



College major, internship experience, and employment opportunities: Estimates from a résumé audit[☆]



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HIGHLIGHTS

- We present estimates from experimental data on the labor market for college graduates.
- Fictitious resumes are submitted to jobs in business-related categories.
- We find no evidence that business degrees improve job prospects.
- Internships improve employment prospects substantially.
- Internships appear to be signals of unobservables valued by employers.

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ABSTRACT

We use experimental data from a résumé audit to estimate the impact of particular college majors and internship experience on employment prospects. Despite applying exclusively to business-related job openings, we find no evidence that business degrees improve employment prospects. By contrast, internship experience increases the interview rate by 14%. The returns to internship experience are larger for (a) nonbusiness majors and (b) applicants with high academic ability. Our data support signaling as the most likely explanation regarding the effect of internships on employment opportunities.

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1. Introduction

The reduction in initial employment opportunities for recent college graduates brought about by the last recession has led many policymakers, researchers, and prospective students to question the value of a college education. Popular internet newsboards regularly feature articles which reference academic research on the projected labor-market demand for and life satisfaction associated with particular undergraduate degrees. However, such information on degree choice might be influenced by those who advertise on the same webpages that feature the articles.⁴

In addition to academic decisions, a bevy of extra-curricular activities are available to college students. The National Association of Colleges

⁴ For example, see the article and corresponding advertisements in the find-a-program tabs through the following webpage: http://education.yahoo.net/articles/avoid_these_majors.htm.

and Employers' (NACE) 2011 survey indicates that over 50% of graduating seniors had worked as interns at some point while completing their degrees.⁵ Recent industry surveys of U.S. employers indicate that relevant work experience is the most important factor in the hiring process, and that on-the-job experience, even if only part time, for recent college graduates is more important than their relevant coursework (Cappelli, 2014).

We use experimental data from a résumé audit to estimate the effect on job opportunities of particular degrees and industry-relevant internship experience for recent college graduates. The study focuses on credentials job seekers accumulate prior to graduating from college.⁶ From January 2013 through the end of July 2013, we submitted approximately 9400 randomly-generated résumés to online job openings in banking, finance, management, marketing, insurance and sales. The fictive job applicants each report a college graduation date of May 2010. Our experimental design circumvents common identification issues associated with self selection by randomly assigning academic majors and internship experience to fictitious job applicants.

The following nine academic majors are randomly assigned to job applicants: accounting, biology, economics, English, finance, history, management, marketing, and psychology. Because we apply exclusively for jobs in business-related industries, we are primarily interested in whether business degrees, i.e. accounting, economics, finance, management and marketing, generate better job opportunities than nonbusiness degrees, i.e. biology, English, history, and psychology.⁷ To measure the impact of internship experience on employment prospects, a portion of the fictitious applicants are randomly assigned a three-month industry-relevant⁸ internship, which occurred during the summer of 2009.

We find no evidence employers prefer to interview job seekers with business degrees over applicants with nonbusiness degrees, despite applying exclusively to business-related job openings. There is also no advantage, in terms of job opportunities, associated with particular business degrees. However, we find strong evidence internship experience improves employment prospects: the interview rate for applicants who worked as interns (Summer 2009) before they graduated with their Bachelor's degrees (May 2010) is about 14% higher than that for those who did not work as interns. The estimate for internship experience likely represents a lower bound for two reasons. First, the internship occurred approximately four years before date of application. Second, the fictitious applicants in our study were seeking employment at places other than where they interned, as it is common for people to be hired by the same firm for which they interned. Although the return to internship experience is quite large for all majors and applicants who do and do not signal high academic ability (via the inclusion of a high grade point average on their résumés), the effect is larger for applicants with nonbusiness degrees and applicants who signal high academic ability.

Our results suggest that promoting internships (e.g., through employer incentives or better coordination between universities and

employers) could help smooth the transition from school to work for young workers. From a policy standpoint, it is important to understand whether internship experience signals unobservables, such as innate ability, or augments a worker's skill-set. It is also possible for internship experience to serve as a different type of signal. As an example, employers in the field of banking may use internship experience in the banking sector as a signal of fit or a desire on the part of applicants to continue working in the banking sector. Such a signal could improve the quality of employer–employee matches, which would be efficiency-enhancing. If internships only signal unobserved ability to employers, policy interventions could muddle the signal such that it no longer helps employers sort or rank job candidates. By contrast, if internship experience improves a job seeker's skill-set or the quality of employer–employee matches, it is possible to justify government interventions designed to increase the demand for interns.

Four aspects of our experimental data suggest signaling as the most likely explanation for the effect of internships on employment opportunities. First, the return to three-month industry-relevant internships, which occurred about four years before the date of application, is about half that of post-graduation industry-relevant work experience of 20–38 months that is more recent. This finding suggests internship experience reveals something other than relevant work experience to prospective employers. Second, there is no statistically significant interaction effect between internship experience and post-graduation work experience. It is difficult to reconcile the lack of an interaction effect with a human-capital model, as we would expect industry-relevant experience to be stackable (e.g., Neal, 1995). Third, we model the initial phase of the hiring process for entry-level jobs, in which a cursory overview of resumes often takes place (see Pager (2007), pp.126). Fourth, the internships took place approximately four years prior to application, making it likely that any skills gained would have depreciated substantially.

The remainder of the manuscript is organized as follows. Section 2 discusses the relevant literature and the theoretical channels through which college majors and internship experience could affect employment prospects. Section 3 describes our experimental design and data. Section 4 presents the estimates from our econometric models. Section 5 provides a summary of our findings and discusses the possible explanations for our findings. In addition, we provide an online appendix that contains supplementary estimates as well as detailed information on the experiment.

2. Theoretical background and previous studies

The return to education has long been of interest to labor economists. However, research on the effect of specific academic training on labor-market outcomes is relatively sparse. The existing literature focuses on the effects of college attendance, university quality, and degree choice on labor-market outcomes (e.g., Oreopoulos and Petronijevic, 2013; Altonji et al., 2012). These studies also share a common limitation: the choice of academic major could be driven by unobservables that make individuals more or less likely to have success in the labor market. To highlight this potential issue, the disparity in earnings between some undergraduate degrees has been shown to be as large as the difference between college and high-school graduates (Altonji et al., 2012).⁹

Many university degrees are designed for students to enter the working force in certain industries. Industry-specific skills acquired while studying for a degree may lessen training costs for new workers. For

⁵ For more details, visit the following webpage: <http://www.schools.com/news/survey-majority-of-internships-done-by-college-class-of-2011-were-paid.html>.

⁶ Using the same experimental data, Nunley et al. (2015a) examine the effects of unemployment and underemployment spells on employment prospects, while Nunley et al. (2015b) test for racial discrimination. In Nunley et al. (2015a), we find that applicants who take jobs after graduation that do not require a college degree are penalized in the job market, whereas the employment prospects of recent college graduates who experience spells of unemployment are unaffected. Nunley et al. (2015b) find that employers discriminate against candidates with black-sounding names, and the racial gap in interview rates is concentrated in customer-focused occupations and increases with perceived productivity characteristics.

⁷ It is not clear how to classify economics degrees, as economics is a social science and many economics departments are housed outside of business schools. However, it is typically the case that business and nonbusiness students often take economics courses, regardless of the college/school in which the economics department is located. We check the robustness of our estimates by including economics in the nonbusiness-degree category, but the estimates are not sensitive to this reclassification.

⁸ For example, an applicant who is randomly assigned internship experience would report an internship in the banking sector when applying to a job in the banking industry.

⁹ Altonji et al. (2012) incorporate key elements of existing theoretical research on degree choice to develop a model in which specific areas of study are sequentially chosen when an agent is uncertain about his/her future wages, learning ability, and preferences for different fields of study and occupations. The complexity of sequential-choice models render them difficult to estimate without making simplifying assumptions and recent literature has attempted to bridge this gap (e.g., Arcidiacono et al., 2012). Although this area of research is clearly important to understand the return to specific degrees, our study sidesteps these issues by focusing exclusively on the initial phase of the hiring process.

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