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Who Goes to Graduate School and Who Succeeds?

By Sandy Baum, Ph.D., and Patricia Steele, Ph.D.



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About the Authors

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In 2015, 12 percent of adults in the United States ages 25 and older held advanced degrees—master’s, doctoral, or professional degrees.¹ These 25.4 million people constituted 37 percent of the individuals who had completed bachelor’s degrees.²

During the Great Recession, those with college degrees fared much better than those without degrees, but a number of college graduates struggled to find satisfactory employment, leading many to graduate study. The option of seeking an advanced degree has gained momentum in recent decades, and now some observers call the master’s degree the “new bachelor’s degree.”³

This brief is the first in a series addressing questions about enrollment and success in graduate school, funding of graduate students, the conceptual differences between undergraduate and graduate students, and the data available to address these questions.

As participation in graduate programs rises, it is critical to ask who is enrolling, which programs they are choosing, whether they complete their degrees, and how their investment in education beyond the bachelor’s degree pays off. This brief reviews changes over time in educational attainment levels and the earnings premiums for advanced degrees, and then explores differences in

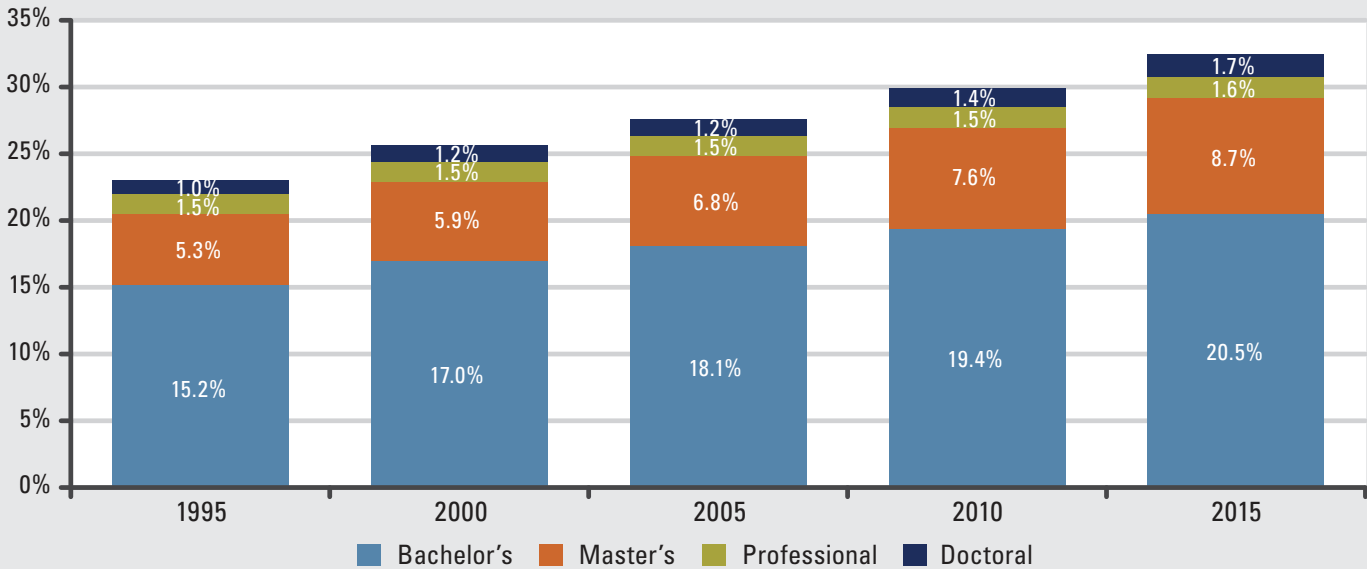
enrollment and completion patterns across demographic groups.

In 2011–12, nine percent of graduate students in the United States—and 24 percent of those in doctoral programs—were international students. Although U.S. Census data on educational attainment do include non-citizens, the analysis that follows focuses on the graduate school enrollment of U.S. citizens and permanent residents who earned bachelor’s degrees.⁴

Graduate Education over Time

The share of adults ages 25 and older who have completed graduate degrees rose from eight percent in 1995 to 10 percent in 2005, and to 12 percent in 2015, growing from 34 percent to 37 percent of individuals with bachelor’s degrees (figure 1). Master’s degrees, which include Master of Business Administration, Master of Social Work, and master’s in other specific fields, in

Figure 1: Educational Attainment of Adults Ages 25 and Older over Time



Source: U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement and earlier years, <http://www.census.gov/hhes/socdemo/education/data/cps/2015/tables.html>.

addition to Master of Arts and Master of Science degrees, constituted 73 percent of advanced degrees in 2015—a five percent increase from 20 years earlier. (Professional degrees include advanced degrees in chiropractic, dentistry, law, medicine, optometry, osteopathic medicine, pharmacy, podiatry, and veterinary medicine. Doctoral degrees include Ph.D.s, education doctorates, and doctorates in a number of other fields.)

The Earnings Premium

Average earnings are significantly higher for individuals with advanced degrees than for those whose highest degree is a bachelor's. In 2015, average earnings for 35- to 44-year-olds with master's degrees were 23 percent higher than the average for those with bachelor's degrees (\$87,320 versus \$71,100). In the same year, the average earnings premium for doctoral degree recipients was 63 percent, and average earnings were more than twice as high for those with professional degrees as for those with bachelor's degrees.

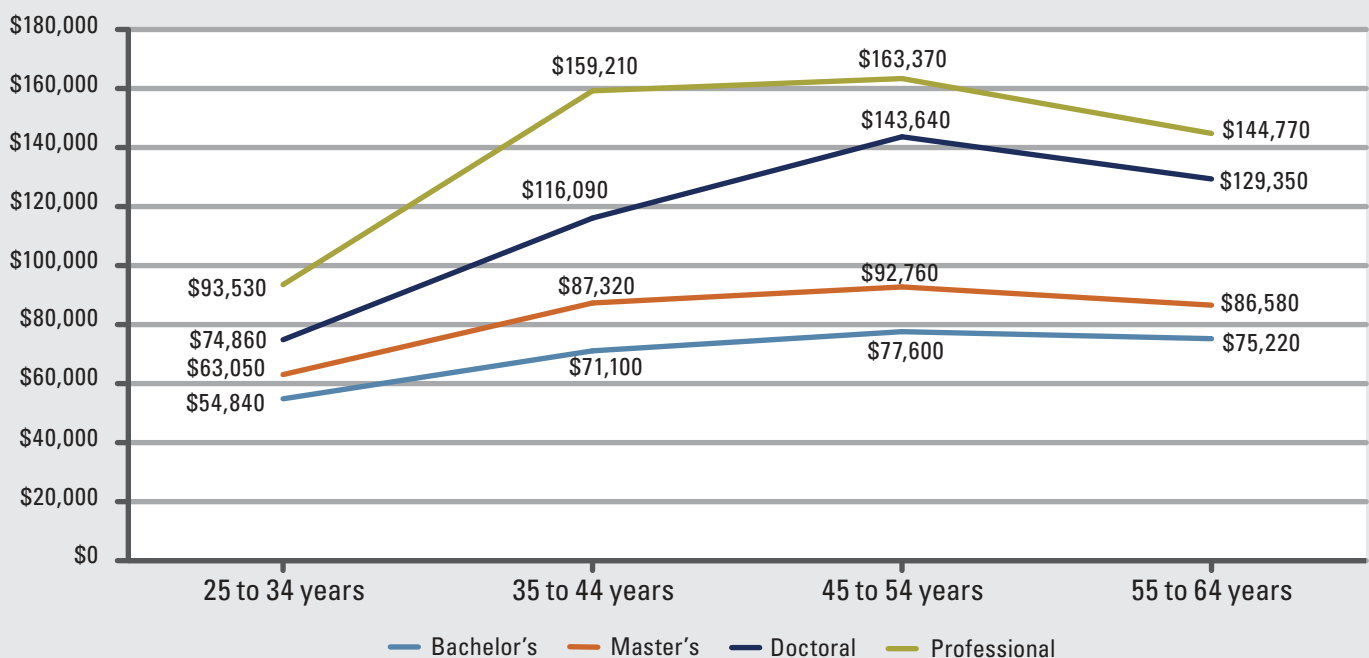
There are measurable differences in earnings associated with graduate degrees among adults in their late twenties and early thirties (figure 2). The steeper earnings paths of graduate degree holders—particularly those with doctoral and professional degrees—cause the earnings gap to grow as individuals move into their late thirties and forties.

College Graduates Who Pursue Graduate Studies

Thirty-nine percent of all 2007–08 bachelor's degree recipients enrolled in a graduate degree program within four years of graduating from college (figure 3).⁵ In contrast, among 1992–93 bachelor's degree recipients, 34 percent enrolled in a graduate program within four years of finishing college. Within 10 years of receiving their bachelor's degrees, 40 percent of the earlier cohort had enrolled in graduate school. Though it is not yet possible to follow the 2007–08 cohort for 10 years, it appears that participation rates have grown over time.

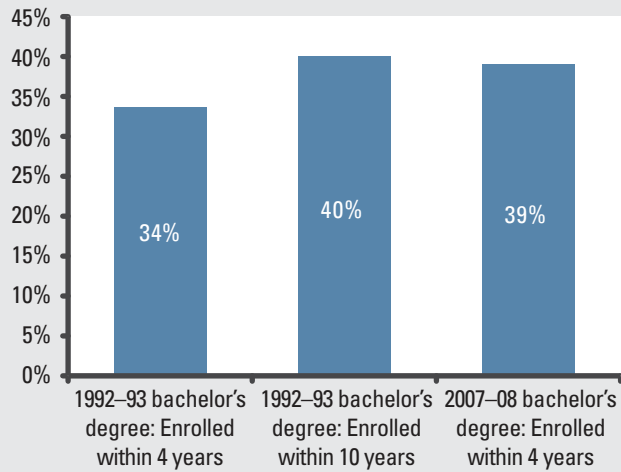
The percentage of students enrolling in graduate school increases with family income. Among dependent 2007–08 four-year college graduates, 39 percent of those from families in the lowest income quartile, 42 percent from middle-income families, and 45 percent from the highest income quartile had enrolled in graduate school within four years of college graduation. Among 1992–93 bachelor's degree recipients, graduate school enrollment rates ranged from 33 percent for the lowest-income group to 42 percent for the highest-income group after four years, and from 41 percent to 49 percent after 10 years (table 1).

Figure 2: 2015 Mean Earnings by Age and Educational Attainment



Source: U.S. Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement, Table PINC-04.

Figure 3: Graduate School Enrollment Rates of 1992–93 and 2007–08 Bachelor’s Degree Recipients



Source: NCES, Baccalaureate and Beyond Longitudinal Study, 1993–2003 and 2008–2012.

The percentage of female 1992–93 bachelor’s degree recipients who enrolled in graduate school was only slightly higher than the percentage among males, but the gender gap was larger in the later cohort, in which 40 percent of females and only 36 percent of males started a graduate program within four years of finishing college.

Students who earn their bachelor’s degrees at younger ages are consistently more likely than older students to go on to graduate school.

Forty-five percent of 2007–08 black bachelor’s degree recipients enrolled in graduate school by 2012—more than any other racial/ethnic group (table 1). To put this information into context, it is important to consider the educational pipeline. In 2003, when many of the 2007–08 bachelor’s degree recipients were graduating from high school and preparing for college, 11 percent of black 16- to 24-year-olds were high school dropouts compared with just six percent of white students in that age group.⁶ Moreover, only 58 percent of 2003 black high school

Table 1: Graduate School Enrollment among Bachelor’s Degree Recipients by Student Characteristics

	1992–93 bachelor’s degree: Enrolled within four years	1992–93 bachelor’s degree: Enrolled within 10 years	2007–08 bachelor’s degree: Enrolled within four years
All	34%	40%	39%
Race/ethnicity			
White	33%	40%	38%
Asian	39%	41%	42%
Black	34%	45%	45%
Hispanic	38%	43%	36%
Gender			
Male	33%	39%	36%
Female	35%	42%	40%
Dependent students’ family income			
Lowest quartile	33%	41%	39%
Second quartile	35%	43%	42%
Third quartile	37%	49%	42%
Highest quartile	42%	49%	45%
Age completed bachelor’s degree			
22 or younger	40%	49%	39%
23 to 26	28%	33%	37%
27 to 30	25%	29%	38%
31 or older	33%	36%	38%

Source: NCES, Baccalaureate and Beyond Longitudinal Study, 1993–2003 and 2008–2012.

graduates enrolled immediately in college compared with 84 percent of Asian, 66 percent of white, and 59 percent of Hispanic students in that graduating class.⁷ Only 19 percent of black students who were high school sophomores in 2002 had earned a bachelor's degree 10 years later compared with 33 percent of all high school sophomores. In other words, black students earning bachelor's degrees who are in a position to consider graduate school are a much smaller share of their age group than white and Asian college graduates. The higher rate of graduate school enrollment among black college

graduates does not imply a high rate of enrollment among black young adults relative to other racial and ethnic groups.

Looking at the educational attainment levels of the adult population sheds additional light on the relatively high graduate school enrollment rate of black college graduates. As table 2 shows, although similar percentages of black and white bachelor's degree recipients hold advanced degrees, both the share of all adults with advanced degrees and the share with a bachelor's degree

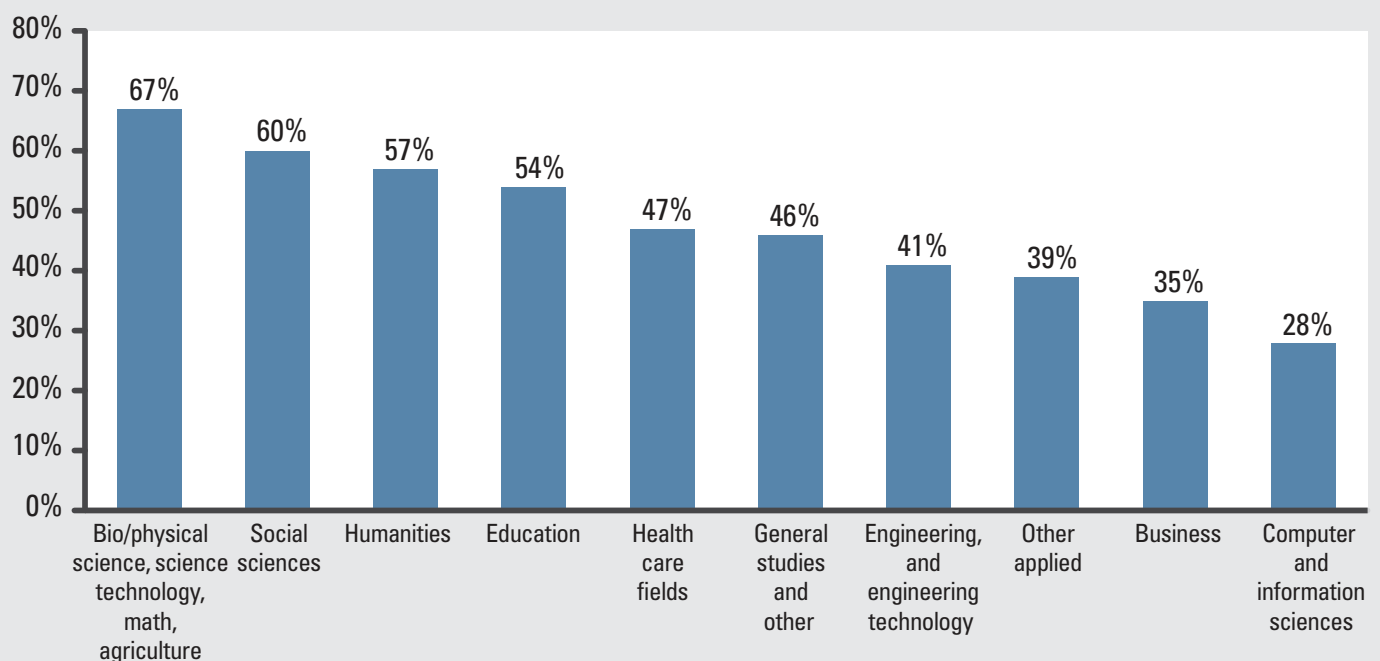
Table 2: 2015 Educational Attainment Rates of Adults Ages 25 and Older by Race and Ethnicity

	Bachelor's degree	Advanced degree	Bachelor's or advanced degree	Percent of bachelor's degree holders completing an advanced degree
White	23%	14%	36%	37%
Asian	33%	21%	54%	40%
Black	14%	8%	22%	36%
Hispanic	11%	5%	15%	30%

Source: U.S. Census Bureau (2015), Educational Attainment in the United States: 2015, Table 1, <https://www.census.gov/hhes/socdemo/education/data/cps/2015/tables.html>.

Note: Components may not sum to totals because of rounding.

Figure 4: Percentage of 2007–08 Bachelor's Degree Recipients Enrolled in a Graduate Program as of 2012 by Undergraduate Major



Source: NCES, Baccalaureate and Beyond Longitudinal Study, 2008 and 2012, PowerStats.

or higher are far lower among black and Hispanic groups than among white and Asian populations.

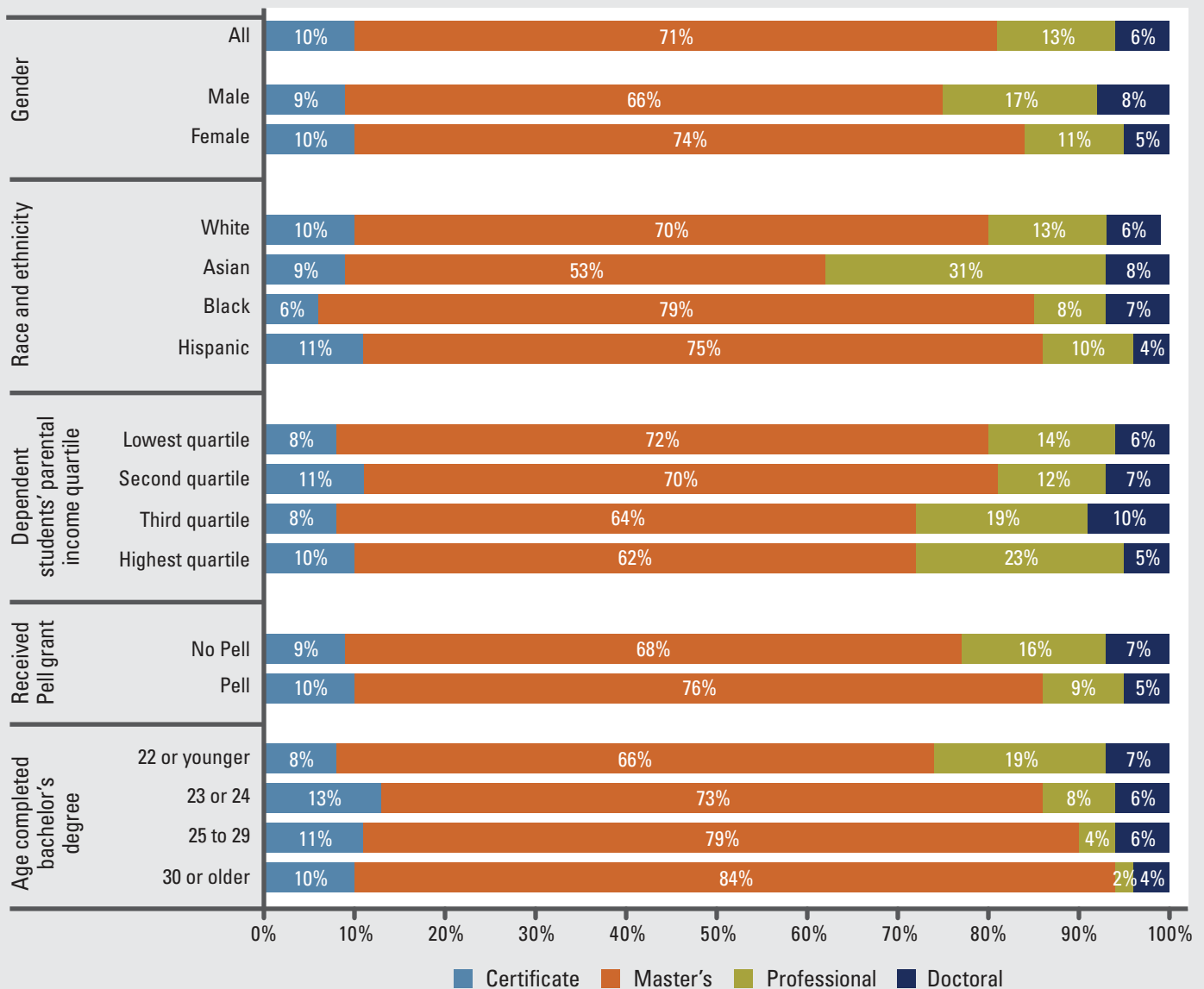
Figure 4 reports graduate school enrollment rates by undergraduate major for 2007–08 college graduates. Those in fields with better immediate employment prospects are least likely to continue their education within four years of finishing college. For example, only 28 percent of those who earned bachelor’s degrees in computer and information sciences in 2007–08 and 35 percent of those in business had enrolled in graduate school by 2009.

Types of Graduate Programs

Graduate program enrollment patterns vary among students from different demographic groups. Women who continued their education after completing bachelor’s degrees in 2007–08 were more likely than their male classmates to enroll in master’s degree programs, and male graduates were more likely to enroll in professional and doctoral degree programs (figure 5).

Asian college graduates who went on to graduate school within four years were much more likely than others to

Figure 5: Percentage of 2007–08 Bachelor’s Degree Recipients Who Enrolled in Graduate School as of 2012 by Type of Graduate Program



Source: NCES, Baccalaureate and Beyond Longitudinal Study, 2008 and 2012, PowerStats.

Note: Components may not sum to 100 percent because of rounding.

enroll in doctoral and, particularly, professional degree programs. Thirty-one percent of Asian graduate students entered professional degree programs and 53 percent pursued master's degrees. By comparison, these figures were eight percent and 80 percent, respectively, among black college graduates who enrolled in graduate school.

Race, ethnicity, and gender are not the only characteristics differentiating students who enroll in master's degree programs as opposed to doctoral and professional degree programs. Graduate students from the highest family income quartile, those who did not receive Pell grants as undergraduates and those who completed their bachelor's degrees at age 22 or younger are much more

likely to enroll in professional degree programs than are those from less affluent families and those who were older when they graduated from college.

There are also notable differences in the institutional sectors in which different groups of students pursue their graduate studies. Among those enrolling in master's programs, black students, those from low-income families, and those who earned their bachelor's degrees at older ages are most likely to attend for-profit institutions. Twenty-four percent of the black 2007–08 college graduates who enrolled in master's degree programs attended for-profit institutions, compared with just nine percent of all students (table 3).

Table 3: Distribution of 2007–08 Bachelor's Degree Recipients Enrolled in Master's Degree Programs by Sector

	Public	Private nonprofit	For-profit
All	51%	40%	9%
Gender			
Male	52%	41%	7%
Female	51%	40%	9%
Race and ethnicity			
White	55%	39%	6%
Asian	57%	38%	5%
Black	37%	39%	24%
Hispanic	44%	50%	7%
Other	44%	37%	19%
Dependent students' parental income quartile			
Lowest quartile	50%	39%	12%
Second quartile	55%	37%	8%
Third quartile	54%	40%	6%
Highest quartile	49%	48%	4%
Pell grant status			
No Pell	47%	39%	14%
Pell	54%	41%	6%
Age completed bachelor's degree			
22 or younger	54%	42%	4%
23 or 24	54%	37%	9%
25 to 29	44%	36%	20%
30 or older	38%	40%	22%

Source: NCES, Baccalaureate and Beyond Longitudinal Study, 2008–2012, PowerStats.

Degree Completion

An accurate perspective on graduate degree completion requires a time frame that extends more than four years beyond bachelor's degree completion. To accomplish this, we look at completion rates 10 years out for 1992–93 four-year college graduates.

Table 4 reports graduate school attainment rates of 1992–93 bachelor's degree recipients as of 2003. The table reports outcomes both for all students who enrolled in graduate school and for those whose highest degree program was a master's program—73 percent of all graduate students. Overall, completion rates were lower in master's degree programs than in other programs—61 percent compared with 74 percent for post-master's

Table 4: Degree Completion of 1992–93 Bachelor's Degree Recipients Who Enrolled in Graduate School by 2003

	All			Master's Only		
	Completed degree	Enrolled in 2003	Left without degree	Completed degree	Enrolled in 2003	Left without degree
All	65%	13%	23%	61%	13%	26%
Gender						
Male	67%	13%	21%	62%	14%	25%
Female	63%	13%	24%	60%	13%	27%
Undergraduate dependency status, 1992–93						
Dependent	69%	11%	20%	65%	12%	23%
Independent	56%	15%	28%	54%	15%	31%
Dependent students' family income quartile, 1992–93						
Lowest quartile	64%	13%	23%	59%	14%	27%
Second quartile	67%	13%	20%	63%	14%	23%
Third quartile	68%	12%	20%	65%	12%	23%
Highest quartile	76%	7%	17%	72%	9%	20%
Received Pell grants, 1992–93						
No Pell	66%	12%	22%	62%	13%	25%
Pell	58%	15%	28%	54%	13%	33%
Age when received bachelor's degree						
22 or younger	70%	10%	20%	65%	11%	24%
23–24	58%	17%	25%	56%	16%	27%
25–29	53%	17%	30%	53%	16%	31%
30 or older	59%	14%	27%	56%	14%	30%
Parental status						
No kids	68%	13%	20%	63%	14%	23%
Kids	62%	12%	26%	58%	13%	29%
Graduate degree program						
Master's degree	61%	13%	26%			
Post-master's certificate	74%	12%	14%			
Professional degree	77%	10%	14%			
Doctoral degree	76%	13%	12%			

Source: NCES, Baccalaureate and Beyond Longitudinal Study, 1993–2003.

Note: Components may not sum to 100 percent because of rounding.

certificate programs, 76 percent for doctoral programs, and 77 percent for professional degree programs. Twenty-six percent of those who began master's degree programs left school without completing a degree compared with 12 to 14 percent of those in other types of programs.

Students who were dependent for financial aid purposes when they graduated from college (66 percent of all who enrolled in graduate programs and 62 percent of those who enrolled in master's programs) were more likely than independent students to complete the graduate programs in which they enrolled. That is, younger college graduates were more likely than older students to complete their programs. Among dependent students, those whose families were in the highest income quartile were more likely than others to complete their graduate degrees. These outcomes are consistent with the finding that students who did not receive Pell grants as undergraduates and who were age 22 or younger when they earned their bachelor's degrees were more likely than others to complete their graduate programs.

Conclusion

As the difference between the four-year and 10-year enrollment rates of 1992–93 bachelor's degree recipients reveals, many bachelor's degree recipients wait quite a while after finishing college to enroll in graduate school. It is, therefore, difficult to predict how many current students will pursue advanced degrees. However, available data suggest both that graduate study is becoming more common and that the enrollment patterns differ across demographic groups. In particular, as is the case for undergraduate education, students from higher-income backgrounds are more likely than others to enroll, more likely to complete their programs and more likely to earn degrees that promise high value in the labor market.

Four-year college graduates from lower-income backgrounds are not just less likely than others to go to graduate school. When they do continue their education beyond college, they are more likely than those from higher-income backgrounds to seek master's degrees, which yield a considerably lower earnings premium than doctoral and professional degrees.

Black college graduates—who make up a much smaller share of their age group than white and Asian college graduates—are actually more likely than those from other racial and ethnic groups to go to graduate school. But they disproportionately enroll in master's degree programs, which generate the lowest earnings premiums; a very small percentage pursue professional degrees that lead to the highest average earnings. Moreover, about one-quarter of black master's degree students attend for-profit institutions.

Among graduate students, males, Asians, those from higher-income backgrounds and those who were younger when they completed college are most likely to pursue professional degrees to prepare to enter medicine, law and other high-paying careers. Master's degree programs, which have lower completion rates overall than doctoral and professional programs, enroll higher proportions of women, black students, students from lower-income backgrounds and those who earned their bachelor's degrees at older ages.

The increased earnings and career opportunities associated with most types of advanced degrees make ensuring the broad availability of these programs critical. This brief does not address the reasons behind these different enrollment patterns. Future briefs will explore financial barriers by examining the prices paid, the debt accrued and the earnings outcomes of students with different characteristics enrolling in the range of available graduate programs.

APPENDIX

Table A.1: 1995–2015 Educational Attainment of Adults Ages 25 and Older

	Bachelor's	Master's	Professional	Doctoral	Bachelor's or higher	Advanced	Advanced as percentage of bachelor's or higher
1995	15%	5%	1%	1%	23%	8%	34%
2000	17%	6%	1%	1%	26%	9%	33%
2005	18%	7%	2%	1%	28%	10%	35%
2010	19%	8%	2%	1%	30%	11%	35%
2015	21%	9%	2%	2%	33%	12%	37%

Source: U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement and earlier years.

Table A.2: Percentage of 2007–08 Bachelor's Degree Recipients Who Enrolled in a Graduate Degree Program as of 2012, by Field of Study

Undergraduate field of study (Percentage of 2007–08 bachelor's degree recipients enrolled)	Enrolled by 2012
Biological and physical science, science technology, math, agriculture (7%)	67%
Social sciences (15%)	60%
Humanities (12%)	57%
Education (8%)	54%
Health care fields (8%)	47%
General studies, other (3%)	46%
Engineering, engineering technology (6%)	41%
Other applied (15%)	39%
Business (23%)	35%
Computer and information sciences (3%)	28%

Source: NCES, Baccalaureate and Beyond Longitudinal Study, 2008–2012, PowerStats.

Table A.3: Types of Graduate Programs Attended by 2007–08 Bachelor’s Degree Recipients Who Enrolled in Graduate School by 2012

	Certificate	Master’s	Professional	Doctoral
All	10%	71%	13%	6%
Gender				
Male	9%	66%	17%	8%
Female	10%	74%	11%	5%
Race and ethnicity				
White	10%	70%	13%	6%
Asian	9%	53%	31%	8%
Black	6%	79%	8%	7%
Hispanic	11%	75%	10%	4%
Dependent students’ parental income quartile				
Lowest quartile	9%	66%	17%	7%
Second quartile	8%	72%	14%	6%
Third quartile	11%	70%	12%	7%
Highest quartile	8%	64%	19%	10%
Pell grant status				
No Pell	9%	68%	16%	7%
Pell	10%	76%	9%	5%
Age completed bachelor’s degree				
22 or younger	8%	66%	19%	7%
23 or 24	13%	73%	8%	6%
25 to 29	11%	79%	4%	6%
30 or older	10%	84%	2%	4%

Source: NCES, Baccalaureate and Beyond Longitudinal Study, 2008–012, PowerStats.

Note: Components may not sum to 100 percent because of rounding.

Notes

1. The National Center for Education Statistics (NCES) has revised its terminology, replacing the categories of “first professional” and “doctoral” degrees with “professional practice” doctoral degrees and “research/scholarship” doctoral degrees, respectively. For consistency with historical data, this brief uses the U.S. Census categories of “professional” and “doctoral.”
2. U.S. Census Bureau, Current Population Survey, “Educational Attainment of the Population 18 Years and Over, by Age, Sex, Race, and Hispanic Origin: 2015,” Table 1, <http://www.census.gov/hhes/socdemo/education/data/cps/2015/tables.html>.
3. Laura Pappano, “The Master’s as the New Bachelor’s,” *New York Times*, July 22, 2011, <http://www.nytimes.com/2011/07/24/education/edlife/edl-24masters-t.html>.
4. NCES, National Postsecondary Student Aid Study 2012, PowerStats.
5. Some bachelor’s degree recipients—about five percent of those who graduated in 2007–08—pursue a second bachelor’s degree, an associate degree, or an undergraduate certificate. Since these are not graduate degree programs, they are not included in the enrollment percentages cited here.
6. NCES, *Digest of Education Statistics 2006*, Table 104.
7. NCES, *Digest of Education Statistics 2015*, Table 302.20.

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