

# The Rise of Master's Degrees

Master's Programs Are Increasingly Diverse and Online

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December 2018

Master's degree programs have changed dramatically in the past decade. Roughly 785,000 master's degrees were awarded in 2015–16, at a rate of about two master's degrees awarded for every five bachelor's degrees (appendix figure 1). Journalists have touted the master's degree as "the new bachelor's degree" for young workers who want to stand out in a competitive workforce. But beyond the rise in the number of master's degrees awarded, there have been substantial changes in the enrollment demographics, field offerings, and delivery of master's degree programs that deserve policymakers' attention. In this brief, I outline recent trends in master's degree enrollment and connect these trends to potential "supply-side" factors, such as institution-level enrollment pressures, student loan policies, and predictors of success in online coursework.

In this brief, I show that master's programs enroll a more diverse set of students than ever and offer a more diverse set of program fields. Master's programs are also increasingly online, with more than 50 percent of master's students reporting at least some online coursework in 2015–16. Although master's degrees are more popular and more readily available to a wider cohort of students, the net price for these programs has risen. Net prices—the amount students pay after all grant aid—have risen faster for master's programs than for bachelor's programs. But there may be some savings for students who enroll online; net prices for online-only master's programs have risen slower than for in-person programs.

Some of the growth in master's degrees may be driven by student demand, as salaries for workers with a master's degree tend to be higher than for workers with a bachelor's degree in the same field (Carnevale, Cheah, and Hanson 2015; Schneider and Klor de Alva 2018). In this brief, I focus on

interconnected supply-side factors that originate from institutions and policymakers and that may also explain some of these shifts. For example, it may be easier for institutions to expand graduate enrollment than undergraduate enrollment, as master's students may make lighter demands on school facilities than do undergraduates (e.g., typically do not need dormitories and may attend classes in evenings or on weekends) and may bring in more tuition revenue than undergraduates. Federal student loan policies also allow higher loan limits for master's students, which, combined with income-based repayment options, may encourage institutions to push students into using loans to pay for school. Finally, master's students may have characteristics that make them more likely to succeed in online coursework, making them suitable test cases for a university's foray into online education.

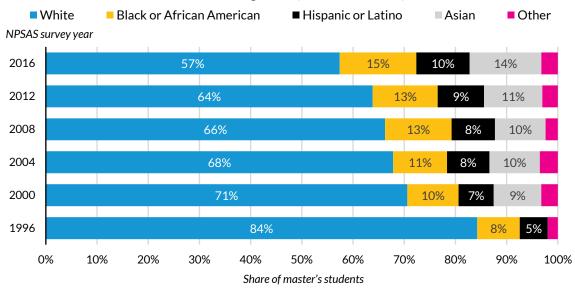
## Master's Programs Are Increasingly Diverse

Master's programs are diversifying in two senses. First, the backgrounds of students who enroll in master's programs have grown more diverse. Over the past two decades, master's programs have gradually enrolled a larger share of students from underrepresented racial and ethnic backgrounds. Second, the programs that are offered for master's degrees are more diverse; there are more specialized programs offered today than in the mid-1990s.

#### Students Attending Master's Programs Have Grown More Diverse

The share of black and Hispanic students enrolled in master's programs has nearly doubled in 20 years, from 14 percent in 1996 to 25 percent in 2016 (figure 1). Similarly, the share of white students has declined, from 84 percent of all master's students in 1996 to 57 percent in 2016. Among major categories, programs in health (a 10 percentage-point increase) and the humanities (an 8 percentage-point increase) saw the largest increases in the share of black students from 2000 to 2016, and the increases in the share of Hispanic students were largest in social and behavioral sciences (6 percentage points), business and management (6 percentage points), and the humanities (5 percentage points). Previous research has shown that black college graduates are more likely than those from other racial or ethnic groups to go to graduate school, but they disproportionately enroll in master's programs (relative to professional and doctoral programs) and at for-profit institutions (Baum and Steele 2017).

FIGURE 1
Share of Students Enrolled in Master's Programs by Race or Ethnicity



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Source: National Center for Education Statistics DataLab; TrendStats for NPSAS Graduate Survey, reference ID cfkbkb42.

Notes: NPSAS = National Postsecondary Student Aid Study. Includes foreign students. Asian category not available for 1996.

"Other" includes the categories of other race, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, and more than one race, as available in the given year.

Because graduate students apply for financial aid as independent students, it is more difficult to assess their family's financial background. Today's master's students are more likely to have received at least one Pell grant during their enrollment in higher education, although this measure is imprecise, as higher-income families have become more likely to receive Pell grants over time (Delisle 2017). In 2000, 22 percent of students ages 26 and younger enrolled in master's programs had received at least one Pell grant during their enrollment in higher education. In 2016, that share was 34 percent.<sup>2</sup>

Master's degree students are also increasingly international. The share of international students enrolled in American master's programs has risen from 4 percent in 1996 to 13 percent in 2016.<sup>3</sup> Growth in international student enrollment has been strongest in math, engineering, and computer science (from 14 percent in 1996 to 50 percent in 2016).<sup>4</sup>

#### Master's Program Offerings Are More Diverse

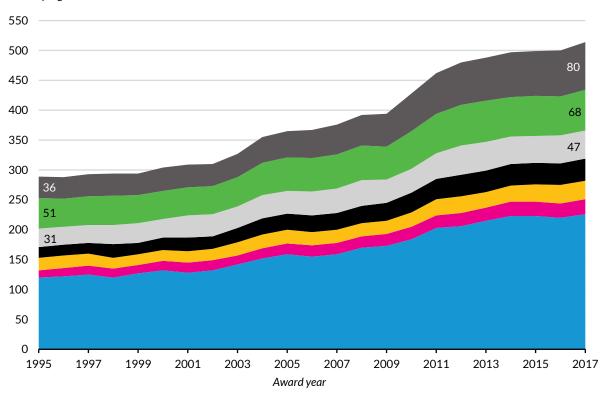
Just as master's students have changed, so have the programs that are offered as master's degrees. From 1995 to 2017, the number of distinct master's degree program fields (as classified by the program's six-digit Classification of Instructional Programs [CIP] code) has grown substantially. The number of distinct master's fields that have granted at least 100 degrees nationally per year has risen from 289 to 514 over this period (figure 2).

#### FIGURE 2

#### **Distinct Master's Degree Program Offerings**

- Health professions and related programs
- Education
- Business, management, marketing, and related support services
- Visual and performing arts
- Engineering
- **■** Construction trades
- All other programs

#### Total programs



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Source: Urban Institute analysis of degree award data from the Integrated Postsecondary Education Data System.

Notes: A distinct master's program offering is a unique six-digit Classification of Instructional Programs (CIP) code for which more than 100 degrees were awarded (by any institution) in the given year. National Center for Education Statistics crosswalks were used to connect the 1990 codes to 2000 codes, and the 2000 codes to 2010 codes. Programs were aggregated up to the two-digit CIP level using 2010 CIP codes.

Although the overall number of master's degree awards has also risen, the change in figure 2 is not driven by the expansion of small program fields into larger ones (those that awarded more than 100 degrees nationally in the given year). If we look at unique CIP codes under which at least one master's degree has been awarded, we see a similar pattern, with the number of unique six-digit CIP code

master's programs rising from 588 in 1995 to 1,043 in 2017. Other researchers have observed this trend. Judith Glazer-Raymo (2005, 29) notes that the 1985 Pearson's guide to graduate programs listed 667 master's degree titles, but this figure increased to more than 1,000 titles by 2005.

In some fields, this diversity may reflect the growing importance of demonstrating graduate-level knowledge of a given technology or skill for the nonacademic workplace. For example, Professional Science Master's programs are designed to increase math and science skills for nonacademic careers (Glazer-Raymo 2005, 60). This trend is evident in the field of computer science (where at least one master's degree was granted in only seven unique fields in 1995 and in 25 fields in 2017) and in the field of biology (where 31 unique master's program fields in 1995 became 81 in 2017). But this specialization has also occurred in fields where there has been less scientific or technological change, such as in education (66 to 91) and in visual and performing arts (41 to 62).

## Master's Programs Are Increasingly Online

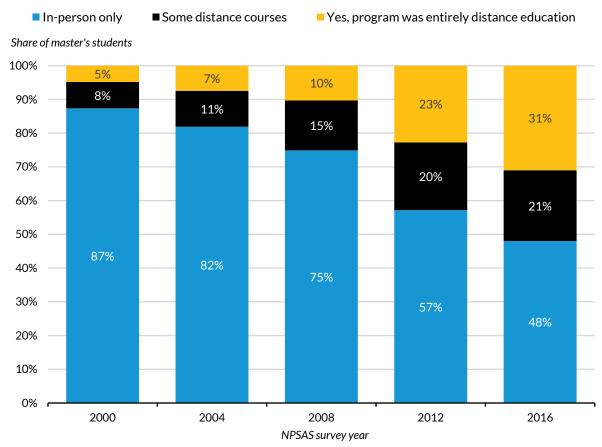
Master's programs have embraced online coursework and programs. Online learning is classified as distance education; although some distance education courses and programs are still offered through the mail, most distance education now takes place online, through media such as course videos and online discussion forums (Miller, Topper, and Richardson 2017). Most students in higher education who have taken at least one distance education course are undergraduates, though roughly a sixth of those taking at least one online course were graduate students (Seaman, Allen, and Seaman 2018).

#### More Students Are Using Distance or Online Education

The share of master's students who reported that their program was entirely distance education has increased substantially since 2000 (figure 3). In 2016, 31 percent of students enrolled in master's programs reported that their program was entirely online (in 2012 and 2016, the distance question was changed to ask specifically about enrollment in entirely online programs). Further, 21 percent of master's students reported taking some, but not all, of their classes online in 2016.

The rate of online enrollment in courses or programs is higher among master's students than among bachelor's degree students. In 2016, 31 percent of bachelor's students reported taking some, but not all, of their classes online, but just 12 percent of bachelor's students reported that their entire program was online.<sup>5</sup>

FIGURE 3
Master's Students, by Mode of Instruction



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Source: Urban Institute analysis of NPSAS graduate student data.

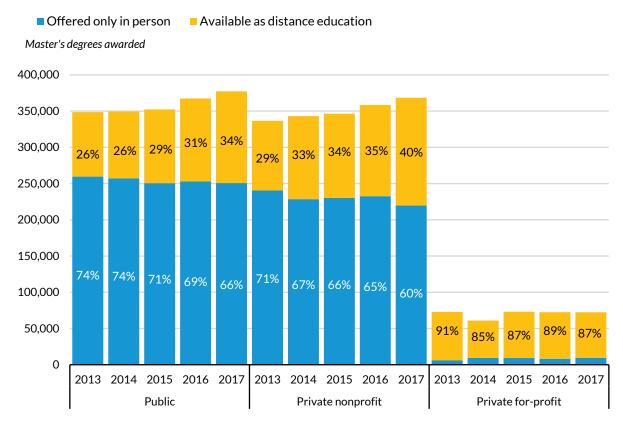
Notes: NPSAS = National Postsecondary Student Aid Study. This question was asked differently in different years. In years when respondents were allowed to skip the question, those who skipped were counted as not enrolled in an entirely distance education program. In 2012 and 2016, respondents were asked if their distance education was entirely online, rather than if they were enrolled in distance education. The share of students taking some distance courses was computed as the share of students not entirely in distance education but who reported at least one distance course. Results can be accessed at PowerStats with table codes bmmbkncd/cfmbkdm26 (2000), bmmbkn39/cfmbkdca0a (2004), bmmbkn4e/cfmbkdd3c (2008), bmmbkp30/cfmbkdfa1 (2012), and bmmbkp05/cfmbkdh8e (2016).

Distance or online courses have been persistently more popular among part-time students than among full-time students. In 2004, 9 percent of part-time master's students reported enrolling exclusively in distance education, compared with 5 percent of full-time master's students. In 2016, 36 percent of part-time students were enrolled in exclusively online education versus 27 percent of full-time students.

# Increases in Master's Degree Awards Come from Programs Available as Distance Education

Another way of looking at the growth of online degrees is to look at the share of awarded master's degrees that were available entirely as distance education. Of the more than 800,000 master's degrees awarded in 2017, more than 40 percent were awarded in a master's program that was either only available as distance education, or was available as either in-person or distance education (figure 4).

FIGURE 4
Master's Degrees Awarded, by Availability as Distance Education



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Source: Urban Institute analysis of Integrated Postsecondary Education Data System awards data.

Although private for-profit institutions issue the largest share of master's degrees in programs available as distance education, the increase in awards available as distance education has occurred in the public and private nonprofit sector. The number of master's degrees granted in programs available as distance education has increased from 89,000 in 2013 to 127,000 in 2017 within public institutions and from 96,000 to 149,000 over the same five years within private nonprofit institutions.

The fields that award the highest share of degrees through programs available via distance education include transportation and materials moving (about 800 degrees awarded, 91 percent

available as distance education); library science (4,900 degrees, 82 percent); military technologies and applied sciences (300 degrees, 78 percent); homeland security, law enforcement, and firefighting (10,900 degrees, 72 percent); business, management, and marketing (191,500 degrees, 52 percent); engineering technology (7,700 degrees, 52 percent); and work and family studies (3,300 degrees, 51 percent).

## Master's Programs Have Become More Expensive

The wage payoff, on average, is higher for a graduate degree than for a bachelor's degree, and some fields have stronger premiums than others (James 2012). But attending graduate school, particularly a master's program, is still a large investment of time and money. Although institutions do not track tuition charges specifically for master's students, the average "sticker price" for graduate tuition and fees has largely kept pace with tuition and fee charges for undergraduate programs, within institution sectors (appendix figure 2). The exception is average tuition and fees for full-time undergraduate programs at private nonprofit schools, compared with full-time graduate programs in the same sector. Although both types of programs have increased inflation-adjusted charges, the average sticker price for undergraduates at private nonprofit schools has increased faster. Average tuition and fees for undergraduates in private nonprofit schools increased from \$22,550 in 2000 to \$32,450 in 2015, while charges for graduate students increased by about half as much in 2016 dollars, from \$19,300 to \$24,900.

Of course, the sticker price is rarely what a student actually pays. The price students actually pay can be discounted by funds from grants, tax benefits, and employer aid (Bednar and Gicheva 2013). Further, the decision to enroll in graduate school is subject to the student's perceptions of opportunity cost, which may be influenced by the current job market and information about financial support for graduate work (Bedard and Herman 2008; Kennedy et al. 2016).

#### Net Price Is Rising Faster for Master's Degrees Than for Bachelor's Degrees

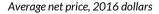
Similar to the average sticker price, the average net price students pay for their master's degrees has risen steadily, in inflation-adjusted dollars. The average net price for tuition and fees—the amount students pay to the institution minus all grants—increased 79 percent for full-time master's students from 1996 to 2016 (compared with a 47 percent increase for full-time bachelor's students). The average full-time master's student paid \$8,700 a year, in 2016 inflation-adjusted dollars, for tuition and fees in 1996 and had a student budget of about \$22,900, minus all grants. In 2016, the average full-time master's student paid \$15,600 a year for tuition and fees and had a student budget of \$32,550, minus all grants (figure 5).

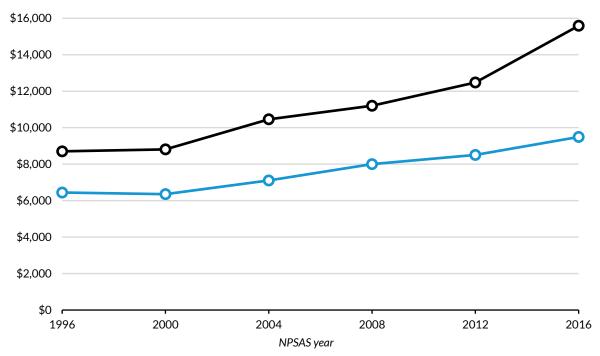
#### FIGURE 5

#### Average Net Price of Full-Time Master's and Bachelor's Degree Students

Adjusted for inflation to the most recent survey year

- -O-Average tuition and fees minus all grants, full-time bachelor's student
- -O-Average tuition and fees minus all grants, full-time master's student





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Source: Urban Institute analysis of NPSAS data.

Note: NPSAS = National Postsecondary Student Aid Study.

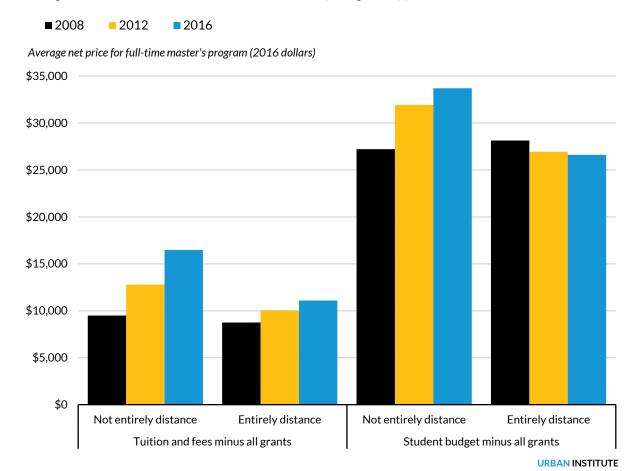
Similar to average sticker price, the average net price for full-time graduate students varies by sector. The net price is lowest at private for-profit schools (average net tuition and fees in 2015–16 was \$10,900) and at public institutions (\$11,500). At private nonprofit schools in the same year, the average net price for tuition and fees for a full-time graduate student was \$20,200.

#### **Online Programs Offer Small Cost Savings**

Online delivery of instruction could mitigate the costs of higher education. There is evidence that full-time undergraduate online students have experienced price declines from 2006 to 2013 (Deming et al. 2015), but few studies have looked at changes in net prices for the average distance and nondistance (in-person or partially online) master's student. Using National Postsecondary Student Aid Study data from 2008, 2012, and 2016, I observe that the average net price for tuition and fees, for both distance and in-person programs, has risen (figure 6).

The average net price has grown at a slower rate for distance programs than for in-person ones. Although the net price was similar between the two delivery modes in 2008 (\$9,500 for in-person programs and \$8,750 for distance programs), the 2016 rate is steeper for in-person courses (\$16,500 versus \$11,095). When looking at average student budget (the amount allocated for tuition, fees, books, and living expenses), I find a different trend. Net price for total student budget has increased about \$6,500 in 2016 dollars for master's students attending in-person programs and has declined slightly for entirely distance students by about \$1,500.

FIGURE 6
Average Net Price of Full-Time Master's Students, by Program Type



Source: Urban Institute analysis of National Postsecondary Student Aid Study data.

**Notes:** This question was asked differently in different years. In years when respondents were allowed to skip the question, those who skipped were counted as not enrolled in an entirely distance education program. In 2012 and 2016, respondents were asked if their distance education was entirely online, rather than if they were enrolled in distance education. Results can be accessed at PowerStats with table codes ccmbkdf6 (2008), ccmbkd42 (2012), and ccmbkd6f (2016).

Entirely distance master's students at private for-profit institutions experienced the largest reduction in net price for student budgets, from about \$27,200 in 2012 to \$22,100 in 2016 (because of sample size, an estimate is unavailable for 2008). Distance master's students at public four-year

institutions saw essentially no change in net price for student budgets (\$25,200 in 2008 to \$24,700 in 2016), and distance students at private nonprofit schools experienced an increase, albeit from a lower base (\$9,600 in 2008 to \$13,800 in 2016).

# How Might "Supply-Side" Factors Drive These Changes?

A broad set of decisions made by institutions and policymakers, as well as student demand, may be driving these changes. Graduate students have different enrollment needs than undergraduates and are eligible for larger federal loans. And graduate students are different in other ways—many have full-time experience in the professional workforce, and, by completing their bachelor's degree, all have shown that they can master college-level material and complete a degree in higher education. In this section, I outline potential "supply-side" reasons for the increase in master's degrees.

#### Institutions May Face Pressure to Increase Graduate Enrollment

Although the number of bachelor's degrees awarded has increased, the growth of master's degrees has outpaced bachelor's degrees. There may be multiple reasons why universities, when aiming to expand enrollment, may prefer to expand growth in master's programs rather than in bachelor's programs. Because many first-time first-year bachelor's degree seekers reside on campus in their first year (58 percent in 2015–16), expanding the size of the freshman class could entail expanding dormitory space, cafeterias, and other facilities. And campuses may face pressure from surrounding neighborhoods to limit the number of on-campus undergraduates. In contrast, most master's students live off campus and commute to school. In addition to requiring less (if any) dormitory space, master's students might be more amenable to classes that are held in the evening or weekends. And although some graduate degrees, especially science degrees, may cost an institution more per completion than an undergraduate degree in the same field, other graduate degrees cost the same as or less than an undergraduate degree in the same field (AIR 2013).

Institutions may face other pressures to keep undergraduate enrollment growth lower than graduate enrollment growth. For example, some policymakers have pushed for selective public four-year institutions to put a cap on undergraduate students from out of state, which could limit recruitment of undergraduate students. Moreover, institutions may rely on data on undergraduate selectivity and competitiveness as a way of signaling quality ("student selectivity," based on standardized test scores and high school class standing, made up 10 percent of the 2019 *US News and World Report* rankings). Increasing enrollment may mean decreasing selectivity. The "prestige" factor of selectivity may not carry over to master's programs. Many master's program acceptance rates are hard to find, and even at elite institutions, the acceptance rates for master's programs may often be higher than for bachelor's degree programs.

Finally, many public four-year institutions may face budget pressures that make expanding undergraduate enrollment difficult. Declines in state appropriations for public higher education may increase tuition charges, yielding lower undergraduate enrollment (Heller 1999) and prompting public

institutions to increase recruitment for out-of-state students, who tend to pay higher tuition (Jaquette and Curs 2015). Some institutions have reported that they've turned to graduate students to increase revenue. Researchers have observed that a decline in state appropriations for public institutions was associated with an increase in graduate enrollment from 1992–93 to 2001–02, but not since (Jaquette, forthcoming).

#### Federal Policies Offer Some Protection against High Graduate Loan Balances

Since 2006, graduate students, including master's students, have been allowed to borrow up to the amount of their cost of attendance (including living expenses in addition to tuition and fees) not covered by grant aid in federal student loans. Distance education students who meet all other criteria for aid are eligible to borrow at the same level for their graduate education as in-person students. Graduate student borrowers can also take up income-based repayment programs offered by the federal government, and some could reduce their years of payments to 10 years under the federal Public Service Loan Forgiveness (PSLF) program. Some researchers have identified this expansion of credit, combined with other factors, as a potential reason for declining student loan repayment and rising default rates for graduate students (Lee and Looney 2018). At the median graduate or professional school, 20 percent of students who entered repayment in 2009 had not reduced their principal within five years (Delisle 2018). It is possible that this expansion of student loan credit, combined with relaxed payment terms for lower-income borrowers or for those who go into a broadly defined public service job, have made enrolling in a master's degree appealing for both students and institutions.

Even though those with graduate degrees earn more, on average, than those with bachelor's degrees, master's students who expected to graduate in 2015–16 were more aware of income-driven repayment options (and were slightly more likely to use them) than bachelor's degree students who expected to graduate that year. About 72 percent of master's degree borrowers knew about incomedriven repayment programs, and 59 percent of those who had heard of them said that they were "likely" or "very likely" to use one. <sup>10</sup> Fifty-seven percent of bachelor's degree borrowers knew about incomedriven repayment, and 55 percent of those who had heard of them reported that they would use one. <sup>11</sup>

The key accountability metric for higher education institutions is the cohort default rate (CDR), or the share of borrowers who default on their student loans within three years after entering repayment. If an institution's CDR is too high, it could lose access to Title IV funding (though this is rare). Graduate borrowers are included in this metric if they borrowed federal Stafford loans or Direct Stafford/Ford loans. Although graduate students are eligible for larger loans than undergraduate students, the measurement of CDRs at the borrower level means that graduate students received the same weight in the calculation as undergraduates.

Graduate borrowers are not included in the College Scorecard's measurement of undergraduate loan repayment rates, and information on the average level of debt, or income after enrollment, are hard to find for master's programs. Because standardized data on these outcomes are largely unavailable, institutions may not have the same incentive to monitor graduate student lending or their

subsequent outcomes, potentially leading to an increase in programs that leave students with debt that outweighs their increased earnings potential.

#### Online Education May Work Well for Master's Programs

Enthusiasm about the potential for online higher education, particularly for massive online open courses (MOOCs), has decreased because of high attrition and low completion rates on open courses (Burd, Smith, and Reisman 2015). And giving away educational content may not be sustainable for higher education institutions (Hoxby 2014). But online education may be particularly well suited for those who would enroll in master's programs.

People who succeed in MOOCs, similar to those who tend to enroll in master's programs, tend to be proactive and self-directed learners (Howland and Moore 2002) and are more likely to already be well educated, employed, and using the content to further their knowledge for work or for curiosity (Christensen et al. 2014). By offering graduate degrees as part of online coursework, universities can generate revenue from their investment in online education, and students who attend a highly ranked institution can get a "brand name" on their résumé. One model of an online master's program that has seen positive results is Georgia Tech's online master's in computer science. An evaluation of this program found that the online provision of Georgia Tech's acclaimed program did not affect student performance (Goel and Joyner 2016) and that students enrolled in the online program would likely not have otherwise enrolled in a master's program (Goodman, Melkers, and Pallais 2018).

Of course, it is possible that not all online master's programs deliver high-quality results, and it is yet to be seen whether achievement of the online Georgia Tech master's degree yields the same labor market return as an in-person program. Although the broader completion, labor market, and borrowing outcomes of students who enrolled in online master's programs are still unknown, master's students would likely have better outcomes from enrolling in online education than students who take up noncredit or undergraduate online programs.

## Conclusion

The population of people with master's degrees is growing and diversifying. But underlying these positive trends are unanswered questions about program costs, the payoff from the master's credential, and the effectiveness of online instruction. "Supply-side" factors such as institutional enrollment and revenue pressures, federal student aid policies, and the structure of online coursework, may drive some of these changes.

As Congress looks to reauthorize the Higher Education Act, policymakers should consider how federal policy affects the production of master's degrees. Specifically, policymakers may want to develop a better understanding of lending outcomes for master's students and whether students in these programs can repay their loans. Policymakers should seek more concrete estimates of the returns to different master's degree fields, particularly newer programs, and compare these with the program

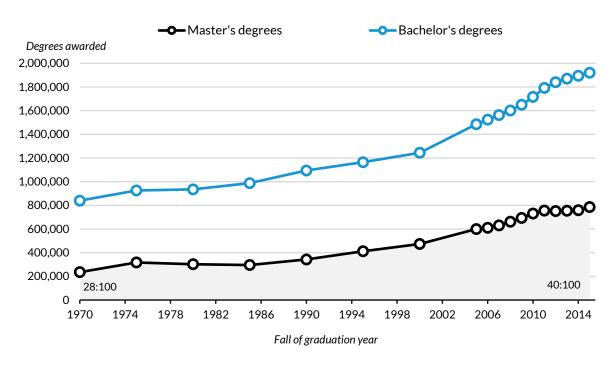
prices. The Trump administration has proposed providing program-level data on student outcomes, which, if implemented, could reveal some of these numbers for individual institutions. <sup>12</sup> Even if program-level data on master's programs are unattainable, better estimates of master's student debt and early career outcomes could lead to changes in the parameters of federal student lending and repayment. For example, the most recent income-driven repayment program, REPAYE, stretches the repayment period to 25 years (from 20) for borrowers with graduate school debt, acknowledging that higher graduate loan balances take a longer time to pay down.

More research is also needed on the outcomes of those who enroll in online master's programs. Online programs have the potential to reach a broader set of students at lower costs (though some potential students may still be left out because of connectivity constraints) (Rosenboom and Blagg 2018). Although online programs could save money for both the student and the institution, it is unclear how returns to these programs compare with similar in-person programs. In particular, it may be more difficult for potential students to assess the quality of instruction and support offered online by these newer programs or how employers will receive these degrees. And students may face uncertainty if they are using an out-of-state online master's program to satisfy licensure or certification requirements.<sup>13</sup>

The landscape of master's degree programs is changing fast. It is possible that these changes are driven not only by student demand, but also by the decisions of higher education institutions and by federal higher education policy. For the benefit of both students and policymakers, better information on the outcomes of these programs, particularly student lending outcomes, is vital.

# **Appendix**

FIGURE A.1
Bachelor's and Master's Degree Awards over Time



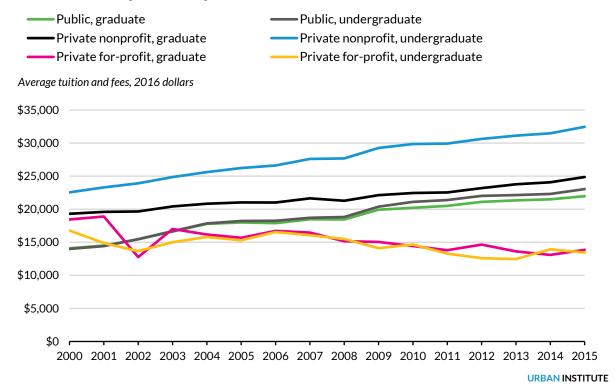
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**Source:** Urban Institute analysis of National Center for Education Statistics Digest of Educational Statistics. **Note:** 28:100 and 40:100 are the ratios of master's degrees awarded to bachelor's degrees awarded in the same year, in 1970–71 and in 2015–16.

#### FIGURE A.2

#### Average Charge for Tuition and Fees, 2000-15

For out-of-state undergraduate and graduate students



Source: Urban Institute analysis of Integrated Postsecondary Education Data System data.

**Notes:** All data are for out-of-state full-time enrollment and are weighted by bachelor's or master's degrees awarded in the given year. Weighting by full-time undergraduate and graduate enrollment yields qualitatively similar results.

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Kristin Blagg is a research associate in the Education Policy Program at the Urban Institute. Her research focuses on K–12 and postsecondary education. Blagg has conducted studies on student transportation and school choice, student loans, and the role of information in higher education. Blagg spent four years as a math teacher in New Orleans and New York City. In addition to her work at Urban, she is pursuing a PhD in public policy and public administration at the George Washington University. Blagg holds a BA in government from Harvard University, an MSEd from Hunter College, and an MPP from Georgetown University.

## Acknowledgments

This brief was funded by the Bill & Melinda Gates Foundation. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

The views expressed are those of the author and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at urban.org/fundingprinciples.



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