730
Institution response rate[2] (unweighted)	98.3	93.0	89.0
Institution response rate[2] (weighted)	96.9	90.0	90.1
Number of sampled students	12,731	11,700	18,500
Number of eligible students	11,192	11,630	17,160 for interview and transcript individually; 17,060 for combined (due to perturbation)
Interview response rate (unweighted)	90.0	86.0	87.7
Interview response rate (weighted)	89.7	82.0	78.3
Study response rate[3] (unweighted)	88.5	80.0	78.0
Study response rate[3] (weighted)	86.9	74.0	70.5

[1] Integrated Postsecondary Education Data System, Institutional Characteristics file.
[2] Percentage of institutions that provided enrollment lists.
[3] Institution response rate times the interview response rate.
SOURCE: Loft, J.D., Riccobono, J.A., Whitmore, R.W., Fitzgerald, R.A., and Berkner, L.K. (1995). *Methodology Report for the 1993 National Postsecondary Student Aid Study* (NCES 95-211). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Green, P.J., Meyers, S.L., Giese, P., Law, J., Speizer, H.M., and Tardino, V.S. (1996). *Baccalaureate and Beyond Longitudinal Study: 1993/94 First Follow-up Methodology Report* (NCES 96-149). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Riccobono, J.A., Cominole, M.B., Siegel, P.H., Gabel, T.J., Link, M.W., and Berkner, L.K. (2002). *National Postsecondary Student Aid Study 1999–2000 (NPSAS:2000) Methodology Report* (NCES 2002-152). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Charleston, S., Riccobono, J., Mosquin, P., and Link, M. (2003). *Baccalaureate and Beyond Longitudinal Study: 2000–01 (B&B: 2000/01) Methodology Report* (NCES 2003-156). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Henke, R.R., Cataldi, E.F., Green, C., Lew, T., Woo, J., Sheperd, B., and Siegel, P. (2011). *2008–09 Baccalaureate and Beyond Longitudinal Study (B&B:08/09): A First Look at Recent College Graduates* (NCES 2011-236). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

KEY TERMS

Federal loans. Federal loans have fixed interest rates and various repayment benefits, and they are guaranteed by the federal government. The largest federal loan program is the Direct Loan (formerly Stafford) program. Direct Loans have eligibility requirements and limits on loan amounts. There are two types of federal Direct Loans: subsidized and unsubsidized. Subsidized Direct Loans are awarded based on financial need, and the federal government pays interest on the loan until the student begins repayment and during authorized periods of deferment thereafter. Unsubsidized Direct Loans are not need based, and students are charged interest for the duration of the loan, although the interest can be capitalized. Subsidized and unsubsidized Direct Loans can carry different interest rates. Other smaller loan programs are PLUS loans available to parents of dependent undergraduates or graduate or professional students, Perkins loans for low-income students, and several small loan programs targeted to students in health fields.

Private loans. Private loans are education loans, not guaranteed by the federal government, from commercial lenders, credit unions, or nonprofit entities. Their terms are determined by the lender. Private loans carry a market interest rate, which is usually variable and based on credit history, and they generally have higher fees and interest rates than federal student loans.

Cumulative debt. Cumulative debt from all sources is the total amount borrowed from all sources including private loans and federal loans. In 1994, it also included loans from family and friends, but in 2001 and 2009, it did not include such loans.

Pell Grants. Pell Grants are need-based grants awarded to undergraduates who have not yet received a bachelor's degree and for students in teaching certificate programs. Eligibility for the Pell Grant is determined by the Department of Education, and the award is made to students whose need exceeds their capacity to pay for it as calculated through federal need analysis. The majority of Pell Grant recipients come from low-income families (Wei and Horn 2002).

Loan repayment. Three loan statuses are discussed in this Brief: repayment, still owe but not in repayment, and no longer outstanding. Students in repayment are making regular payments. Students who still owe but are not in repayment have a deferment, forbearance, are in a grace period, or have defaulted. Students whose loans are no longer outstanding have paid off their loans or received a full discharge of them. These three statuses summarize many specific loan statuses, and borrowers can have multiple loans in differing statuses and in more than one program (see above). In general, federal loans go into repayment after a grace period lasting 6 months after graduation. Once a loan is in repayment, payments are due every month unless the borrower requests a cessation of payments in the form of a deferment or forbearance. These are granted automatically if the borrower is deemed eligible. A borrower, or his or her family, can also request a full loan discharge for certain rare circumstances—death, disability, bankruptcy, closed school, or fraud by the school. Otherwise, payments are expected until the amount due is paid off. Failure to pay on time leads to delinquency and, after 270 days, to loan default. For private loans, the payments are due from the month after disbursement is completed unless principal and interest are deferred until graduation. Deferments, forbearances, or loan discharge are not standard and are only granted upon negotiation with the lender.

Levels of Cumulative Debt

Dollar amounts for cumulative loan debt were also divided into quartiles for analysis. In 2009, those who borrowed $12,049 or less were the 25 percent of bachelor's degree recipients with the lowest cumulative debt; those who borrowed $12,050–$20,688 were the 25 percent of bachelor's degree recipients with lower middle cumulative debt; those who borrowed $20,689–$32,625 were the 25 percent of bachelor's degree recipients with upper middle cumulative debt; and those who borrowed $32,626 or more were the 25 percent of bachelor's degree recipients with the highest cumulative debt. In 1994 and 2001, the corresponding ranges for the lowest 25 percent were $4,000 or less and $10,000 or less, respectively; the ranges for the lower middle 25 percent were $4,001–$8,000 and $10,001–$17,000; the ranges for the upper middle 25 percent were $8,001–$13,000 and $17,001–$23,076; and the ranges for the highest 25 percent were $13,001 or more and $23,077 or more.

Item Response Rates

NCES Statistical Standard 4-4-1 states that "[a]ny survey stage of data collection with a unit or item response rate less than 85 percent must be evaluated for the potential magnitude of nonresponse bias before the data or any analysis using the data may be released" (U.S. Department of Education 2002). In the case of B&B:08/09, this means that nonresponse bias analysis could be required at any of three levels: institutions, study respondents, or items. Because the institutional response rate for NPSAS:08 was 90 percent, nonresponse bias analysis was not required at that level.

Of 17,160 eligible sample students, the B&B:08/09 weighted interview response rate was 78 percent. Because the weighted rate is less than 85 percent for those who responded to the interview, nonresponse bias analysis was required for those variables based in whole or in part on the interview. In this Brief, three variables required nonresponse bias analyses: B1EDPCT (monthly loan payment as a percent of income in 2009); CINCOME (income of dependents' parents and independents in 2006); and JOBHOUR2 (hours worked per week, including work study) in 2007–08. For each of these variables, nonresponse bias analyses were conducted to determine whether respondents and nonrespondents differed on the following characteristics: institution sector, region, and total enrollment; student type, sex, and age group; whether the student had submitted the Free Application for Federal

VARIABLES USED

All estimates presented in this Statistics in Brief were produced using PowerStats, a web-based software application that allows users to generate tables for many of the postsecondary surveys conducted by NCES. See "Run Your Own Analysis With DataLab" below for more information on PowerStats. The variables used in this Brief are listed below. Visit the NCES DataLab website http://nces.ed.gov/datalab to view detailed information on how these variables were constructed and their sources. Under *Detailed Information About PowerStats Variables, Baccalaureate and Beyond Longitudinal Study*, click *by subject* or *by variable* name. The program files that generated the statistics presented in this Brief can be found at http://nces.ed.gov/pubsearch/pubs info.asp?pubid=2014011.

Label	Name
Baccalaureate and Beyond, B&B:93/03	
Age at bachelor's degree receipt	AGEATBA
Average hours worked per week while enrolled 1992–93	EMWKHR4
Cumulative federal loans borrowed 1992–93	BORFEDR
Earned income in 1994	APRANSAL
Family income quartiles by dependency 1992–93	INCQUTIL
Highest degree program after bachelor's degree as of 1994	GRPROG
Highest prior degree or certificate	HIOTHDEG
Institution level and control (condensed) 1992–93	SECTOR_C
Labor force participation in April 1994	B1LFP94
Monthly loan repayment as percent of monthly income 1994	EDPCTR
Monthly student loan repayment total in 1994	ALLOWER
Pell Grant amount 1992–93	PELLAMT
Ratio of federal loans to annual income in 1994	DEBTRT94
Repayment status in 1994	RPYSTAT
Residence while enrolled in 1992–93	LOCALRES2
Total undergraduate debt 1994	TOTDEBT
Type of residence April 1994	WHERELIV
Baccalaureate and Beyond, B&B:2000/01	
Age at bachelor's degree receipt	AGEATBA
Cumulative borrowed excluding parents 2000	BORAMT1B
Cumulative Pell Grant amount 1993 to 2000	PELLCUM
Cumulative undergraduate federal loans 2000	BORFED1
Currently repaying, monthly amount	CBRPYAMT
Earned income in 2001	B1ANNERN
Family income quartiles by dependency 1999–2000	INCQUTIL
First postsecondary education institution sector with doctorate	I1SECT9
Highest prior degree or certificate	HIOTHDEG
Hours worked per week in NPSAS year 1999–2000	NDHOURS
Labor force participation as of 2001 interview	LFP2001
Monthly loan repayment (as percent of salary) 2001	EDPCTR

Student Aid (FAFSA), was a federal aid recipient, was a Pell Grant recipient, or took out a Direct Loan; and the amount, if any, of a student's Pell Grant or Direct Loan. Differences between respondents and nonrespondents on these variables were tested for statistical significance at the .05 level. A summary of nonresponse bias analyses results for the variables specified above appear in table A-2.

Any bias due to nonresponse, however, is based upon responses prior to stochastic imputation in which missing data were replaced with valid data from the records of donor cases that matched the recipients on selected demographic, enrollment, institution, and financial aid-related variables (Krotki, Black, and Creel 2005). Potential bias may have been reduced due to imputation. Because imputation procedures are designed specifically to identify donor cases with characteristics similar to those with missing data, the imputation procedure is assumed to reduce bias. While the level of item-level bias before imputation is measurable, the same measurement cannot be made after imputation. Although the magnitude of any change in item-level bias cannot be determined, the item estimates before and after imputation were compared to determine whether the imputation changed the biased estimate as an indication of a possible reduction in bias.

VARIABLES USED—Continued

Label	Name
Baccalaureate and Beyond, B&B:2000/01—continued	
Post-bachelor's degree: Highest, collapsed	HIDEGC
Ratio of federal loans to annual income in 2001	DEBTRT01
Repayment status as of 2001 interview date	RPYSTAT
Residence while enrolled in 1999–2000	LOCALRES
Sampled institution type 1999–2000	SECTOR9
Where lived as of 2001 interview date	WHERELIV
Baccalaureate and Beyond, B&B:08/09	
Age at bachelor's degree receipt	AGEATBA
Bachelor's degree institution sector, 2007–08	SECTOR9
Cumulative federal loans borrowed for undergraduate through 2007–08	FEDCUM1
Cumulative loan amount borrowed for undergraduate through 2007–08	B1BORAT
Cumulative Pell Grant amount as of 2007–08	PELLCUM
Dependency status in 2007–08	DEPEND
Earned income in 2009	B1ERNINC
Employment and enrollment status in 2009	B1LFP09
Highest degree program enrollment after bachelor's degree, as of 2009	B1HIENR
Highest prior degree or certificate	HIOTHDEG
Hours worked per week (including work-study) in 2007–08	JOBHOUR2
Income (dependents' parents and independents) in 2007–08	CINCOME
Living with parents or in-laws in 2009	B1PARIL
Monthly loan repayment as percent of income in 2009	B1EDPCT
Monthly undergraduate loan payment in 2009	B1RPYAMT
Ratio of federal loans to annual income in 2009	DEBTRT09
Repayment status for any loans in 2009	B1REPAY
Residence while enrolled in 2007–08	LOCALRES

TABLE A-2. Summary of item-level nonresponse bias for all students at all institution types: 2008–09

Variable name	Pre-imputation: Median percent relative bias across characteristics	Pre-imputation: Percentage of characteristics with significant bias	Pre-imputation: Characteristic with greatest significant bias	Average difference (percentage or mean) across all categories pre- and post-imputation
B1EDPCT Monthly loan payment as a percent of income in 2009	2.90	48.65	Region, other jurisdiction - PR	0.15
CINCOME Income (dependents' parents and independents) in 2006	26.58	75.68	Financial aid, did not receive	$11,109.28
JOBHOUR2 Hours worked per week (including work-study) in 2007–08	1.09	21.62	Region, other jurisdiction - PR	0.63

NOTE: Relative bias is computed by dividing a variable's estimated bias for a given characteristic by the variable's mean. Relative bias is defined as significant if its difference from zero is statistically significant at $p < 0.05$.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2008/09 Baccalaureate and Beyond Study (B&B:08/09).

For continuous variables, the difference between the mean before imputation and after imputation was estimated. For categorical variables, the estimated difference was computed for each of the categories as the percentage of students in that category before imputation minus the percentage of students in that category after imputation. These differences are reported in table A-2. For more detailed information on nonresponse bias analysis and an overview of the survey methodology, see *2008–09 Baccalaureate and Beyond Longitudinal Study (B&B:08/09): A First Look at Recent College Graduates* (NCES 2011-236) http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011236.

For more information, contact:

National Center for Education Statistics
NCES.Info@ed.gov
(800) 677-6987

Statistical Procedures

Comparisons of means and proportions were tested using Student's *t* statistic. Differences between estimates were tested against the probability of a Type I error[14] or significance level. The statistical significance of each comparison was determined by calculating the Student's *t* value for the difference between each pair of means or proportions and comparing the *t* value with published tables of significance levels for two-tailed hypothesis testing. Student's *t* values were computed to test differences between independent estimates using the following formula:

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

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors.

When making a part-to-whole comparison, e.g., comparing the percentage of a subgroup of graduates who borrowed to the percentage of all graduates who borrowed, the following formula was used. This formula takes the covariance of the two estimates into account when computing the *t* value.

$$t = \frac{E_{subgroup} - E_{whole}}{\sqrt{SE_{part}^2 + SE_{whole}^2 - 2pSE_{part}^2}}$$

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 because the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of respondents in the specific categories used for comparison. Hence, a small difference compared across a large number of respondents would produce a large (and thus possibly statistically significant) *t* statistic.

[14] 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.

A second hazard in reporting statistical tests is the possibility that one can report a "false positive" or Type I error. Statistical tests are designed to limit the risk of this type of error using a value denoted by alpha. The alpha level of .05 was selected for findings in this Brief and ensures that a difference of a certain magnitude or larger would be produced when there was no actual difference between the quantities in the underlying population no more than 1 time out of 20.[15] When analysts test hypotheses that show alpha values at the .05 level or smaller, they reject the null hypothesis that there is no difference between the two quantities. Failing to reject a null hypothesis (i.e., detect a difference), however, does not imply the values are the same or equivalent.

[15] No adjustments were made for multiple comparisons.

REFERENCES

Associated Press. (2012, April). Half of New Graduates Are Jobless or Underemployed. *USA Today* and *Huffington Post*. Retrieved April 23, 2012, from http://www.usatoday.com/news/nation/story/2012-04-22/college-grads-jobless/54473426/1 and http://www.huffingtonpost.com/2012/04/22/job-market-college-graduates_n_1443738.html.

Baum, S., and Ma, J. (2011). *Trends in College Pricing 2011*. New York: College Board, table 7.

Baum, S., and O'Malley, M. (2003). College on Credit: How Borrowers Perceive Their Education. *Journal of Student Financial Aid, 33*: 3.

Baum, S., and Payea, K. (2011). *Trends in Student Aid 2011*. New York: College Board, table 4.

Baum, S., and Schwartz, S. (2006). *How Much Debt Is Too Much? Defining Benchmarks for Manageable Student Debt*. New York: College Board.

Berkner, L. (1998). *Student Financing of Undergraduate Education: 1995–96, With an Essay on Student Loans* (NCES 98-076). National Center for Education Statistics, U.S. Department of Education. Washington, DC.

Brown, M., and Caldwell, S. (2013, April 17). *Young Student Loan Borrowers Retreat From Housing and Auto Markets*. Federal Reserve Bank of New York. Retrieved May 13, 2013, from http://libertystreeteconomics.newyorkfed.org/2013/04/young-student-loan-borrowers-retreat-from-housing-and-auto-markets.html.

CBS News. (2012). *Could $1T Student Debt Derail U.S. Recovery?* Retrieved May 23, 2012, from http://www.cbsnews.com/8301-505268_162-57409131/could-$1t-student-loan-debt-derail-u.s-recovery/.

Choi, L. (2011). *Student Debt and Default in the 12th District.* Community Development Research Brief. Federal Reserve Bank of San Francisco. Retrieved November 1, 2012, from http://www.frbsf.org/publications/community/research-briefs/Student-Debt-and-Default-in-the-12th-District.html.

Chopra, R. (2013, June 25). *Written Testimony Before the Senate Committee on Banking, Housing, and Urban Affairs*. Washington, DC: Consumer Financial Protection Bureau. Retrieved July 22, 2013, from http://www.banking.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=b2373cd4-754e-49bc-b49a-ec0de54e5b1f&Witness_ID=ac1f69ac-81ca-4804-908b-39ec915429bc.

Choy, S. (1994). *Characteristics of Students Who Borrow to Finance Their Postsecondary Education* (NCES 95-310). National Center for Education Statistics, U.S. Department of Education. Washington, DC.

Choy, S.P., and Li, X. (2005). *Debt Burden: A Comparison of 1992–93 and 1999-2000 Bachelor's Degree Recipients a Year After Graduating* (NCES 2005-170). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Choy, S.P., and Li, X. (2006). *Dealing With Debt: 1992–93 Bachelor's Degree Recipients 10 Years Later* (NCES 2006-156). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Clark, K. (2009, June). How Much Money Should I Borrow for College? *U.S. News and World Report*. Retrieved May 23, 2012, from http://www.usnews.com/education/best-colleges/paying-for-college/articles/2009/06/09/how-much-money-should-i-borrow-for-college.

Consumer Financial Protection Bureau. (2013, May). *Student Loan Affordability*. Retrieved June 11, 2013, from http://files.consumerfinance.gov/f/201305_cfpb_rfi-report_student-loans.pdf.

Dillon, E., and Carey, K. (2009). *Drowning in Debt: The Emerging Student Loan Crisis.* The Education Sector. Retrieved June 11, 2013, from http://www.educationsector.org/publications/drowning-debt-emerging-student-loan-crisis.

Federal Reserve Board. (2013, March). *Minutes of the Federal Reserve Open Market Committee*, Washington, DC. Retrieved July 22, 2013, from http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20130320.pdf.

Glater, J.D. (2011). The Other Big Test: Why Congress Should Allow College Students to Borrow More Through Federal Aid Programs. *Legislation and Public Policy, 14*: 11.

Godofsky, J., Zukin, C., and Van Horn, C. (2011, May). *Unfulfilled Expectations: Recent College Graduates Struggle in a Troubled Economy*. New Brunswick, NJ: John J. Heldrich Center for Workforce Development, Rutgers University. Retrieved May 8, 2012, from http://www.heldrich.rutgers.edu/sites/default/files/content/Work_Trends_May_2011.pdf.

Greiner, K. (1996). How Much Student Loan Debt Is Too Much? *Journal of Student Financial Aid*, *26*(1): 7–16.

Hopkins, K. (2012, August). 6 Steps to Determine How Much to Borrow for College. *U.S. News and World Report.* Retrieved August 30, 2012, from http://www.usnews.com/education/best-colleges/paying-for-college/articles/2012/08/13/6-steps-to-determine-how-much-to-borrow-for-college.

Kaufman, S. (2004). Using the Bootstrap in a Two-Stage Design When Some Second-Stage Strata Have Only One Unit Allocated. *Proceedings of the American Statistical Association, Section on Survey Research Methods*.

Krotki, K., Black, S., and Creel, D. (2005). Mass Imputation. In *Proceedings of the Section on Survey Research Methods, American Statistical Association* [CD-ROM]. Alexandria, VA: American Statistical Association.

Lowrey, A. (2013, May). Student Debt Slows Growth as Young Spend Less. *The New York Times*. Retrieved May 13, 2013, from http://www.nytimes.com/2013/05/11/business/economy/student-loan-debt-weighing-down-younger-us-workers.html?_r=0.

Martin, A., and Lehren, A. (2012, May). A Generation Hobbled by College Debt. *The New York Times*. Retrieved May 16, 2012, from http://www.nytimes.com/2012/05/13/business/student-loans-weighing-down-a-generation-with-heavy-debt.html.

Minicozzi, A. (2005). The Short Term Effect of Educational Debt on Job Decisions. *Economics of Education Review, 24*(4): 417–430.

O'Shaughnessy, L. (2012). *Student Loan Debt Is Worse Than It Seems*. CBS News. Retrieved September 6, 2012, from http://www.cbsnews.com/8301-505145_162-57505921/student-loan-debt-is-worse-than-it-seems/.

Roksa, J., and Arum, R. (2012). Life After College: The Challenging Transitions of the "Academically Adrift" Cohort. *Change: The Magazine of Higher Learning, 44*(4): 8–14.

Rowley, L. (2010, December). *Is the College Debt Bubble Ready to Explode?* Examiner.com. Retrieved December 2, 2010, from http://www.examiner.com/article/is-america-s-college-debt-bubble-ready-to-explode.

Staklis, S. (2010). *Web Tables—Profile of Undergraduate Students: 2007–08* (NCES 2010-205). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Stebner, B. (2013, May). A Generation Drowning in Debt: More Students and Grads Falling Behind in Loan Payments, Study Shows. *New York Daily News*. Retrieved June 11, 2013, from http://www.nydailynews.com/news/national/study-shows-students-falling-behind-loan-payments-article-1.1345093.

Stone, C., Van Horn, C., and Zukin, C. (2012, May). *Chasing the American Dream: Recent College Graduates and the Great Recession*. New Brunswick, NJ: John J. Heldrich Center for Workforce Development, Rutgers University. Retrieved May 15, 2012, from http://www.heldrich.rutgers.edu/publications.

Trumbull, M. (2012, April). Student Debt: How Big a Risk Does It Pose to the Economy? *The Christian Science Monitor.* Retrieved April 30, 2012, from http://www.csmonitor.com/USA/DC-Decoder/2012/0424/Student-debt-How-big-a-risk-does-it-pose-to-the-economy.

U.S. Department of Education. (2002). *NCES Statistical Standards* (NCES 2003-601). Washington, DC: National Center for Education Statistics. Retrieved November 19, 2010, from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003601.

Wei, C. (2011). *What Is the Price of College?: Total, Net, and Out-of-Pocket Prices in 2007–08* (NCES 2011-175). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Wei, C., and Berdsudskaya, V. (2011). *Trends in Financing of Undergraduate Education: Selected Years 1995–96 to 2007–08* (NCES 2011-218). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Wei, C.C., and Horn, L. (2002). *Persistence and Attainment of Beginning Students With Pell Grants* (NCES 2002–169). National Center for Education Statistics, U.S. Department of Education. Washington, DC.

Wei, C.C., and Horn, L. (2013). *Federal Student Loan Debt Burden of Noncompleters* (NCES 2013-155). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Weisbaum, H. (2012, February). Mounting Student Loans a "Debt Bomb" Waiting to Explode. *MSNBC News*. Retrieved February 23, 2012, from http://bottomline.msnbc.msn.com/_news/2012/02/22/10469504-mounting-student-loans-a-debt-bomb-waiting-to-explode.

Willis, B. (2012, February). Student Debt Is Stifling Home Sales. *Bloomberg News*. Retrieved February 24, 2012, from http://www.businessweek.com/magazine/student-debt-is-stifling-home-sales-02232012.html.

Wilson, D. (2012, April). Explosion in Student Debt Drags Down Housing: Chart of the Day. *Bloomberg News*. Retrieved April 23, 2012, from http://www.bloomberg.com/news/2012-04-17/-explosion-in-student-debt-drags-down-housing-chart-of-the-day.html.

Wolter, K. (1985). *Introduction to Variance Estimation*. New York: Springer-Verlag.

Woo, J.H. (2011). *The Expansion of Private Loans in Postsecondary Education* (NCES 2012-184). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Woo, J., Green, C., and Matthews, M. (2012). *Profile of 2007–08 First-Time Bachelor's Degree Recipients in 2009* (NCES 2013-150). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Woo, J., and Matthews, M. (2013). *Web Tables—Trends in Debt for Bachelor's Degree Recipients a Year After Graduation: 1994, 2001, and 2009* (NCES 2013-156). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Zhang, L. (2013). Effects of College Educational Debt on Graduate School Attendance and Early Career and Lifestyle Choices. *Education Economics*, *21*(2): 154–175.

RUN YOUR OWN ANALYSIS WITH DATALAB

You can replicate or expand upon the figures and tables in this report, or even create your own. DataLab has several different tools that allow you to customize and generate output from a variety of different survey datasets. Visit DataLab at:

http://nces.ed.gov/datalab/