NCES Sample Surveys—Topics and Issues in Graduate Education

National Center for Education Statistics

NPSAS:12 Technical Review Panel Meeting

Prepared under contract to
U.S. Department of Education

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June 2014

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Introduction

On June 17th and 18th, 2014, RTI will convene a new panel of experts in Washington, DC, to assess the quality of data on graduate education collected in the National Postsecondary Student Aid Study (NPSAS) and other National Center for Education Statistics (NCES) sample surveys. RTI is assisting NCES as it seeks to improve the existing set of data elements on graduate education in their current and recent surveys and develop new topics for data collection. Particular topics to be addressed at the meeting include the following:

- What information should NCES capture on graduate student experiences?
- What more is needed or could be learned from NPSAS about the financing of graduate education?
- Are there factors affecting graduate student outcomes that NCES sample surveys need to address or address more fully?
- How might NCES identify a sample of first-time graduate students for future study? What data should NCES collect from and about them?

This paper provides additional context for the meeting. Also provided separately are documents listing survey items and wording for NCES's National Postsecondary Student Aid Study (NPSAS) and Baccalaureate and Beyond Longitudinal Study (B&B) and links to the graduate education surveys conducted by the National Science Foundation.

Background on NCES

NCES, a center within the Institute of Education Sciences (IES), U.S. Department of Education (ED), is the primary federal entity for collecting and analyzing data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report complete statistics on the condition of American education; conduct and publish reports; and review and report on education activities internationally.[1]

To address the need for data on graduate education, NCES conducts several periodic and repeating surveys. The Integrated Postsecondary Education Data System (IPEDS) within the Administrative Data Division at NCES provides annual institution-level data on cost of attendance, enrollments, completions, faculty, and finances. Institutions participating in or applying to participate in federal financial aid programs authorized by Title IV are required to participate in IPEDS.

Within NCES's Sample Surveys Division, two postsecondary surveys collect data from and about graduate students. The first, the National Postsecondary Student Aid Study (NPSAS), is conducted every 3 to 4 years to determine how students and their families pay for postsecondary education. NPSAS collects data from multiple sources: a student interview, institution records, and such administrative databases as the Central Processing System (data from the Free Application for Federal Student Aid (FAFSA)), the National Student Loan Data System (NSLDS, which contains Pell grant and federal loan history data), and proprietary databases. NPSAS provides base year data for NCES's second sample survey covering graduate education, the Baccalaureate and Beyond Longitudinal Study (B&B), which follows new baccalaureate recipients for up to 10 years. Additional information on both of these surveys is provided below.

In addition to NPSAS and B&B, NCES conducts secondary studies that follow middle school and high school cohorts over several years. The three most recent secondary studies include the National Education Longitudinal Study of 1988 (NELS:88), which followed a cohort of students from 1988, when they were in eighth grade, through 2000; the Education Longitudinal Study of 2002 (ELS:2002), which followed a cohort of 2002 high school sophomores; and the High School Longitudinal Study (HSLS:09), which is an ongoing study of 2009 ninth grade high school students. These studies include sample members who have progressed through the education system through graduate school. While the number of

[1] http://nces.ed.gov

cases may be small, these studies allow for subsequent follow-ups of these sample members many years after they were last interviewed. Hence, any suggestions for the main surveys on graduate education would also inform any potential follow-ups of these secondary studies. For more information about these studies, go to http://nces.ed.gov/surveys/SurveyGroups.asp?Group=1.

NPSAS Methodology

A comprehensive, cross-sectional study, NPSAS begins with a nationally representative sample of both aided and unaided undergraduate, graduate, and professional students enrolled in U.S. postsecondary education institutions during a specific financial aid year. The NPSAS institution sample includes all levels (less-than-2-year, 2-year, and 4-year) and controls (public, private nonprofit, and for-profit) of Title IV eligible postsecondary institutions, and the student sample is selected from enrollment lists provided by sampled institutions.

The most recent NPSAS, conducted during the 2011–12 financial aid year, included a sample of about 125,000 students from about 1,700 postsecondary institutions. Within the sample, about 17,000 graduate students were identified. The NPSAS:12 student sampling strata for graduate students included the following:

1. Master's degree students in Science, Technology, Engineering, and Mathematics (STEM) programs;
2. Master's degree students in education and business programs;
3. Master's degree students in other programs;
4. Doctoral – research/scholarship/other students in STEM programs;
5. Doctoral – research/scholarship/other students in education and business programs;
6. Doctoral – research/scholarship/other students in other programs;
7. Doctoral – professional practice students (previously known as first-professional students); and
8. Other graduate students not enrolled in degree programs.

Details on the data collected from and about graduate students will be discussed during the upcoming technical review panel meeting and are presented below. Broadly, topics cover enrollment information, such as enrollment intensity and field of study, and experiences while enrolled; financial aid, including types of grant aid, loans, and work aid packages; employment; income and expenses of the household; and background items.

B&B Methodology

Alternating administrations of NPSAS serve as the base-year study for the Baccalaureate and Beyond Longitudinal Study (B&B), which collects information on the education, employment, financial, and personal experiences of individuals who completed a bachelor's degree during the financial aid year targeted by NPSAS. Over the last nearly 30 years, three B&B cohorts—from the baccalaureate classes of 1992–93, 1999–2000, and 2007–08—have been followed. The B&B:93 cohort was re-interviewed 1, 4, and 10 years after the NPSAS year and these students' transcripts from the NPSAS institution were also collected. The B&B:08 cohort has completed its first- and fourth-year interviews and accompanying transcript collection; a 10-year follow-up is under consideration. The B&B:2000 cohort was followed up only 1 year post degree.

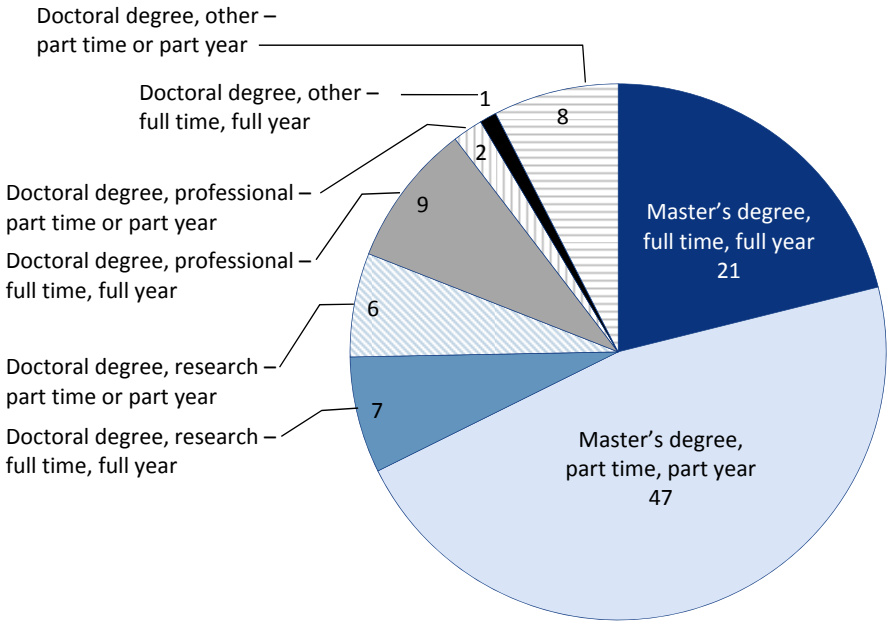
Each of the B&B student interviews has covered such topics as continuing and/or graduate education and additional credentials earned; employment and transition to career; debt and finances, and interest in and preparation for teaching at the K–12 level. Respondents who did not enroll since receiving the bachelor's degree were asked about their intentions for future enrollment, including whether they had taken a graduate or professional school entrance exam and their planned field of study. Students who reported receiving undergraduate and graduate education loans were asked for loan amounts, their repayment status, and monthly payments for those loans.

Snapshots of Graduate Students From NPSAS

Graduate students by degree type and enrollment intensity

Figure 1 provides a summary of the degree level and attendance status of 2011–12 U.S. graduate students who were enrolled in degree programs. About two-thirds of graduate students in degree programs (68 percent) were enrolled in a master's degree program, 21 percent full time, full year. Among all graduate students enrolled in a degree program, more than half (63 percent) were enrolled part time.

Figure 1. Degree level and attendance status of graduate students in a degree program: 2011–12



NOTE: Other includes students pursuing post-baccalaureate and post-master's certificates and those who are not in a degree program. It also includes those pursuing other doctoral degrees, who make up 1.5 percent of all graduate students, and students seeking non-research and non-professional doctoral degrees mostly in the fields of health, arts, education, and psychology.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2011–12 National Postsecondary Student Aid Study (NPSAS:12).

Following the most recent IPEDS degree classifications, doctoral programs are divided into three categories: *research/scholarship* (such as PhD, EdD, or DSc); *professional practice* (including DDS, JD, DO, or DVM); and *other*—a category for those that meet neither the *research/scholarship* nor the *professional practice* criteria. In 2011–12, students pursued both research/scholarship and professional practice doctoral programs in roughly equal percentages: 13 percent sought research/scholarship doctorates and 11 percent pursued professional practice doctorates, while 9 percent fell under the other doctoral program classification.

The professional practice doctoral category had a much higher proportion of full-time students (9 of the 11 percent or 83 percent of professional practice doctoral students), whereas only 54 percent (7 of the 13 percent) of those in the research doctorate category were enrolled full time. Among master's students, 31 percent (21 of 68 percent) were seeking degrees full time.

Among all graduate students, including those not in a degree program, about 6 percent (not shown) were pursuing graduate-level certificates such as a post-baccalaureate or post-masters certificate. In addition, 3 percent were taking courses but not in a degree program.[2]

Demographics of graduate students

Table 1 displays graduate students' enrollment rates by student demographic characteristics. Females made up the majority (60 percent) of all graduate students during 2011–12. Among students pursuing master's degrees or doctorates in education, 70 percent were women.

Nearly two-thirds (63 percent) of graduate students were White, 13 percent were Asian, 12 percent were Black, 9 percent were Hispanic, and the remaining 3 percent were students of a different race (i.e., American Indian or Alaska Native, or Native Hawaiian or Other Pacific Islander) or of more than one race. The racial/ethnic composition of graduate students varied among types of programs. For example, among doctoral students in education, 28 percent were Black, compared with the 12 percent of Black graduate students overall.

Nine percent of graduate students were foreign or international students, who tended to be concentrated in particular fields and programs: about 28 percent of non-education research PhD students were international students, as were 15 percent of students in MS programs.

On average graduate students were 32 years old. Some programs, such as professional practice doctorate programs, enrolled predominantly younger students, while such other programs as education and other doctorates attracted relatively older students.

[2] Any data cited in text that do not appear in a figure or table are from U.S. Department of Education, National Center for Education Statistics, 2011–12 National Postsecondary Student Aid Study (NPSAS:12).

Table 1. Selected demographic measures of graduate students by type of program: 2011–12

			Percent distribution by race/ethnicity[1]						
	Percent female	Percent full time, full year	White	Black	Hispanic	Asian	Other	Percent who are foreign or international	Average age
Total	**60.1**	**38.7**	**63.3**	**11.9**	**8.7**	**13.1**	**3.0**	**8.9**	**32.2**
Graduate degree program									
Master's degree	61.7	31.2	63.8	12.7	9.1	11.4	3.0	7.6	32.4
Doctoral degree – research/scholarship	50.0	54.2	55.3	11.1	7.2	23.6	2.9	24.2	33.1
Doctoral degree – professional practice	54.2	82.5	68.3	6.6	5.9	15.2	4.0	2.7	27.2
Other[2]	70.4	20.0	63.4	13.6	11.2	9.7	1.4	5.0	36.1
Master's degree program									
Business administration (MBA)	47.2	27.9	61.2	11.7	8.5	15.2	3.4	7.3	33.1
Education (any master's)	75.4	21.7	70.7	14.2	10.1	2.6	1.7	1.2	32.9
MA (except in education)	62.5	27.9	66.8	11.7	10.1	8.3	3.2	6.9	31.9
MS (except in education)	54.9	34.4	57.7	11.3	8.5	19.5	2.9	14.6	31.6
Other master's[3]	65.2	41.8	64.3	14.0	8.4	10.0	3.4	6.8	32.8
Doctoral degree program – research/scholarship									
PhD (except in education)	46.6	58.6	56.6	7.5	7.5	25.6	2.8	28.2	31.6
Education (any doctorate)	70.1	29.5	53.7	27.9	8.6	6.6	3.1	3.7	40.7
Other doctorate	57.9	48.8	53.8	17.0	6.7	19.5	3.0	13.1	36.1
Doctoral degree program – professional practice									
Medicine (MD or DO)	50.9	92.3	65.9	5.6	5.7	20.2	2.5	#	26.2
Other health science[4]	56.6	86.4	63.2	9.2	5.4	16.9	3.5	3.5	26.3
Law (LLB or JD)	48.5	83.4	72.3	4.9	6.2	12.1	4.1	2.7	26.9

Rounds to zero.

[1] Black includes African American, Hispanic includes Latino, Other includes American Indian, Alaska Native, Pacific Islander, and Native Hawaiian, and respondents having origins in more than one race. Race categories exclude Hispanic origin unless specified.

[2] Other includes post-baccalaureate and post-master's certificates and those who are not in a degree program. It also includes students pursuing other doctoral degrees, 1.5 percent of all graduate students, largely students seeking non-research and non-professional doctoral degrees mostly in the fields of health, arts, education, and psychology.

[3] Other master's includes any other master's degree such as MSW (Master of Social Work), MPA (Master of Public Administration), and MFA (Master of Fine Arts).

[4] Other health science includes chiropractic (DC or DCM), dentistry (DDS or DMD), optometry (OD), pharmacy (DPharm), podiatry (PodD or DPM), and veterinary medicine (DVM).

NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2011–12 National Postsecondary Student Aid Study (NPSAS:12).

Paths of Graduate Study From B&B

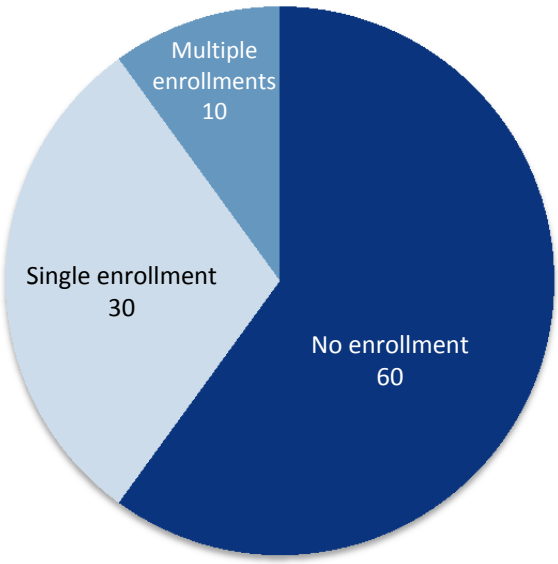
Of the three B&B cohorts studied to date, the most comprehensive information on graduate school attendance and persistence is available for those who completed their bachelor's degrees in 1992–93 and were last followed up in 2003. This section provides a brief description of what B&B:93/03 shows regarding college graduates' time to graduate enrollment, the characteristics of their graduate enrollment, and their persistence and attainment in graduate or professional school. B&B:93/03 data predate the recent IPEDS reclassification of graduate degree programs. Therefore, graduate programs for this cohort are classified into master's degrees (MBA, MEd or other master's degree or post-master's certificate in education, and Other), first-professional degrees (e.g., MD, JD), and doctoral (e.g., PhD, EdD).[3]

Time to enrollment

By 2003, about 40 percent of 1992–93 bachelor's degree recipients had enrolled in at least one graduate degree program, 30 percent in a single program and 10 percent in multiple programs in the 10 years since completing their bachelor's degrees (figure 2). On average, they waited 3 years to enroll in a graduate degree program for the first time (table 2). Among students who enrolled in only one graduate program by 2003, those entering MBA programs typically waited longer (about 4 years), while about half of doctoral degree students enrolled within 1 year of completing their bachelor's degree (table 3). Students who enrolled in multiple programs entered their first graduate program within 2 years of completing a bachelor's degree, on average. Other factors such as students' race/ethnicity, undergraduate major and GPA, marital and parenting status, and parents' education were also related to when college graduates first enrolled in graduate school (tables 2 and 4).

[3] For more detail on students' graduate school careers, see *The Path Through Graduate School: A Longitudinal Examination 10 Years After Bachelor's Degree* (NCES 2007-162). Much of the description that follows is drawn from analyses presented in this report.

Figure 2. Percentage distribution of 1992–93 bachelor's degree recipients by number of graduate enrollments as of 2003



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Table 2. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate program by 2003, average time and percentage distribution of time between bachelor's degree receipt and first graduate enrollment, by student and institution characteristics

Student and institution characteristics	Average number of years	Percentage distribution			
		1 year or less	More than 1 to 3 years	More than 3 to 5 years	More than 5 years
Total	2.7	35.9	28.3	16.2	19.5
Gender					
Male	2.5	39.5	27.3	14.5	18.7
Female	2.8	33.0	29.2	17.5	20.2
Race/ethnicity[1]					
White	2.7	36.0	28.1	16.4	19.6
Black	3.0	28.5	31.0	16.3	24.3
Hispanic	2.8	38.6	24.5	14.9	22.1
Asian/Pacific Islander	2.1	44.0	31.0	15.7	9.2
Age at bachelor's degree completion					
22 or younger	2.5	37.0	29.0	16.2	17.9
23–24	2.9	33.5	25.6	18.6	22.3
25–29	3.1	32.2	28.3	13.4	26.2
30 or older	2.5	38.4	30.4	13.5	17.6
Highest education level by either parent					
Less than high school	3.1	30.1	32.8	15.8	21.3
High school or equivalency	2.9	32.5	27.6	15.5	24.4
Some postsecondary	2.9	36.8	25.6	13.8	23.8
Bachelor's degree	2.7	34.4	29.2	18.6	17.9
Advanced degree	2.4	39.0	29.0	16.4	15.7
Bachelor's degree-granting institution					
Public 4-year					
Non-doctoral-granting	2.5	38.7	29.0	14.9	17.4
Doctoral-granting	3.0	31.7	25.3	21.1	21.9
Private not-for-profit 4-year					
Non-doctoral-granting	2.8	30.3	30.8	18.9	20.0
Doctoral-granting	2.5	38.2	29.3	12.8	19.7
Baccalaureate degree major					
Business and management	3.3	28.0	22.3	22.2	27.6
Education	2.8	32.0	32.4	15.3	20.2
Engineering	2.0	46.5	30.2	12.7	10.6
Health professions	2.9	35.3	26.8	17.5	20.5
Public affairs/social services	3.5	31.7	27.3	10.6	30.3
Biological sciences	1.8	47.6	31.3	9.9	11.2
Mathematics and other sciences	2.0	47.7	26.7	10.9	14.7
Social science	2.5	33.1	31.0	20.8	15.1
History	2.3	34.9	30.8	22.2	12.2
Humanities	2.8	36.5	25.2	15.5	22.8
Psychology	2.8	36.0	30.2	14.3	19.5
Other	2.8	34.5	28.0	15.6	21.9

See notes at end of table.

Table 2. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate program by 2003, average time and percentage distribution of time between bachelor's degree receipt and first graduate enrollment, by student and institution characteristics—Continued

Student and institution characteristics	Average number of years	Percentage distribution			
		1 year or less	More than 1 to 3 years	More than 3 to 5 years	More than 5 years
Bachelor's degree GPA					
Under 2.5	3.2	26.8	27.6	22.3	23.3
2.5–2.99	3.1	28.8	28.2	18.9	24.1
3.0–3.49	2.5	38.0	30.0	14.4	17.7
3.5 or above	2.3	42.9	27.1	13.7	16.3

[1] Black includes African American, Pacific Islander includes Native Hawaiian, and Hispanic includes Latino. Included in the totals but not shown separately are data for American Indian/Alaska Native respondents and those who identified themselves with another race not shown. Race categories exclude Hispanic origin unless specified.
NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Table 3. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate degree program by 2003, percentage distribution of time and average time between bachelor's degree receipt and first graduate enrollment, by type of graduate enrollment and degree program

Graduate degree program	Average number of years	Percentage distribution			
		1 year or less	More than 1 to 3 years	More than 3 to 5 years	More than 5 years
All graduate enrollment	2.7	35.9	28.3	16.2	19.5
Single enrollment					
MBA	4.2	16.1	21.3	22.8	39.8
MEd or post-master's certificate in education	3.4	23.9	28.9	21.1	26.2
Other master's	2.9	30.6	30.1	16.7	22.5
First-professional	2.2	44.3	27.5	13.2	15.0
Doctoral	1.8	54.0	22.1	11.8	12.1
Multiple enrollment					
More than one master's	1.5	48.7	34.2	15.2	2.0
Master's and doctoral	1.1	67.9	21.4	7.2	3.5
First-professional and other	0.9	63.3	32.0	3.8	1.0

NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Table 4. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate program by 2003, average time and percentage distribution of time between bachelor's degree receipt and first graduate enrollment, by gender and marital and parental status 1 year before graduate enrollment

Gender and marital and parental status	Average number of years	Percentage distribution			
		1 year or less	More than 1 to 3 years	More than 3 to 5 years	More than 5 years
Total	2.7	35.9	28.3	16.2	19.5
Marital status year before graduate enrollment					
Single	2.1	42.4	31.1	14.0	12.5
Married/cohabit as married	3.8	22.5	23.4	20.7	33.4
Divorced/separated/widowed	3.7	28.4	19.9	20.4	31.4
Number of dependent children year before graduate enrollment					
None	2.5	37.3	29.0	16.6	17.1
One or more	3.7	27.8	24.3	13.2	34.7
Male					
Total	2.5	39.5	27.3	14.5	18.7
Marital status year before graduate enrollment					
Single	2.0	45.1	30.0	12.4	12.5
Married/cohabit as married	3.7	26.2	21.3	18.3	34.2
Divorced/separated/widowed	3.1	36.0	11.6	30.6	21.8
Number of dependent children year before graduate enrollment					
None	2.4	40.4	27.7	14.4	17.5
One or more	3.1	32.7	24.8	14.2	28.3
Female					
Total	2.8	33.0	29.2	17.5	20.2
Marital status year before graduate enrollment					
Single	2.2	40.1	32.0	15.4	12.6
Married/cohabit as married	3.9	20.1	24.7	22.3	32.9
Divorced/separated/widowed	4.0	24.9	23.6	15.8	35.7
Number of dependent children year before graduate enrollment					
None	2.6	34.6	30.2	18.4	16.8
One or more	4.0	25.3	24.0	12.7	38.0

NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Characteristics of enrollment

About one-half of 1992–93 bachelor's degree recipients who enrolled in a graduate degree program attended exclusively full time (table 5). When students who had enrolled in a graduate degree program were asked whether they took a semester or term off during their studies other than for summer sessions, about one-half (52 percent) indicated that they had done so. Rates of full-time enrollment were higher among men than women (54 vs. 46 percent) and among students whose highest graduate enrollment was a first-professional or doctoral degree (84 and 73 percent vs. 29 to 50 percent among master's level students). Among students whose parents had graduate degrees, 58 percent enrolled exclusively full time, compared with 40 to 51 percent among students whose parents had less education. Students who had higher undergraduate GPAs (3.5 or above) were more likely than students with GPAs lower than 3.0 (55 vs. 41 to 44 percent) to enroll full time.

Table 5. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate program by 2003, percentage distribution of enrollment intensity while enrolled and percentage taking time off, by student and institution characteristics—Continued

Student and institution characteristics	Percentage distribution			Percent took off at least one semester or term[1]
	Exclusively full-time	Exclusively part-time	Mix of full-time and part-time	
Total	49.3	48.1	2.6	52.0
Highest graduate enrollment				
MBA	34.9	63.8	1.3	49.8
MEd	28.9	67.8	3.3	63.8
Other master's	49.6	48.0	2.4	51.0
First-professional	83.8	15.2	1.0	35.6
Doctoral	73.1	20.8	6.0	53.3
All graduate enrollment				
Single enrollment				
MBA	37.6	60.8	1.6	41.9
MEd or post-master's certificate in education	29.9	66.1	4.0	56.5
Other master's	50.6	46.9	2.6	49.6
First-professional	88.8	10.9	0.3	25.0
Doctoral	87.5	2.1	10.4	36.4
Multiple enrollment				
More than one master's	28.6	70.4	1.0	78.6
Master's and doctoral	61.1	32.2	6.7	65.2
First-professional and other	78.3	20.2	1.5	51.7
Gender				
Male	54.0	44.0	2.0	50.5
Female	45.5	51.3	3.1	53.1
Race/ethnicity[2]				
White	49.3	48.1	2.7	51.1
Black	43.5	54.0	2.5	53.9
Hispanic	44.0	53.0	3.0	53.8
Asian/Pacific Islander	61.0	36.0	2.9	61.5
Age at bachelor's degree completion				
22 or younger	56.4	41.1	2.6	49.1
23–24	44.8	51.6	3.6	53.5
25–29	36.9	60.3	2.9	58.3
30 or older	32.9	65.6	1.5	58.4
Highest education level by either parent				
Less than high school	43.9	53.6	2.4	63.3
High school or equivalency	40.3	57.1	2.6	53.0
Some postsecondary	46.5	51.1	2.3	47.6
Bachelor's degree	51.4	45.8	2.8	54.0
Advanced degree	57.5	39.9	2.6	49.0

See notes at end of table.

Table 5. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate program by 2003, percentage distribution of enrollment intensity while enrolled and percentage taking time off, by student and institution characteristics

Student and institution characteristics	Percentage distribution			Percent took off at least one semester or term[1]
	Exclusively full-time	Exclusively part-time	Mix of full-time and part-time	
Bachelor's degree-granting institution				
Public 4-year				
Non-doctoral-granting	40.4	57.8	1.9	55.9
Doctoral-granting	49.7	47.3	3.0	52.9
Private not-for-profit 4-year				
Non-doctoral-granting	46.3	51.7	2.0	50.0
Doctoral-granting	59.7	38.0	2.3	48.7
Other	64.3	26.6	9.1	42.0
Baccalaureate degree major				
Business and management	41.4	57.4	1.2	53.6
Education	30.4	66.5	3.1	59.9
Engineering	47.0	51.5	1.4	57.7
Health professions	51.7	46.9	1.4	45.2
Public affairs/social services	54.2	45.9	#	49.6
Biological sciences	78.8	19.7	1.5	40.4
Mathematics and other sciences	60.0	39.1	0.9	53.8
Social science	52.5	43.7	3.8	48.2
History	63.2	32.4	4.4	52.7
Humanities	53.9	42.8	3.3	47.8
Psychology	54.2	41.1	4.7	56.5
Other	46.9	48.6	4.6	51.3
Bachelor's degree GPA				
Under 2.5	41.0	57.2	1.8	55.7
2.5–2.99	43.8	53.7	2.5	52.9
3.0–3.49	50.3	47.7	2.1	51.6
3.5 or above	55.4	41.3	3.3	50.7

[1] Does not include summer sessions.

[2] Black includes African American, Pacific Islander includes Native Hawaiian, and Hispanic includes Latino. Included in the totals but not shown separately are data for American Indian/Alaska Native respondents and those who identified themselves with another race not shown. Race categories exclude Hispanic origin unless specified.

NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Persistence and attainment

Among 1992–93 bachelor's degree recipients who had enrolled in a graduate degree program between 1993 and 2003, some 62 percent had earned at least one graduate degree by 2003 (table 6). Looking at the highest degree earned, 47 percent had earned a master's degree, 10 percent a first-professional degree, and 5 percent a doctoral degree. About 15 percent were still enrolled in a graduate degree program in 2003, and 23 percent were no longer enrolled and had not obtained a graduate degree. Degree attainment was related to the type of graduate degree program in which students had enrolled. Relatively more first-professional students (71 percent) than master's or doctoral students (60 percent of master's students and 43 percent of doctoral students) obtained a degree.

Graduates' degree attainment did not always align with students' educational expectations at the time they completed a bachelor's degree in 1992–93. This pattern was especially evident among those with doctoral degree aspirations: 11 percent of graduate students who expected to earn a doctoral degree had done so by 2003, while 41 percent had earned a master's degree and were not enrolled in a doctoral program (table 7). About 46 percent of graduate students with first-professional degree expectations had earned a first-professional degree, and 57 percent of those with master's degree expectations had earned a master's degree.

Table 6. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate degree program by 2003, percentage distribution of attainment and enrollment status in 2003, by highest graduate enrollment

	Attained				Enrolled				No
Highest graduate enrollment	Total	Master's[1]	First-professional	Doctoral	Total	Master's	First-professional	Doctoral	degree, no longer enrolled
Total	61.9	47.1	10.0	4.8	14.7	10.5	1.3	2.9	23.4
Master's	60.1	60.1	†	†	13.4	13.4	†	†	26.6
First-professional[2]	74.8	3.4	71.4	†	10.7	1.6	9.0	†	14.5
Doctoral[2]	60.2	9.3	7.5	43.4	28.4	0.9	1.7	25.9	11.4

† Not applicable.
[1] Students who have attained a master's degree are identified as having a master's degree if no higher degree was attained and the student was not enrolled in a doctoral or first-professional degree program in 2003.
[2] Includes students who have earned a master's degree.
NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Table 7. Among 1992–93 bachelor's degree recipients who had enrolled in a graduate degree program by 2003, percentage distribution of attainment and enrollment status in 2003, by educational expectations at bachelor's degree completion

	Attained				Enrolled				No
Educational expectations at bachelor's degree completion	Total	Master's[1]	First-professional	Doctoral	Total	Master's	First-professional	Doctoral	degree, no longer enrolled
Total	61.9	47.1	10.0	4.8	14.7	10.5	1.3	2.9	23.4
Bachelor's degree or less	53.2	44.7	6.2	2.3	23.2	15.8	4.6	2.7	23.7
Master's degree	60.5	57.1	2.5	0.8	15.5	12.7	0.9	2.0	24.0
First-professional degree	74.3	19.0	46.4	8.9	9.1	4.8	3.0	1.3	16.7
Doctoral degree	61.9	41.2	9.9	10.8	13.5	7.9	0.7	5.0	24.6

[1] Students who have attained a master's degree are identified as having a master's degree if no higher degree was attained and the student was not enrolled in a doctoral or first-professional degree program in 2003.
NOTE: Estimates include students from the 50 states, DC, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993/03 Baccalaureate and Beyond Longitudinal Study (B&B:93/03).

Contemporary Research Questions About Graduate Education

Given NPSAS's congressional mandate and a review of the education research literature on graduate education, NCES may want to consider expanding its sample survey data collections to address contemporary research questions on the financing of graduate education, diversity among graduate students, market demands for employees with graduate education, and graduate students' productivity and well-being. These topics are addressed in further detail below.

Graduate education financing

Rise in tuition

The cost of graduate education is increasing, particularly in STEM fields with expensive equipment and high labor costs, and federal budget cutbacks have reduced research funds. Institutions are charging higher tuition and searching for new sources of revenue. Many public systems have differential tuition charges by degree program. How many institutions are using new sources of funding, such as industry partnerships, to finance graduate education? What efficiencies can be realized through online education or other new teaching technology in graduate education?

Rise in debt

Graduate students' average debt levels are higher than those observed in previous years, particularly for master's students in health-care-related fields and professional students in medicine, other health fields, and law. Important research topics on rising student debt include whether potential debt levels hinder recruitment in certain fields or, relatedly, incurred debt levels hinder retention, and whether particular characteristics of students (e.g., race, gender) and/or their enrollment (e.g., choice of field, type of institution) are associated with more debt. Are students using new sources of funding like crowdsourcing, peer-to-peer and alumni networks, or income-sharing contracts (e.g., GreenNote, Zopa, Funding Circle, Lending Club)?

Types and adequacy of financial aid

Graduate students are eligible for grants and loans from the federal government, institutions, and employers. In addition, some aid for graduate students is provided in the form of research and teaching assistantships funded by institutions themselves or by federal or other

research grants to faculty or institutions. Do assistantships help in persistence because they more closely engage the student with professors and their field of study? Do current levels of total aid received allow students to study instead of work? What are the effects of both assistantships and outside employment on student persistence and time to degree? Contemporary policy concerns include the question of whether graduate assistants or interns are students or employees and the implications of each, as well as the effects of graduate student unions, employee benefits, and tax policy changes on graduate student productivity and success.

Examples of recent research on graduate education financing

- Ampaw, F.D., and Jaeger, A.J. (2012). Completing the Three Stages of Doctoral Education: An Event History Analysis. *Research in Higher Education, 53*(6): 640–660.
- Kim, D., and Otts, C. (2010). The Effect of Loans on Time to Doctorate Degree: Differences by Race/Ethnicity, Field of Study, and Institutional Characteristics. *The Journal of Higher Education, 81*(1): 1–32.
- Mendoza, P., Villarreal III, P., and Gunderson, A. (2014). Within-Year Retention Among Ph. D. Students: The Effect of Debt, Assistantships, and Fellowships. *Research in Higher Education*: 1–36.
- Strayhorn, T.J. (2010). Money Matters: The Influence of Financial Factors on Graduate Student Persistence. *Journal of Student Financial Aid, 40*(3): 4–25.

Graduate student diversity

Race/ethnicity and gender

Women outnumber men in graduate schools now, and more Black, Hispanic, and Asian students are in graduate school than ever before. Nevertheless, white males still predominate in certain fields and levels of graduate education. How are institutions, government funding sources, and employers affecting the enrollment and success of women and minorities in underrepresented fields and programs? Is there gender or race bias in the provision of opportunities for advancement in these degree programs?

STEM fields

In particular, women and minorities still lag behind white males in enrollment and persistence in STEM. What are the main causes for these discrepancies? STEM fields have the largest concentration of foreign students. What is the impact of foreign students in graduate STEM education? Do they bring a new source of funding, enhance intellectual innovation, supplant local students, or require extra services?

Examples of recent publications on graduate student diversity

- Bound, J., Turner, S., and Walsh, P. (2009). *Internationalization of U.S. Doctorate Education*. Working Paper No. 14792. Cambridge, MA: National Bureau of Economic Research.
- Ong, M., Wright, C., Espinosa, L.L., and Orfield, G. (2011). Inside the Double Bind: A Synthesis of Empirical Research on Undergraduate and Graduate Women of Color in Science, Technology, Engineering, and Mathematics. *Harvard Educational Review, 81*(2): 172–209.
- Pender, M., Marcotte, D.E., Domingo, M.R.S., and Maton, K.I. (2010). The STEM Pipeline: The Role of Summer Research Experience in Minority Students' Ph. D. Aspirations. *Education Policy Analysis Archives, 18*(30): 1.

Market demand for graduates

New fields

As the economy has changed, new degree programs tailored to innovation in computer science, health, and engineering fields have proliferated. Many of these programs, often developed in collaboration with employers in business and government, offer professional (non-research) master's degrees and doctorates for applied careers and are offered online. Who is the target population for these new programs? Are the traditional graduate school mechanisms of recruitment, retention, and financing adjusting to these new degree programs?

Old programs

Demand for such occupations as lawyers, journalists, and academic professors has declined, but graduate programs still produce graduates in these fields. Are some programs shrinking to accommodate declines in market demand? To what extent are academic programs offering students such bridges to non-academic employment as instruction in marketable skills or short-term employment through post-degree fellowships?

Persistence and time to degree

Some graduate degrees take years to earn. What is the impact of better knowledge of or changes in job prospects on student retention in graduate school? What are the effects of attendance status, family support, academic preparation, faculty advisors, and outside employment on degree completion? How well does the GRE predict persistence or attainment?

Examples of recent publications on market demand for graduates

- Blume-Kohout, M.E., and Clack, J.W. (2013). Are Graduate Students Rational? Evidence from the Market for Biomedical Scientists. *PLoS One, 8*(12): e82759.
- Johnson, M.T. (2013). The Impact of Business Cycle Fluctuations on Graduate School Enrollment. *Economics of Education Review, 34*: 122–134.
- Lott, J.L., Gardner, S., and Powers, D.A. (2009). Doctoral Student Attrition in the STEM Fields: An Exploratory Event History Analysis. *Journal of College Student Retention: Research, Theory and Practice, 11*(2): 247–266.
- Sauermann, H., and Roach, M. (2012). Science PhD Career Preferences: Levels, Changes, and Advisor Encouragement. *PLoS One, 7*(5): e36307.

Graduate student productivity and well-being

Mentoring

Does the amount and quality of graduate students' interaction with faculty and other mentors affect their engagement, productivity, and persistence? What kinds of graduate student/faculty relationships or interactions are most effective in encouraging graduate student progress? How are they structured?

Professional growth and well-being

Graduate programs are very diverse in the amount of socialization—that is, assimilation into the norms of their chosen profession or discipline—they expect of graduate students. Does having academic teams, lab shifts, or coordinated study groups affect productivity, engagement, or persistence? Graduate work can be lonely and stressful. Are there such resources for addressing anxiety and depression as mental health counseling? How critical are culturally-responsive advising services to student persistence?

Examples of recent publications on graduate student productivity and well-being

- Bell-Ellison, B.A., and Dedrick, R.F. (2008). What Do Doctoral Students Value in Their Ideal Mentor? *Research in Higher Education, 49*(6): 555–567.
- Boden, D., Borrego, M., and Newswander, L.K. (2011). Student Socialization in Interdisciplinary Doctoral Education. *Higher Education, 62*(6): 741–755.
- Wyatt, T., and Oswalt, S.B. (2013). Comparing Mental Health Issues Among Undergraduate and Graduate Students. *American Journal of Health Education, 44*(2): 96–107.

Next Steps

The discussions of this TRP panel are meant to help shape the content of the graduate topics covered in the future, especially in the next iterations of NPSAS and B&B. NPSAS:16 will be the next NPSAS survey to identify a cohort of bachelor's degree recipients for longitudinal study. The B&B:16/17 study will follow up with these students 1 year after receiving their bachelor's degrees from the NPSAS institution. NCES is considering additional B&B follow-up studies, including B&B:16/20, the 4-year follow-up to NPSAS:16; and B&B:08/18, the 10-year follow-up to NPSAS:08.

Appendix: Publications Based on Graduate Student Data from NCES Sample Surveys

NCES Publications

Data from NPSAS and B&B are available to the public through NCES web tools (QuickStats and PowerStats), found at http://nces.ed.gov/datalab. Researchers who want more detailed access can obtain a restricted data license and use the source files. NCES also produces many reports and tables on general topics of interest using the data which are available on the website. Recent tables on graduate students include:

Web Tables—Trends in Graduate Borrowing: Selected Years, 1995–96 to 2007–08 (NCES 2010-180). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010180

Web Tables—Trends in Student Financing of Graduate and First-Professional Education: Selected Years, 1995–96 to 2007–08 (NCES 2011-217). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011217

Web Tables—Student Financing of Graduate and First-Professional Education: 2007–08 (NCES 2011-172). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011172

Web Tables—Profile of Students in Graduate and First-Professional Education: 2007–08 (NCES 2010-177). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010177

Graduate and First-Professional Students: Who They Are and How They Pay for Their Education: 2007–08 (NCES 2011-174). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174

The Path Through Graduate School: A Longitudinal Examination 10 Years After Bachelor's Degree (NCES 2007-162). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007162

Wei, C.C., and Horn, L. (2009). *A Profile of Successful Pell Grant Recipients: Time to Bachelor's Degree and Early Graduate School Enrollment* (NCES 2009-156). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Other Publications Citing NPSAS and B&B

Researchers have used data from NPSAS and B&B to publish journal articles such as the following:

Andrieu, S.C., and St. John, E.P. (1993). The Influence of Prices on Graduate Student Persistence. *Research in Higher Education, 34*(4): 399–425.

Collins, E. (2013). A Review of African American Graduate College Choice. *Annuals of the Next Generation, 1*(14–17): 4.

DeAngelis, S. (1998). The Influence of Price and Price Subsidies on Within-Year Persistence of Graduate and Professional Students. *Journal of Student Financial Aid, 28*: 41–57.

Franklin, S.L., and Slate, J.R. (2012). First-Generation Student Enrollment and Attainment Beyond the Baccalaureate. *Journal of Education Research, 6*(2): 175.

Gururaj, S., Heilig, J.V., and Somers, P. (2010). Graduate Student Persistence: Evidence from Three Decades. *Journal of Student Financial Aid, 40*(1): 3.

Henry, D.P. (2001). *Student Debt and Debt Burden of Graduate and First-Professional Students: A National and Institutional Analysis.* Unpublished doctoral dissertation, The College of William and Mary.

Mendoza, P., Villarreal III, P., and Gunderson, A. (2014). Within-Year Retention Among Ph.D. Students: The Effect of Debt, Assistantships, and Fellowships. *Research in Higher Education*: 1–36.

Stevenson, A. (2012). The Male-Female Gap in Post-Baccalaureate School Quality. *Economics of Education Review, 36*: 153–165.

Strayhorn, T.L., Williams, M.S., Tillman-Kelly, D., and Suddeth, T. (2013). Sex Differences in Graduate School Choice for Black HBCU Bachelor's Degree Recipients: A National Analysis. *Journal of African American Studies, 17*(2): 174–188.