Master's for hire:

Experimental evidence on employers' perceptions of master's degrees from for-profit institutions

Introduction

While undergraduate enrollment has slightly declined since 2010, postbaccalaureate enrollment (hereafter, "graduate education") represents an area of continued expansion within the U.S. higher education landscape (U.S. Department of Education, 2017a). In fact, the number of individuals with graduate degrees has nearly doubled since 2000 (U.S. Census Bureau, 2019). Following such growth, graduate degree programs now account for one-sixth of postsecondary enrollment and one-fourth of postsecondary degrees awarded (U.S. Department of Education, 2017b, 2018a). As a result, graduate degree recipients represent about 15 percent of adults in the labor force—approximately 15 million workers (Brundage, 2017). With institutions awarding nearly one million new graduate degrees each year (U.S. Department of Education, 2018b), the prominence of graduate education within the postsecondary sector is positioned to increase in the years ahead.

The available research base suggests several benefits that students may expect to receive by enrolling in these graduate programs. Since graduate degrees are a prerequisite for entrance to certain professions—particularly in health care, academia, and law—graduate degrees can provide students with access to careers they could not otherwise pursue (e.g., Weinberg, 2008). For positions that do not explicitly require a graduate degree, students may also view a graduate degree as a comparative advantage relative to other job candidates. There is also longstanding evidence of an earnings premium for individuals with a graduate degree, on average, relative to bachelor's degree recipients (e.g., Baum, 2014). These economic advantages may accrue to graduate degree recipients because such credentials serve as common pathways to managerial and executive positions (Eide, Brewer, & Ehrenberg, 1998), provide greater access to higher-paying organizations (Engbom & Moser, 2017), and are sometimes linked to prescribed salary increases in fields such as teaching (Kolbe & Strunk, 2012). Consequently, graduate degree-holders account for a disproportionate share of high net-worth individuals, comprising

more than 40% of the wealthiest decile of Americans (Keister, 2014). Finally, students may view graduate education as an opportunity to pursue intellectual interests or develop a social status (Schleef, 2000).

Beyond such potential benefits, however, it is also important to consider the investments required for graduate education and the mechanisms by which returns to graduate education may vary systematically. In addition to requiring substantial time investments, graduate programs can impose considerable financial costs for students, both in terms of direct expenses and foregone earnings. With the ability to borrow Graduate PLUS loans up to the full cost of attendance, graduate students take out an average of almost $18,000 per year in federal loans for their education, nearly four times the amount borrowed at the undergraduate level (College Board, 2018). In part due to such differential borrowing levels, 40% of all federal student loans now go to graduate students (College Board, 2018). Thus, at both the individual and national level, the ability of graduate students to find occupations that enable them to successfully repay their student loans deserves attention. Additional evidence also suggests the potential for graduate education to exacerbate existing inequalities. For instance, there is substantial variation in the returns to graduate education by degree program and field (Altonji et al., 2016), with differential access to graduate programs by race, sex, and socioeconomic status (e.g., Posselt & Grodsky, 2017). Indeed, in recent decades, children of more financially advantaged parents have received a disproportionate share of the economic benefits of graduate degrees, suggesting that graduate education has reinforced existing class differences instead of promoting intergenerational social mobility (Torche, 2011).

Given the growing role of graduate degree programs within postsecondary education and the consequential nature of such growth, my three-essay dissertation will examine several key stages related to graduate education. Collectively, these essays will span from graduate school choice to the labor market experiences of graduate degree recipients. In the first paper, I will use data from the 2008/12 Baccalaureate and Beyond Longitudinal Study to identify factors that help predict graduate enrollment by degree type, with special attention to differences by sex, race/ethnicity, first-generation status, and family income. The second paper, which is the focus of the remainder of the proposal, will involve a field experiment designed to assesses employers' receptiveness to fictitious job candidates who are seeking

employment immediately following their receipt of a master's degree. The third paper will center on contingent faculty members at 4-year universities, who predominantly hold doctoral degrees, and will use a discrete-time survival analysis to explore institution- and state-level characteristics associated with their unionization efforts. Taken together, these studies will contribute to literatures examining who enrolls in graduate degree programs, how students fare in their job search following receipt of a master's degree, and what challenges certain graduate degree recipients face while working in academia.

Overview of Master's Degrees at For-Profit Institutions

One of the most conspicuous areas of the aforementioned growth in graduate education has been in the for-profit sector, where graduate enrollment rose more than ten-fold between 1996 and 2016 (U.S. Department of Education, 2018b). Nearly 90 percent of graduate students at for-profits are enrolled in master's programs, almost all of which are offered primarily online (U.S. Department of Education, 2018c). As a result of their rapid growth and strong emphasis on master's-level enrollment, for-profit institutions now account for almost one-tenth of master's students nationwide, including one-fourth of Black master's students (Baum & Steele, 2017). Despite the notable market share of for-profit institutions, there is scant evidence about the job search experiences of master's degree recipients from these institutions. Research at the undergraduate level, however, has frequently found that graduates of for-profit institutions do not fare as well in the labor market as their counterparts with credentials from other sectors (Cellini & Chaudhary, 2014; Cellini & Turner, 2019; Cottom, 2017; Deming et al., 2016).

The extent to which individuals benefit from earning a master's degree at various types of institutions is currently an unresolved question that is highly relevant for hundreds of thousands of master's students annually. Especially given that for-profit institutions account for a disproportionate share of Black students, students from low-income backgrounds, and older students (Baum & Steele, 2017), understanding the labor market value of master's degrees by institutional attributes has significant equity implications for students who have been historically underrepresented in graduate education. The potential economic payoff for a master's degree from a for-profit institution is also important to investigate because master's students at for-profit institutions borrow more in graduate student loans than

master's students in other sectors (Baum & Steele, 2018). Information regarding likely outcomes for master's students from various institution types may help students decide whether or where to enroll for a master's degree, assist policymakers in their efforts to make decisions about institutional accountability and graduate student borrowing, and support institutions' recruitment and retention practices.

Research Questions

To address this gap in our understanding of the returns to master's degrees, I will conduct a résumé audit experiment in which I apply to job openings on behalf of fictitious job candidates who differ systematically only in terms of their graduate education background (or lack thereof). I will apply to job openings in business and health, two of the most common fields for master's degrees. The four treatment arms will include listing a master's from a for-profit institution (e.g., University of Phoenix), a master's from another primarily online institution (e.g., Western Governors University), a master's from a regional institution that primarily awards master's degrees through on-campus programs, or no master's degree (i.e., bachelor's only). These options represent comparatively broad-access graduate school options that are within the choice set for a substantial number of prospective master's students, including the choice to not pursue a graduate degree. To explore possible variation in benefits (or disadvantages) that accrue to master's-degree holders, the résumé audit study will block by sex and race for each job posting (i.e., all fictitious job candidates for an opening will have names suggesting they are the same sex and race as one another). The primary research questions for the second paper of my dissertation include the following:

1) Do employers offer callbacks to job applicants at different rates depending on whether the applicant has a master's from a for-profit institution, a master's from some other primarily online institution, a master's from a regional institution, or only a bachelor's degree?

2) Does this relationship vary depending on the perceived sex and race of the applicant?

Literature Review

This study of the perceived labor market value of master's degrees from various types of institutions builds on two strands of prior research. First, several studies have calculated the wage premium for master's degrees using quasi-experimental and regression-based techniques. In those studies,

estimated economic returns for master's degrees have frequently been positive and on the order of 5-17 percent (Gándara & Toutkoushian, 2017; Jaeger & Page, 1996). There is some evidence that such estimates reflect especially high returns in individual fields (Stevenson, 2016; Titus, 2007).

Second, recent work from résumé audit studies has focused on employer callback rates for fictitious job applicants who attended various types of undergraduate institutions. In one study, employers had no clear preferences between candidates who received sub-baccalaureate credentials from for-profit institutions and community colleges, even though for-profits were considerably more expensive (Darolia et al., 2015). A second audit study involving applicants with associate's credentials from either a for-profit, nonprofit, or fictional college also found no difference among the three groups, which the authors interpret as evidence that employers respond more to degree level than institutional attributes (Deterding & Pedulla, 2016). However, results from Deming and colleagues (2016) showed that employers typically disfavored for-profit bachelor's degrees for positions in business, and likewise disfavored for-profit credentials for jobs in the health sector, except when the position also required an occupational license.

While these strands of literature provide insight into important aspects of the returns to education, there still remain significant gaps in our understanding of returns to graduate credentials. For instance, the prior regression-based studies have not clearly assessed the labor market value for earning a master's degree in the for-profit sector relative to other sectors, a limitation the proposed study seeks to overcome. Further, the regression and quasi-experimental literature base frequently relies on data from over a decade ago, when many online master's programs were still in their infancy or not yet developed. In addition, although high-quality résumé audit studies have offered compelling evidence regarding the ways in which employers distinguish between candidates who attended different types of institutions, these studies have only focused on education at the undergraduate level. Finally, prior research on the economic returns to master's degrees typically does not distinguish between outcomes for individuals who return to (or remain with) an employer and outcomes for those who seek to find a new position after their degree. By focusing on interview callback rates for job candidates seeking a position with a new employer, this study is intended to highlight expected outcomes for individuals seeking employment with a new firm.

Conceptual Framework

There are several rationales why employers might differentiate between job applicants on the basis of their master's education background. First, in accordance with human capital theory, employers may believe the four treatment arms provide applicants with varying levels of economically productive knowledge and skills (Becker, 1964). For example, if the master's treatment groups help students develop skills valued in the workplace, a higher callback rate for those groups should be evident relative to the bachelor's-only group. As an alternative (or supplement) to human capital theory, job market signaling theory suggests that prospective employees may use educational credentials to convey information about their underlying abilities to employers (Spence, 1973). From this perspective, employers may infer an applicant's capabilities based on the level and format of education an individual pursues, with employers likely assigning greater weight to credentials that are more resource-intensive to obtain. Although this study cannot precisely distinguish between human capital and signaling effects, it is able to determine their combined effect, which is highly relevant to the job search prospects of master's students.

Experimental Design and Data

As an overview of the experimental design, I will begin by providing additional details on the treatment arms. I will then outline the types of occupations to which I will apply, the setting and sample for the survey, the résumé creation process, and the approach used to convey applicants' race and sex.

Treatment groups. The experiment will involve separately submitting four résumés to each job opening. Within every set of résumés, one will correspond to four distinct master's enrollment scenarios:

1) One résumé will list a master's degree from a for-profit institution ("for-profit group"). To represent institutions in the for-profit sector, I will randomly assign the name of one of the ten for-profit institutions that awarded the most master's degrees in business and health, two common fields for master's degrees. I rely on Integrated Postsecondary Education Data System (IPEDS) data files to identify qualifying institutions. Examples include the University of Phoenix, Walden University, and Capella University. Collectively, the ten institutions in this group accounted for 72 percent of all

master's degrees from for-profits, suggesting they are broadly representative of the sector and would have the greatest name recognition among potential employers (see Appendix A).

2) One résumé will list a master's degree from a public or private, not-for-profit institution that offers the majority of its master's degree programs online ("online group"). Like for-profit institutions, such institutions offer the convenience of online instruction for these master's degrees and typically have broad-access admissions policies, but differ in terms of their for-profit status. To minimize the potential that employers perceive the credential as a traditional master's degree from a more selective program, I exclude public flagships and other doctoral universities in the very high research Carnegie Classification from this second group. As with the for-profit group, résumés in the online group will list one of the ten institutions in the category that awarded the largest number of master's degrees. Some prominent examples include Liberty University, Western Governors University, and Southern New Hampshire University. As shown in Appendix B, the top ten institutions awarded approximately 40 percent of master's degrees in business and health for this category.
3) One résumé will list a master's degree from a nearby public or private, not-for-profit institution that offers the majority of master's degrees on-campus ("regional group"). The region is defined based on a distance within 50 miles of the primary city associated with a job opening, and consequently employers may frequently encounter applicants from the institution in their typical applicant pools. Similar to the online group, I exclude institutions with very high research activity, which accept only two-fifths of master's applicants and may not represent a common component of the choice set for those contemplating master's program at a for-profit institution (Posselt & Grodsky, 2017).
4) Finally, one résumé will not list a master's degree and will instead have a bachelor's degree listed as the highest credential earned ("bachelor's-only group"). Rather than only comparing master's degrees earned from one institution type to those earned at another, the presence of the bachelor's-only group provides a baseline reference by which to measure employers' responsiveness to master's degrees overall. By including this reference group, it will be possible to tell whether fictitious applicants with master's degrees receive higher callback rates than similarly qualified individuals without a master's.

Occupations. To identify relevant positions, I will incorporate educational attainment data from the American Community Survey and O*NET OnLine (U.S. Census Bureau, 2019b). For instance, Appendix C identifies 13 Standard Occupational Classification (SOC) codes in business and 8 SOC codes in health that employ at least 8,000 master's degree recipients. Examples include general managers, management analysts, nurse practitioners, and health services managers. As occupations that commonly employ individuals with master's credentials, these represent the types of positions master's recipients are likely to seek and obtain upon graduation. By including occupations with varying proportions of master's-holders, I will be able to examine effects for a range of positions, including some in which a master's credential may represent a comparative advantage and others where a master's credential is a prerequisite.

Setting and sample size. In an effort to increase the generalizability of the findings and ensure a sufficient pool of job postings, I will search for positions in 14 large, geographically diverse metropolitan regions. Based on preliminary power analyses, I anticipate that a sample size of approximately 9,480 applications will be required to reach desired power levels. While a considerable sample size overall, this represents an average of about 680 applications (and 170 job openings) per metropolitan area over the course of the multi-month data collection.

Résumé creation. Similar to previous résumé audit studies, I will use a résumé attribute randomizer from Lahey and Beasley (2009) to automatically generate realistic résumés from an extensive repository of pre-specified information for each résumé field (e.g., work history, educational background, skills). The résumé entries will be designed to appear authentic (e.g., listing master's program titles that are actually offered at the applicant's purported master's institution). Through this randomization process, the fictitious applicant's master's-granting institution will be orthogonal to other résumé attributes.

Subgroup analysis. Additionally, to facilitate subgroup analyses while minimizing the number of résumés required, I plan to block random assignment by race and sex (i.e., using names that connote the same race and sex within the set of applicants to a job opening). This decision is based on evidence that suggests the potential for hiring discrimination by perceived race and sex (e.g., Bertrand & Mullainathan, 2004; Kang et al., 2016; Pager, 2007), although such findings of race and sex discrimination are not

universal (e.g., Darolia et al., 2016). For racial groups, I focus in particular on names likely to be associated with white and Black students, who accounted for over 80 percent of graduate students at for-profits in 2016 (U.S. Department of Education, 2017b). Drawing on Gaddis's (2017) research on the racial perceptions of names, I will include first names that are commonly associated with white and Black individuals from the middle two quartiles in terms of their mother's education level. By emphasizing first names given in families with similar educational histories, I seek to avoid using racially distinct names that simultaneously convey differential information about socioeconomic background.

Outcome. In this study, the outcome of interest is whether an employer offers an interview callback for certain candidates but not others, thereby conveying a preference. To track employer responses, I will use email addresses that correspond to applicant names and local phone numbers (via voice over Internet Protocol). Checking emails and voicemails for these accounts will enable me to determine which applicants receive an expression of interest or callback for a given job posting. If there are significant differences in the callback rate across the various conditions, it would provide evidence of employer preferences for job candidates with certain educational backgrounds over others.

Analytic Strategy

Due to the random assignment of master's background conditions on the résumés (i.e., for-profit group, online group, regional group, bachelor's-only group) and perceived race and sex, regression results will provide causal estimates for the parameters of interest. I plan to run the regression models both as linear probability models and also with logit specifications to determine the salience of functional form to the estimates. For the first research question, the primary model of interest is outlined as follows:

$$(1)\ callback_{ijm} = \beta_0 + \beta_1 forprofit_i + \beta_2 online_i + \beta_3 regional_i + X_{ijm}\beta + \epsilon_{ijm}$$

For equation (1), $callback_{ijm}$ is a binary indicator of whether a fictitious applicant *i* receives an interview callback from an employer for occupation *j* in metropolitan area *m*. The variables $forprofit_i$, $online_i$, and $regional_i$ represent an application's assignment as having a master's degree from a for-profit institution, other primarily online institution, or regional institution, respectively, with the

bachelor's-only group serving as the omitted reference group. X_{ijm} represents a vector of application attributes, such as the applicant's perceived race and sex, the metropolitan area of the job posting, the occupation category for the job posting, indicators for the institution names presented in the educational history section of the application, the month in which the application was submitted, and the year listed for an applicant's bachelor's degree. I will cluster standard errors at the level of the job posting. In addition, to explore potential variation by sex and race (as outlined in the second research question), I will modify equation (1) by fully interacting sex and race with each master's treatment group. Such interactions would enable me to determine whether employers have a differential response for Black women who attended a for-profit institution for a master's degree, for instance.

Contribution and significance

This study offers a number of potential contributions to the understanding of the labor market value of master's credentials. It is designed to provide the first large-scale experimental evidence of employers' perceptions of master's credentials from for-profit institutions. As shown in Appendix D, the three types of institutions examined in this study account for more than two-thirds of all master's degrees granted in the United States, yet to date there has been limited research on the ways such credentials may affect employer interest in a job candidate. Using an experimental approach enables me to generate causal estimates for the effects of earning master's degrees in two common fields—business and health—on callbacks for job interviews. By focusing on options that may represent the substantial choice set for a large number of prospective master's applicants (i.e., master's enrollment at a broad-access institution or no master's enrollment at all), the findings from this study should offer insight to policymakers, institutions, employers, and students alike. In further exploring potential variation by applicants' race and sex, I seek to determine whether labor market benefits (or penalties) of master's degrees from broad-access institutions are allocated evenly across demographic groups. With students making substantial personal and financial investments in these master's programs, evidence of limited labor market advantages for such credentials would raise concerns about the economic strain such degrees impose.

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