

**Once in the Door:
Tryouts and the Gender Wage Gap in the Managerial Pipeline***

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Abstract

Women pursue managerial credentials at nearly the same rate as men but evidence suggests they receive lower salaries from the onset of their managerial careers. While demand-side contributions to this gender wage gap are argued to occur, they can be difficult to pinpoint. This article develops a novel approach to test for the presence of demand-side contributions to initial gender wage inequality while also developing and testing theoretical arguments on an organizational practice through which it is lessened: tryouts. Using detailed data on several hundred professionally-trained managers that graduate from an elite program from 2009-2010, our analyses reveal that tryouts in the form of internships narrow the gap between men's and women's initial salaries. For men there is no difference in salary offers from employers where an internship occurs versus one where an internship does not occur. However, women receive higher initial salaries from employers where an internship first takes place. These findings suggest that labor market advantages and disadvantages across groups respond differently to organizational practices and sheds light on the nature of practices that lessen inequality.

There has been a rapid surge of women into the managerial pipeline over the last fifty years. In 1970, less than one out of 20 managerial degrees were attained by women; in 2006 the ratio had narrowed to almost one out of two (Bertrand, Goldin, and Katz 2010). More women now enter management programs than law, medicine, architecture, engineering, and natural science combined (Jacobs 1992; Bureau of Labor Statistics 2013). And yet, while large numbers of women are attaining management credentials, scholars and the popular press report a gender gap in salary from the earliest stage of managerial careers. For instance, men graduating with an MBA degree receive a five-figure premium in starting salary over women with the same degree (Bloomberg 2015).

Understanding the origins of the gender wage gap in managerial careers is important if we are to pinpoint organizational procedures that could lead to its eventual remediation (c.f. Castilla 2015; Kalev 2009), which may impact not just the salaries of managers but perhaps also their subordinates and the demographic composition of organizations more widely (Cohen and Huffman 2007; Hultkin and Szulkin 1999; Cotter et al. 1997). From a theoretical standpoint, women may start out making less because they are subject to evaluative bias on the demand-side. However, documenting evaluative bias in initial salaries is difficult due to supply-side sorting (Cohen and Huffman 2003; Cohen, Huffman, and Knauer 2009; Fernandez and Campero 2016), and the fact that there is less transparency at the point-of-hire versus what exists within internal labor markets (Petersen and Saporta 2004; Dencker 2008; Rosenfeld and Denice 2015). Also, organizational decision makers know more about candidate characteristics than do researchers. So even when scholars include detailed measures of candidates (e.g., grades and educational credentials) in models of salary determination, the fact that women earn less

than men may be attributed to quality differences among applicants unknown to researchers but observable to employers (for a discussion of these asymmetry issues see Lips 2013; Olson 2013).

To this end, conceptualize a setting in which employers screen candidates as they do in a conventional hiring process but then—before making a full-time salary offer— employers observe prospective workers first-hand in the employing organization for a tryout period. If implicit assumptions about unobserved quality hold, then there should be higher wages after the tryout period for all candidates who are offered jobs, even as the pre-existing wage ratios between candidate groups remain unchanged (Jovanovic 1979; Becker 1993). However, if post-tryout salaries increase more for one group of candidates than for the other (e.g., more for women than for men), then this would constitute evidence that the conventional hiring process discounts this group’s abilities, and by extension, their salaries (c.f. Altonji and Pierret 2001).

In this paper we utilize such a setting to accomplish three aims. First we document empirically—and without precedent in this literature—the effect of tryouts on the gender wage gap among professionally-trained managers. The importance of the type of tryout we investigate – internships – is axiomatic to management professionals. Employers regularly report filling full-time positions with former interns before opening up their applicant pool to the broader labor market.¹ Despite their importance, to our knowledge no studies to date have investigated the effect of this type of tryout on initial salaries.

Second and building on prior literature, we develop a theory about why internships may reduce gender inequality, conditional on individuals making it into the intern pool within organizations. Our theoretical rationale provides insight into how organizations reduce gender inequality through practices that have varying effects across demographic groups (Baron and Bielby 1980; Baron 1984; Bielby 2000; Fernandez-Mateo 2009; Kalev 2009; Fernandez and

Greenberg 2013). Finally, we outline a tryout approach for documenting demand-side contributions to wage inequality which can be extended beyond managerial settings to other contexts (Lips 2013; Neumark 2012).

For the purpose of identifying the effect of tryouts on the gender wage gap among professionally-trained managers, we collect unique data on individuals that graduated from an elite management program from 2009-2010. Doing an in-depth inspection of graduates from a single institution affords access to unusually rich information (e.g., GPA and GMAT scores) that mirrors the type of information employers may have when making salary decisions. Additionally, by studying professionals from a single institution, we are able to largely account for the opportunity set of jobs and organizations to which professionally-trained managers can match. While it is possible a focus on a single institution limits the scope of our findings, the gender wage gap at the institution we study is in line with the gap for other institutions' graduates (Bloomberg 2014, 2015).² Thus, our findings may reasonably generalize to professionally-trained managers from institutions that purvey managerial talent globally.

We perform two main sets of analyses to ascertain the effect of internships on the gender wage gap: a cross-sectional analysis with detailed controls and a multi-stage analysis of the same individuals' salaries before and after their internships. Our empirical results support our core proposition about the differential effect of internships by gender. For men, there is no difference in the salary offers from employers where an internship does versus does not occur; women receive higher salary offers from employers when an internship occurs.

TRYOUTS AND LABOR MARKET MATCHING

Tryouts are a type of employment practice whereby organizational decision-makers observe candidates in their milieu prior to making long-term hiring and salary decisions (Kalleberg, Reynolds, and Marsden 2003). Tryouts are similar to, but also distinct from probationary employment (Lazear 1999). A key difference is that probationary employment, from the perspective of the hiring firm, is an opt-out policy or involves the right to terminate employees ‘at will’ after they have been hired for a job. Tryouts are an opt-in policy, which provides employers the chance to offer a more permanent job and salary after a period of observation within the organization.

Internships existed long before their use as tryouts to provide individuals’ knowledge and skills (Brooks et al. 1995). Prior to 1980 they were used in conjunction with cooperative education and post-graduate training programs, and less as a screening tool to advance employer-employee matching. Since the 1980s, however, internships have become an increasingly common way employers screen entry-level employees for internal positions (Baron and Kreps 1999; Callanan and Benzing 2004). During internships employers receive first-hand information about the skills and knowledge of potential employees while they perform tasks and assignments within organizations.

Scholars have suggested reasons for the rise of tryouts in the labor market, which by and large relate to factors affecting the new employment relationship more generally (Bidwell et al. 2013). For example, research suggests organizations are less apt to make investments in training, and have instead shifted the burden of human capital investments onto employees (Doeringer et al. 2012). Tryouts underscore the emphasis organizations place on selecting employees that are well-matched to reach production capacity quickly (Saxenian 1996; Jones

1996). In line with this, the National Association of College Educators (NACE) tracks internship rates among twenty industries in the U.S. They report over 70% of the firms they survey use internships as a pipeline program for full-time employment.

Looking at professionally-trained managers in particular, internships in the form of tryouts are nearly axiomatic in the early stage of one's career. Of 750 globally accredited management programs, nearly every program reports their students complete internships prior to graduating. In a survey of 748 employers of professionally-trained managers across 47 countries, 67% reporting hiring interns, and 85% of these employers offered interns full-time positions (GMAC 2015). Below we turn to a discussion of how this practice may affect the gender wage gap in initial salary among managers.

THE GENDER WAGE GAP AMONG PROFESSIONALLY-TRAINED MANAGERS

Although the number of women attaining graduate degrees and entering professional occupations over the last few decades has risen sharply (Baker 2002; Jacobs 1992), there remains a persistent and well-documented difference in the earnings of male and female professionals. This earnings gap exists even when scholars take into account fairly detailed information about professionals' careers (Nelson and Bridges 1999). Studies find evidence consistent with professional women receiving lower returns on their educational credentials (Hagan and Kay 1995; Pierce 1995; Buchmann, Diprete, and McDaniel 2008) and receiving less of a return on their academic performance while pursuing a professional degree than men (Dixon and Seron 1995; Huang 1996).³

For professionally-trained managers, initial salaries are a primary driver of the gender wage gap. Using detailed data from a single firm that hires professionally-trained managers, Gerhart (1990) finds that gender differences in salary are largely the result of a one-time salary

shortfall that occurs at the time of hire. In another study of professionally trained managers, Olson, Frieze, and Good (1987) find that men's and women's salaries differ, but once initial salary differences are accounted for disparities in wages are largely non-existent. In a study that includes managers as well as those with other broader professional credentials, Weinberger (2011) finds similar results; while men and women have nearly equal wage growth over time, a wage gap in earnings persists in the range of 30% to 45% depending on occupation, driven in large part by a difference in initial salaries.⁴

Researchers have argued that compared to later stages of their career, women may be susceptible to lower salaries early on due to evaluative bias (Gerhart 1990; Petersen and Saporta 2004). Some argue that initial salaries are set when employers know the least about individuals' skills. Consistent with this argument, laboratory evidence indicates when information is lacking, individuals use categorical information in the form of stereotypes to make assessments of the characteristics of others (Tosi and Einbender 1985; Reskin and Roos 1990; Heilman 1995; Reskin and McBrier 2000; Heilman and Haynes 2005; Heilman and Eagly 2008). In the case of management professionals, studies have found stereotyping may lead men to receive higher salary offers than women (Wagner, Ford, and Ford 1986; England 1992; Jacobs 1995; Lucas 2003).

Laboratory evidence notwithstanding, it is hard to document demand-side contributions to the initial gender wage gap. Pay disparities may be due to differences in human capital, training, or motivation that are unobservable to researchers but observable to employers (Becker 1975; Barron, Bishop, and Dunkelberg 1985). Further, due to the one-shot nature of the hiring process, approaches typically used to address unobserved heterogeneity (i.e. individual fixed effects) do not aid with understanding a gender wage gap in initial salaries

(Tomaskovic-Devey, Thomas, and Johnson 2005). Finally, audit studies utilized during some stages of the hiring process have limited traction at the salary-setting stage because it requires that candidates make it through several stages of the hiring process and secure an offer (Neumark Bank and Van Nort 1996; Bertrand and Mullainathan 2004; Pager 2007; Pedulla 2016; Rivera and Tilcsik 2016).⁵

TRYOUTS AND DEMAND-SIDE CONTRIBUTIONS TO WAGE INEQUALITY

We provide some intuition into how a tryout approach may help to identify demand-side contributions to wage inequality. We start with a basic model that relates individual-level characteristics to salaries. Suppose that candidates have two characteristics related to compensation, X_1 and X_2 , where the first characteristic, X_1 , is easily observed (as is the case with GPA) and the second characteristic, X_2 , may or may not be observable to organizations but is not at all observable to researchers. We can take the output of a candidate within an organization as

$$V(X) = f(X_1, X_2) \quad (1)$$

where f is an increasing function. Let's say individuals belong to one of two groups G , which is equal to 1 for women and to 0 for men. Salary S is a function of the candidate's characteristics and gender

$$S = g(V(X), G).$$

If there is no difference in the actual performance of women and men once they are hired such that is, $V_M^* = V_W^*$, we are able to define a term gamma as the following

$$\gamma = S(V^*, 0) - S(V^*, 1).$$

whereby differential evaluation is indicated when $\gamma \neq 0$. Extant approaches may find initial salary differences between women and men, but they cannot “rule in” differential evaluation because, from the perspective of researchers, aspects of candidates are left unobserved. A tryout approach can help address this issue by examining salaries of the groups before and after the tryout, where differential evaluation is reflected by

$$\frac{T_{2W}}{T_{2M}} - \frac{T_{1W}}{T_{1M}} \quad (2)$$

and T_2 and T_1 denote women’s and men’s salaries after a tryout and in the absence of (or before) a tryout respectively. A tryout approach permits us to model the outputs (salaries) rather than the inputs, which are unobservable to researchers.

“TEMPORARY INTERNALIZATION” AND THE GENDER WAGE GAP

We turn now to developing theoretical arguments about why we expect tryouts to reduce inequality. We begin by reviewing the prior literature that addresses why women are paid less initially in order to hypothesize why tryouts might lessen these effects.

Competence

Literature on organizations and labor markets suggests that the former select individuals and assign salaries based on assessments of competence regarding hard and soft skills. Hard skills are those based on technical ability to complete tasks; soft skills are those involving “personality, attitude, and behavior rather than formal or technical knowledge” (Moss and Tilly 2001: 44). In traditional hiring the evaluation of hard and soft skills is inherently subjective, as decision makers extrapolate behavior based on limited data gained during the hiring process

(Cappelli 1999; Moss and Tilly 2001). Decision makers may have role-specific schemas for professional occupations that are associated with masculine characteristics (Dovidio et al. 1988; Nosek, Banaji, and Greenwald 2002; Gorman 2005). Because professional occupations are associated with masculine characteristics, organizational decision makers may discount both the hard and soft skills of women and hence offer them lower salaries (Bielby and Baron 1986; Reskin and McBrier 2000; Castilla 2008).

Familiarity

Organizations weigh not only information about an applicant's skills but also the certainty of this information. For this reason, the hiring entity will evaluate the channels through which information comes (Granovetter 1981; Fernandez, Castilla, and Moore 2000). Hiring channels that are relatively more informal such as referrals can reduce employers' uncertainty about applicants by providing more detailed information than either résumés or interviews (Simon and Warner 1992; Fernandez and Weinberg 1997; Fernandez and Sosa 2005).⁶ This process might be problematic for professional women to the extent that they are less likely to know employees in the hiring organization (Moore 1990; Korenman and Turner 1996; Reskin, McBrier, and Kmec 1999; Petersen, Saporta, and Seidel 2000; Rubineau and Fernandez 2013, 2015). In that case, employers are less certain of their value and so may pay them less (Aigner and Cain 1977; Altonji and Pierret 2001; Penner 2008).

The Attenuating Effect of Tryouts

Tryouts are a temporary internalization of the labor market. As a result, the information that organizations have about prospective employees prior to making hiring and salary decisions increases versus that available in the traditional hiring process. Additionally, tryouts increase the familiarity of prospective employees to incumbents in the organization. While it is possible that

tryouts advantage all candidates, we provide theoretical arguments for why internationalization likely accrues greater benefits to women than men.

To begin, tryouts provide a period of visibility in organizations prior to the salary-setting stage (Beenen and Rousseau 2010). Increased visibility during tryouts may help all candidates, but it likely confers more benefits to women than men. Whereas hard skills related to technical ability can be assessed via schooling or grades, an organization's evaluation of the candidate's soft skills is inherently subjective as managers must extrapolate behavior based on limited data acquired during interviews (Cappelli 1999; Moss and Tilly 2001). While some soft skills (e.g., communal team building) may be linked to positive stereotypes of women, organizations may doubt that female professionals have sufficient skills in areas such as leadership, and/or political know-how (Ridgeway 1997; Reskin and McBrier 2000; Padavic and Reskin 2002; Eagly and Karau 2002; Gorman 2005; Phelan, Moss-Racusin, and Rudman 2008).

As a result of such stereotypes, the opportunity to display these skills during tryouts is more important for women than for men because it provides clearer evidence of ability. Direct contact between the subjects and holders of bias has been shown to attenuate the use of bias (Kalev 2009; Briscoe and Kellogg 2011). Tryouts allow employers to replace mere assumptions about a candidate's skills and characteristics with firsthand information that is not available during interviews or more traditional stages of the hiring process. In this way tryouts yield the employer a more informed understanding of a candidate (Tosi and Einbender 1985; Heilman 1995; Altonji and Pierret 2001; Gorman 2005; Rissing and Castilla 2014).

Further, because tryouts allow employers to gather information directly, pre-existing social networks may no longer have the same effect on hiring and salary-setting decisions. In traditional labor markets, candidates with social networks in the hiring organization may be

deemed more valuable because the organization's information about the candidate comes firsthand through its employees. To the extent that women have developed fewer social contacts within the organization, this practice puts women at a disadvantage (Moore 1990; Korenman and Turner 1996; Reskin, McBrier, and Kmec 1999; Petersen, Saporta, and Seidel 2000; Fernandez and Sosa 2005). Because of the direct information provided by a tryout, this may reduce reliance on informal channels of information during hiring, thereby differentially improving the hiring outcomes of women.

To the degree tryouts disproportionately aid women we expect them to reduce the gender pay gap in initial salaries. It is important to note we are not arguing tryouts completely remediate evaluative bias. We do suggest that the level of bias is apt to be reduced versus traditional hiring. Our argument is consistent with prior research in sociology and social psychology that gender disadvantages are lessened if greater information is available, because this reduces reliance on stereotypes in assessments (Nieva and Gutek 1980; Heilman and Haynes 2006; Kalem 2009). Also, even if the same amount of bias were to ensue during the tryout, there is at least some evidence to suggest female professionals may opt to "work harder" than their male counterparts during tryouts in anticipation that they need to be better than men (c.f. Gorman and Kmec, 2007). Tryouts provide candidates this opportunity.

Our expectation that the gender gap in salaries is reduced after tryout employment is subject to scope conditions. First, our theoretical arguments would not hold if salary discrimination were persistent—as would be in the case of taste-based discrimination (Becker 1957) and status-based discrimination (Correll and Bernard 2006). Second, our theory pertains to tryouts of a fixed duration that are being used to screen potential employees. Some types of temporary work (e.g., contract employment) can continue for an indefinite period (Kalleberg

2000; Fernandez-Mateo 2009), and organizations need not internalize workers (Baron 2000; Kalleberg, Reskin, and Hudson 2000); other internships have no screening function (Curiale 2009). Those are not tryouts of the type we specify here. With these scope conditions, we expect tryouts to have a narrowing effect on the initial salary gap between women and men. We hypothesize the following.

HYPOTHESIS 1. The initial full-time starting salaries offered to professionally-trained female managers are lower than those offered to professionally-trained male managers.

HYPOTHESIS 2. Tryouts increase the initial salary offers received by professionally-trained women more than tryouts increase the initial salary offers received by professionally-trained men.

THE DATA AND SETTING

We investigate the salaries of professionally-trained managers that graduated with an MBA degree from an elite management program in 2009 and 2010. The institution investigated is one of 750 globally accredited management programs.⁷ Procedures for collecting offer and salary information in management programs are developed by the MBA Careers Services and Employer Alliance (CSEA), which was founded in 1994. The organization provides guidelines that standardize the collection, management, and distribution of employment data.

The institution for this study follows the survey guidelines set out by the CSEA. To ascertain the effect of internships on the gender wage gap, we worked with career services to develop a much more lengthy and nuanced survey on how individuals and employers are matched. To the basic query on whether or not individuals had received a job offer, we added several additional questions about the job search, including but not limited to, all offers that had been received, compensation information, and offer source. We additionally collected data from

other sources, including information from student records, other career service surveys, and public information on websites.

All graduate students in the program were sent an email by the career center inviting them to participate in the survey in the spring of their graduating year. There were 394 graduate students in the class of 2009 and 389 in the class of 2010. Among these 783 individuals, 708 responded to the survey—a response rate of 90%. We checked for response bias to determine whether respondents differ from the larger MBA student body with respect to gender and GMAT scores; we found no evidence of any difference.

Variables

The dependent variable is the maximum initial salary offer received by a candidate. By ‘initial salary’ we mean the salary the candidate would be paid if employment commenced. Maximum initial salary offer—rather than total compensation—is used as the dependent variable because the initial salary establishes a baseline for salary growth in organizations (Gerhart 1990; Petersen and Saporta 2004). On the survey, respondents listed up to four offers, which was enough space for nearly all respondents to list their full set (only five individuals reported that they received more than four offers). The median number of offers respondents received is 1 and the mean is 1.69.⁸

The main explanatory variable is the source of the salary offer. The survey asked individuals about the primary source of each job offer by providing 16 options from which to choose. We collapsed this list into four main categories: *Internship*, *Formal job source*, *Informal job source*, and *Other*. The internship category refers to offers received from an employer where an internship first occurred. Although individuals received full-time offers through a variety of sources, nearly all individuals in the study (97%) completed an internship. This predominance

underscores the importance of internships for new, professionally trained managers in our context. It is also an important feature of this setting because it helps us rule out the possibility of that any internship effect is due to the mere subset of individuals who acquire human capital through internships (Becker 1975). Consistent with our theorizing, the internship variable is coded 1 when the internship occurs at the organization from which the full-time offer originates, or for those whom employers have had a chance to observe prior to making full-time job offers.⁹ The formal job search category includes offers from formal job search methods, including on-campus recruiting by employers and online job postings. The informal job search category includes offers that originated from information or leads from social contacts, such as family, friends, faculty, and alumni. Other source (our omitted category) refers to job offers received through means not listed in the survey, or atypical methods of locating employment. The other explanatory variable *Female* is dichotomous and assigned based on the students' admissions office records.

Control Variables

Since we examine the job-finding outcomes of graduates from the same institution we implicitly account for factors such as the institution's reputation and its extent of career support that affect salaries. We further control for the relative quality of individuals with our *GPA* and *GMAT* variables (Chatman 1991; Rivera 2011). As an additional indication of quality, we also include the *Total Offers* respondents received, as we expect higher quality individuals to receive more offers. We account for respondents' pre-MBA salary using a *Previous Salary* variable. In addition, the models include a variable for *Years of Prior Work Experience*. Survey respondents were asked to report their years of prior work experience before pursuing an MBA

according to a set of intervals. The models include prior experience intervals of 1–3 years, 3–5 years, and more than 5 years; the “less than 1 year” interval is the omitted one in the models.

Some respondents took part in a sponsorship program while earning their MBA. Because these individuals have experiences that potential employers might value, we include a *Sponsorship* dummy variable in the models. Furthermore, prior research suggests that salary differences might be due to supply-side factors; for instance, there is some indication that women in business are less likely to pursue more high-paying quantitative fields such as finance (Barbulescu and Bidwell 2013). To account for this possibility we include field dummy variables for finance, consulting, and general management; again ‘other’ is the omitted category, which means they pursued fields that are less typical for graduates of this program. Further, because salary offers may differ by cohort, we include a *Cohort 2009* variable. Finally, we include demographic variables for age (measured in years) and for race or ethnicity – i.e. white, African American, Hispanic, and Asian American (‘other’ is the missing category).¹⁰

Selection Issues

We were concerned about two main selection issues.¹¹ The first of these involves demand-side behavior that might differ across the source of offers. If sources for full-time jobs differ for women versus men then this might reflect different assessment criteria. For example, if full-time offers from an internship employer are lower for women net of quality controls, this might indicate that internship employers are using more stringent criteria for hiring, which would affect salaries.

To determine if this is problematic in our study, for all maximum offers we calculated the proportion coming from each source (see Table 1). In our setting, the proportion of offers

following internships is about 30% percent for both women (29.7%) and men (30.4%). There is also very little difference in the proportion of offers coming from other sources. We conducted an analysis of variance (ANOVA) to look for gender differences in the sources of offers. We find there is no statistically significant difference in the source through which women and men receive offers ($F < 0.3$, not significant). In short, there is no evidence of women receiving proportionally fewer offers than men from employers that hold internships.

[[INSERT **Table 1** about Here]]

The second selection issue that could affect our findings concerns the supply-side. A desirable feature of our setting is that nearly all individuals (97%) opt for an internship, substantially reducing selection concerns about who does or does not undertake one.¹² It is still possible, however, that individuals are selective about internship attributes. In our case, this would be problematic if women and men selected their internships in different ways. We would be concerned, for instance, if women were better than men at selecting their internship employer. Offers from internship employers might improve women's salaries owing mainly to better up-front selection—a better match—at the internship stage.

For the 2010 cohort year we gathered in-depth information about the internship selection process using data from a survey conducted by the career office. In this setting, we find that women and men select internship offers from employers for largely the same reasons: job function, industry, and job content (see Figure 1). The differences that exist by gender seem to point mainly toward women facing relatively more (not less) constraint in their internship selection. For instance, 4% of men but 8% of women indicated that location was a primary reason for accepting an internship employer's offer.

[[INSERT **Figure 1** about Here]]

Analysis

We analyze the data by performing both a cross-sectional analysis and a multi-stage analysis among a subsample of respondents. Our first analysis is a cross-sectional ordinary least-squares (OLS) regression of initial salary offers on the independent variables and covariates. Because respondents might appear more than once or have a maximum offer from two or more sources, non-independence is a problem and so we cluster standard errors by respondent. We begin by regressing the maximum salary offer on *Female* and then gradually add the controls. Consistent with our theorizing, this allows us to assess whether there is a direct effect of gender on salary offers even after we account for other factors that might explain salary. To test the relative importance of the offer source, we add the job source variables into our models and then interact the *Internship* and *Female* variables.

After conducting this analysis we estimate a maximum likelihood Heckman (1976) selection model to account for respondents who sought jobs but received no offers. Because this selection model is only weakly identified off of the non-linearity of the functional form, we include an instrument which is related to the likelihood of receiving an offer (i.e., of being included in our data), but does not relate to salary (Wooldridge 2002). Our instrument is whether or not a respondent originated from outside of the U.S. This affects the likelihood of receiving a job offer because firms are legally required to cover the visa expenses of nondomestic workers.¹³ We examined differences in job offers for all the respondents ($N = 643$, of which 434 were domestic and 209 nondomestic) for whom data were available. These differences are reported in Table 2. Nondomestic candidates were significantly less likely to receive job offers ($t = 4.78, p < 0.01$), but there was no appreciable difference in salary offers conditional on an

offer being received ($t = -0.21$, not significant). In the next section we describe the Heckman selection models before presenting the multi-stage analysis.

[[INSERT **Table 2** about Here]]

Results

Table 3 provides the means, standard deviations, and correlations for the variables for the base sample. Among the 708 respondents to the survey, 566 individuals indicated they sought employment after graduation and 497 received offers. Out of these, 147 respondents did not report salaries or their surveys had other missing data. Following Allison (2002), we inspected if list deletion is warranted. Accordingly, listwise deletion is valid if the probability of missing data on the independent variables of concern does not depend on the value of the dependent variable. In this sample, there is no relationship between missing data and the central independent variables of interest – gender and source of offer.¹⁴ We removed those with missing data and the final sample for the baseline analysis is 350 respondents with 371 maximum offers.

The average maximum offer was \$110,929 (per annum), and respondents were earning \$74,995 on average prior to entering the MBA program. Respondents (mean age = 27.7 years) averaged 711 on the GMAT and a GPA of 4.61 (5-point scale). Approximately 40% of the respondents had more than five years of work experience prior to entering the MBA program. In the final sample, 46%, 19%, 4%, and 2% of the respondents are (respectively) white, Asian American, Hispanic, and African American ('other' is the omitted category).¹⁵

[[INSERT **Table 3** about Here]]

Table 4 gives descriptive statistics of the maximum salary offered to women and men in the sample. The maximum salary offered to women and men averages \$106,023 and \$113,147, respectively. The difference of \$7,124 is statistically significant ($p < 0.05$).

[[INSERT **Table 4** about Here]]

Descriptive statistics do not fully capture the relationship between gender and salary offers, especially if gender is related to quality. So that we can better understand the effects of gender net of other factors, we conduct a multivariate regression analysis. In Model 1 we regress the maximum salary offer on the female dichotomous variable using OLS regression with standard errors clustered by respondents. In line with the baseline prediction, we find a negative and statistically significant effect on salary of being female ($p < 0.01$). To see whether this gender effect is due to quality differences between women and men, we include the *GPA* and *GMAT* variables in Model 2. A candidate's GPA has a positive and statistically significant effect on the initial salary offer, but the GMAT score is not significant.¹⁶ In Model 3 we include the *Total offers* and find the expected positive relationship. Note that the negative and statistically significant effect of being female on salaries remains even when these variables are included in the regression.

[[INSERT **Table 5** about Here]]

In Model 4 we add variables for prior salary and years of experience. None of the intervals for years of experience has a significant effect on salary, but previous salary does have a positive and statistically significant effect ($p < 0.01$). Model 4 also incorporates additional variables for supply-side factors that may affect salaries, such as the field of employment and whether or not the candidate was sponsored when earning an MBA. The reported values for

Model 4 indicate that those who entered consulting fields had higher salaries vs. those in the omitted group; this is not the case for those in finance and general management— i.e. entering these fields had no significant effect on salaries versus the omitted group.¹⁷ Additionally, Model 4 includes the cohort variable, which does not significantly impact salaries. Model 5 is the full model with all covariates. In this model, we still observe a negative and statistically significant effect on salaries of being female ($p < 0.01$). The marginal effect of being female on salaries is a negative \$6,538; that is, women receive a maximum salary offer that is approximately 6% lower (net of all other factors affecting salaries) than do men.

Next we investigate the relative influence of different job offer sources in Table 6. In Models 6–8 we add each job source into the models. The only one of these that affects salaries is informal job sources, which has a negative and statistically significant effect on salaries. That effect is seen also in Model 9, which includes all of the source variables.

[[INSERT **Table 6** about Here]]

In Model 10 we interact the female dichotomous variable with the internship source. The female–internship interaction is positive and statistically significant ($p < 0.05$). Because the female dichotomous variable is included in the model, the coefficient on the interaction variable is an indication of the marginal effect of women getting an offer from their internship employer versus an offer from another source, which is just over \$11,000.

[[INSERT **Table 7** about Here]]

As already mentioned, we also run maximum likelihood Heckman selection models to account for the non-observability of some salary offers. Table 7 presents the results. Model 11 is the full model with control variables; here the female dichotomous variable remains negative

and statistically significant ($p < 0.01$). In Model 12 we include the source variables. We find that, much like the baseline models, only the informal job source has a significant effect on maximum salary. Model 13 incorporates the interaction effect; as expected this effect is positive and statistically significant ($p < 0.05$).

Is This Effect Driven by a Standard Salary Policy?

In sum, our results indicate the internships reduce the gap in initial salaries for professionally-trained managers. We suggest that this is due to increased information and familiarity afforded to interns, which differentially benefits women. Yet, there are other factors that could be at play that explain our tryout effect. One possibility is that our findings are simply due to employers offering each intern a standardized salary post-tryout—as might be dictated by organizational policy. Such a uniform-salary approach would be favored by employers who wish to avoid costly negotiations with recruits whose internships have given them information about employees' salaries.

Empirically speaking, we do not find evidence that standardized salaries for interns serve as a basis for our results. We used data on 234 companies where offers were accepted (these are the offers in which the employer is named). Across these 234 companies, in the 2009 cohort there were only 15 employers where two or more former interns accepted a full-time job offer, and only three of those employers standardized salary. In 2010 there were 10 employers where multiple former interns accepted jobs; five employers standardized salaries. Overall, these analyses indicate that standard salary-setting policies are an unlikely basis for our results.

Relatedly, perhaps instead of leading to standardization, internships are masking negotiations. For instance, maybe women are better able to negotiate a salary increase with their

internship employer than with a non-intern employer. If this is the case, it is not the internship per se that helps; it is the increased opportunity to negotiate. On the survey for every offer respondents accepted we asked, “Did you negotiate or try to negotiate about ANYTHING with your employer?” We coded each of these 549 responses across all offers received to determine which respondents successfully negotiated an increase in base salary. Overall, 10 percent of women and 16 percent of men negotiated successfully with an employer on some facet of their offer (salary, relocation, tuition, vacation time). Although a subset of individuals did negotiate, negotiations are not a driver of the narrowing effect. As Figure 2 shows, those who negotiated a base-salary increase were much more likely to do so with an employer *other* than where the internship occurred. Moreover only two women (out of 140 reporting) stated they negotiated a salary increase with their internship employer. Net, the narrowing effect is not the result of salary negotiations.

[[INSERT **Figure 2** about Here]]

Salaries for the Same Individuals Before and After Internships

Our setting allows us remove a number of alternative explanations for our results (see the appendix for additional discussion). By choosing to inspect graduates of a single institution we can implicitly account for reputational differences and variation in quality with our controls. However, the tryout approach that we outline suggests the benefits of comparing salaries in presence and absence of tryouts or before and after tryouts occur. To explore how this can be done in our setting we collect data on the salaries of professionals (i) prior to entering the MBA program, (ii) during their internship; and (iii) when they are employed full-time.

We start by investigating salaries across these stages for the subset of individuals reporting salary information at each stage (i.e., the sample is no longer restricted to those for

whom a full set of controls available), which is 181 women and 418 men at the pre-MBA stage. Women and men made (respectively) \$68,685 and \$75,560 annually before earning an MBA, a difference that is statistically significant ($p < 0.01$). There are 152 women and 297 men in the data who undertook internships and reported their salaries (on a monthly basis). These salaries annualize to \$76,272 and \$83,676 for women and men, respectively, which is a statistically significant difference ($p < 0.01$). At the post-internship stage, the maximum salary for women and men was \$106,258 and \$112,075, respectively.¹⁸ The difference in these average maximum offers is statistically significant ($p < 0.01$), but it is noteworthy that the salary difference is reduced. In the two pre-internship stages, women's salaries were about 91% those of men's, but in the post-internship stage this ratio increased to 95%.

[[INSERT **Figure 3** about Here]]

We now turn to how salary offers were affected by source. Admittedly, our sample is now reduced because individuals can only be included that reported salaries across multiple stages. With that caution in mind, as Figure 3 shows, a total of 60 women and 136 men received offers from their internship employer and reported their salaries. Among these 196 individuals, women received an average initial salary offer of \$108,600, while men received an average salary of \$108,196; that is, women did slightly *better* than men when receiving offers from their internship employer (note the difference is not statistically significant).

[[INSERT **Figure 4** about Here]]

We also investigate the effects of tryouts on the subset of individuals for whom data is available for all three stages, or 55 women and 130 men. The distributions of these individuals' pre-MBA and post-internship salaries are plotted in Figure 4. An absolute improvement in

pre/post is at least partly attributable to the MBA degree; by assessing the relative salaries we net out these effects. As Figure 4 indicates men's pre-MBA salaries are higher than women's across the entire distribution. For example, the 50th percentile and 80th percentile salary for men prior to the MBA is \$74,500 and \$100,000, respectively; these same percentiles are \$70,000 and \$80,000 for women (women earn 94 percent and 80 percent of what men earn).

However, we again find evidence of narrowing from tryouts. After tryouts the salaries received at the 50th and 80th percentile are \$108,000 and \$125,000 on average for women, and \$110,000 and \$125,000 on average for men (i.e. women earn 98 percent and 100 percent of what men earn). Because these analyses compare the same sets of individuals across stages, the results lend additional evidence for our contention that internships reduce gender inequality in initial salaries.

DISCUSSION

While women have made great inroads in attaining management credentials, there remains a gender gap in wages from even the earliest stages of managers' careers. While organizations are believed to contribute to this initial wage gap, pinpointing this gap has been difficult due to problems of observability and asymmetry between organizations and researchers. To address this, in this paper we introduce a tryout approach for documenting demand-side contributions to the gender wage gap. Further, using detailed data on several hundred management professionals who applied for entry-level positions, we document empirically, for the first time in the literature, the effect of internships on the gender wage gap. We find that internships improve women's salaries more than men's salaries for professional

managers. The economic benefit of a full-time salary offer from an internship employer was a four-figure improvement in salary for women; men's salaries were unaffected by offer source.

This study contributes to literature on the sociology of management, labor markets and organizational inequality by developing and testing theory that tryouts affect women's initial salaries in organizations differently than they do men's. Consistent with prior studies that document workplace practices have differential effects across groups (e.g. Kalev 2009), we find that the opportunity to directly observe candidates in their prospective place of work ends up increasing the salaries offered to women more than men. This likely occurs because tryouts give employers a chance to assess the competence of women more directly and to increase the familiarity of female candidates within the organization. They offer individuals a chance to demonstrate their skills and get to know incumbent members of organizations (Burt 1992; Baron and Pfeffer 1994; Podolny and Baron 1997; Fernandez and Weinberg 1997; Briscoe and Kellogg 2011; Castilla 2011).

Although we make important theoretical, empirical, and methodological contributions by investigating a prevalent but understudied organizational practice, the study is not without limitations. For one, we caution that the positive effect from tryouts surfaced here might be not generalize beyond similar institutions' graduates that purvey management talent. That is, a key feature here is the relationship between the institution and the employers that provide almost all of the institutions' graduates' internships. Simply put, we would caution our findings are likely conditional on being in the internship pool. Further, while we posit likely mechanisms through which internships affect salaries, we are unable to provide direct evidence of the mechanisms with our data.

Given these findings and limitations, there are fruitful avenues for future work. To begin, we encourage more research examining the use of tryouts on the demand-side. Work should be done to inspect, across the two hiring platforms – internships and full-time jobs – the hiring outcomes for demographic groups. For example, if some employers are more apt to hire members of demographic groups as interns rather than directly into full-time jobs (c.f. Altonji and Blank 1999), then this dynamic would constitute an important intervening step through which tryouts affect inequality. Further, if there are contexts whereby some demographic groups are less likely to be chosen for internships, this likely creates somewhat of a paradoxical effect for internships. Future research should attend to these questions.

Also, in this study professional men seemed not to benefit from tryouts. It is possible that here internships did little to benefit men due to their conformity of the ideal managerial professional. Yet, this does not rule the possibility that tryouts affect men in other settings. One possibility for future research could be to study an occupation that is not so strongly associated with masculinity to inspect the effect of tryouts on men's salaries.

Further, although we find scant evidence that employers in this sample are inclined to follow a uniform-pay policy after internships, this hardly rules out such policies in other contexts. Unlike the traditional hiring process, in which candidates have little knowledge of the employer or of other candidates under consideration, an internship gives candidates firsthand knowledge of the employer and often of the rival candidates whom one is competing for jobs. Research by management and labor market scholars suggests candidates who know each other are likely to share information about their offers and salaries (e.g., Belliveau 2005). Thus internalizing the labor market during a tryout permits candidates (and also employees) to monitor the employer more closely. In turn this may increase pressure on employers to be transparent

about pay. Indeed, there is evidence suggesting that reduced transparency increases demographic-based pay inequality and that the converse statement also holds (see Anderson 2011; Hernandez 2012, 2013; Castilla 2015; Rosenfeld and Denice 2015). And since candidates can compare offers, it follows that employers may opt to standardize post-tryout salaries and thereby avoid costly negotiations with recruits. This topic merits additional research.

Finally, we know almost nothing about the effects of unpaid internships on inequality. This is a critical issue given that more than a million (unpaid) internships are undertaken in the US alone each year (Economist 2014). It is important to compare effects of the paid internships studied here among managers with unpaid internships that occur across a broad range of industries, organizations, and jobs. The extent to which such findings would shed light on how various forms of internalization affect labor market matching and inequality more generally.

In closing, our study not only makes important scholarly contributions, but has makes important contributions to policy. In our context internships are nearly as common as formal hiring methods, and they are more than twice as common as more well-studied methods such as referrals. Organizations use referrals because they offer greater information and familiarity to organizations regarding candidates, but this may, under some conditions, disadvantage members of some demographic groups. Here, in contrast we find a lessening of salary disadvantages for women after tryouts. It would seem that tryouts may offer a parallel set of benefits to employers as referrals while lessening inequality.

Endnotes

¹ Employers in the Graduate Management Admissions Council Employer Survey consistently report using interns to fill positions before opening up the labor pool to the broader labor market.

² The graduate program is one of over 750 programs worldwide accredited by the AACSB (Association to Advance Collegiate Schools of Business).

³ For example, in a nationally representative study of law professionals, Dinovitzer et al. 2009 find that even after controlling for detailed information about credentials, human and social capital, work profiles, opportunity structures and nuanced differences in legal markets, women lawyers earn 5.2% less than men.

⁴ Of course, one reason a gender wage gap may exist is supply-side sorting into industries or jobs (Cohen and Huffman, 2003; Cohen, Huffman, and Knauer 2009; Fernandez and Friedrich 2011). For example, female managers may be disproportionately concentrated in the professional services where managers have lower average earnings. However, among professionally-trained managers or those with managerial credentials, fewer supply-side preferences exist (c.f. Barbulescu and Bidwell 2013).

⁵ We are not aware of any audit studies that directly examine the effects of gender on starting salaries. Neumark, Bank, and Van Nort (1996) investigate the effect of gender on hiring decisions at restaurants that vary in quality. In an Australian study, Booth and Leigh (2010) study the effect of gender on call-backs. Riach and Rich (1987, 2006) investigate the effects of gender on requests for interviews and on follow-up phone calls.

⁶ For a similar argument with respect to race, see Seidel et al. (2000).

⁷ AACSB is the accrediting institution.

⁸ We focus on the maximum salary offer because it indicates, in pecuniary terms, the best offer available from the job search (Barbulescu and Bidwell 2013). It is possible that candidates receive more than one maximum initial salary offer (from more than one firm).

⁹ We conducted interviews with seven human resources (HR) managers and with ten intern supervisors, or those most directly responsible for making hiring and salary decisions after tryouts. The HR managers indicated that

internships like those studied here are used to assess the quality of prospective longer-term employees. Our interviews with intern supervisors likewise revealed supervisors view the internships as a form of screening for prospective employees.

¹⁰ Other race indicates that none of the racial or ethnic categories listed pertained to this individual. They have been multi-racial or originate from outside of the U.S.

¹¹ While these were the main two of concern, we consider additional selection issues in the appendix.

¹² This internship completion rate of 97% accords with the internship completion rates of MBA students in the top 50 MBA programs (as ranked by *BusinessWeek*).

¹³ <http://www.uscis.gov/>

¹⁴ In this instance there is full data available on gender and source for all but one respondent, so it is reasonable to suppose that respondents are not choosing to participate selectively based on gender. The missing data are usually due to GMAT score, race, or prior salary being unreported. We run a logistic regression of “being omitted owing to missing data” on *Female*, the offer source variables, and all other covariates for which no other data is missing. Respondents’ gender and the source of offer does not affect whether or not respondents are omitted.

¹⁵ Table 3 includes correlations for all 350 participants, but some of these individuals had more than one source for a maximum offer (for 371 total observations). For this reason, the source variables are not included in the correlation table. We provide Table A1 in the appendix which includes a correlation table for the 330 participants with just one maximum offer.

¹⁶ One reason for the lack of a GMAT score effect may be that the distribution is highly skewed to the right: 71% of the respondents had a GMAT score of 700 or higher (i.e., scored at no less than the 89th percentile). Given that almost all respondents scored well on the GMAT, those scores are naturally less influential on salary offers.

¹⁷ Because of the positive and statistical effect for consultants in Model 5, we did a sub-sample analysis for those pursuing jobs in consulting and non-consulting fields. Although the coefficient on female is negative for both consultants and non-consultants, the female effect is only statistically different from zero for consultants (for consultants: -9105, t-value = -2.66 vs. non-consultants: (-4414.985, t-value=-1.44). However, these effects are not different from each other (t-value for interaction test is -1.01, not significant).

¹⁸ These salaries are slightly different from those reported in Table 4 because now they reflect the average maximum salary offered to all 147 women and 317 men who reported salary information.

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Table 1. Source of Full-Time Offers for Men and Women

	Internship*	Formal	Informal	Other
Men	30.4%	35.0%	12.3%	22.3%
Women	29.7%	36.9%	16.2%	17.2%

*Note: Source of maximum offers for all respondents reporting at least one full-time job offer
(N= 350)

Table 2. Offers and Salaries for Domestic and Non-Domestic Professionals

	Offer Received	StD	Average Max Salary	StD
Domestic	0.64*	0.48	\$110,715	\$17,769
International	0.44	0.50	\$111,301	\$35,551

*p < 0.01

Table 3. Descriptive Statistics

			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Mean	StDev																			
1. Maximum Offer	\$110,929	\$24,582	1																		
2. Female	0.31	0.46	-0.13 *	1.00																	
3. GPA	4.61	0.22	0.13 *	-0.06	1.00																
4. GMAT	711	41.96	0.05	-0.08	0.35 *	1.00															
5. Total offers	1.69	0.90	0.18 *	0.02	-0.05	-0.10	1.00														
6. Previous Salary	\$74,995	\$27,345	0.22 *	-0.10	0.10	0.05	0.02	1.00													
7. Exp1 (>1 yrs, <3 yrs)	0.17	0.37	-0.05	0.11 *	0.00	-0.08	-0.06	-0.20 *	1.00												
8. Exp2 (> 3 yrs, <5 yrs)	0.42	0.49	-0.05	0.02	0.05	0.07	0.05	-0.14 *	-0.38 *	1.00											
9. Exp3 (>5 yrs)	0.40	0.49	0.10	-0.10	-0.03	-0.01	0.00	0.32 *	-0.37 *	-0.70 *	1.00										
10. Sponsored	0.16	0.36	0.07	-0.07	0.04	0.00	0.28 *	0.03	0.02	-0.05	0.05	1.00									
11. Finance	0.20	0.40	-0.11 *	-0.08	-0.18 *	-0.20 *	-0.10	0.06	0.02	-0.04	0.03	-0.20 *	1.00								
12. Consulting	0.39	0.49	0.22 *	0.01	0.17 *	0.19 *	0.00	-0.03	-0.04	0.05	-0.02	-0.11 *	-0.41 *	1.00							
13. General Management	0.06	0.24	-0.04	-0.07	-0.04	-0.01	0.02	0.04	-0.05	0.02	0.00	0.08	-0.13 *	-0.21 *	1.00						
14. Cohort 2009	0.44	0.49	0.00	-0.13 *	0.12	0.05	-0.12 *	-0.11 *	-0.02	-0.01	0.01	0.07	-0.08	0.00	0.03	1.00					
15. Age	27.68	2.46	0.07	-0.13 *	-0.05	0.01	0.04	0.33 *	-0.45 *	-0.30 *	0.67 *	0.10	0.01	0.03	-0.04	-0.08	1.00				
16. White	0.46	0.50	0.06	0.00	0.21 *	0.14 *	0.03	0.05	0.04	-0.08	0.04	0.14 *	-0.24 *	0.11 *	0.02	0.09	-0.04	1.00			
17. Black	0.02	0.15	-0.03	-0.06	-0.07	-0.20 *	-0.01	0.05	0.03	-0.05	0.03	-0.07	0.11 *	-0.08	0.04	-0.02	0.00	-0.14 *	1.00		
18. Hispanic	0.04	0.20	-0.02	-0.08	-0.03	-0.12 *	0.07	-0.09	-0.02	0.05	-0.06	0.06	0.00	-0.08	0.00	-0.05	-0.04	-0.14 *	-0.03	1.00	
19. Asian	0.19	0.39	-0.02	0.08	-0.01	0.05	-0.14 *	0.15 *	-0.08	0.07	0.00	-0.04	0.11 *	-0.01	0.00	0.02	-0.04	-0.38 *	-0.07	-0.10	

Note: N = 350

*p < 0.05

Table 4. Maximum Salary Offer Received

	N	Mean Max Offer	StDev
Men	241	\$113,147*	\$25,914
Women	109	\$106,023	\$20,617

*p < 0.05

Table 5. OLS Regressions of Maximum Salary Offer Received

	(1)	(2)	(3)	(4)	(5)
Female	-7272.3 ** (2515.05)	-6992.7 ** (2608.4)	-6871.0 ** (2587.9)	-6213.9 ** (2241.4)	-6538.4 ** (2357.8)
GPA		12583.1 * (5405.3)	13007.4 * (5291.9)	7904.2 (4868.7)	7765.1 (4855.7)
GMAT		-1.7 (34.2)	8.3 (31.9)	-13.0 (27.2)	-16.2 (29.8)
Total offers			5109.5 ** (1405.7)	4756.7 * (1913.8)	4678.1 * (1828.6)
Previous salary				0.16 ** (0.05)	0.18 ** (0.05)
Exp 1 (>1 yrs, < 3 yrs)				11959.4 (16043.6)	12408.8 (17292.3)
Exp 2 (> 3 yrs, < 5 yrs)				9403.2 (16035.7)	11294.1 (17309.5)
Exp 3 (> 5 yrs)				12061.9 (16346.1)	16559.0 (18091.1)
Sponsored				972.6 (2921.2)	1577.0 (2751.2)
Finance				-2091.1 (4495.5)	-2198.7 (4408.8)
Consulting				10303.8 ** (2234.0)	10455.8 ** (2286.2)
General Management				-1616.7 (3247.3)	-1997.5 (3314.2)
Cohort 2009				1032.1 (3146.6)	798.4 (3101.8)
Age					-970.7 (683.2)
White					-1274.9 (2860.4)
Black					-5627.2 (5796.7)
Hispanic					-1236.5 (4869.8)
Asian					-1271.9 (3362.3)
Constant	113186.5 ** (1585.1)	56367.1 (36081.6)	38346.9 (32618.8)	50290.9 (30250.5)	77580.6 (40648.3)
N	371	371	371	371	371

Clustered standard errors, **p < 0.01, *p<0.05; two-tailed tests

Table 6. The Effect of Job Source on Maximum Salary Offer Received

	(6)	(7)	(8)	(9)	(10)
Female	-6516.7 ** (2356.6)	-6214.7 ** (2246.1)	-6587.4 ** (2312.6)	-6147.2 ** (2205.4)	-9411.0 ** (2856.1)
GPA	7723.5 (4874.0)	7047.5 (4732.3)	6887.2 (4786.9)	6570.4 (4695.3)	6926.7 (4593.5)
GMAT	-15.6 (29.03)	-16.5 (29.55)	-20.0 (29.46)	-15.7 (26.8)	-11.7 (26.2)
Total offers	4781.2 * (2053.9)	4713.2 * (1829.4)	5621.7 ** (1750.4)	5447.2 ** (1942.9)	5621.3 ** (1958.9)
Previous salary	0.18 ** (0.05)	0.17 ** (0.05)	0.18 ** (0.05)	0.17 ** (0.05)	0.17 ** (0.05)
Exp 1 (>1 yrs, < 3 yrs)	12367.6 (17404.4)	11742.7 (17885.4)	10048.2 (17019.0)	10738.1 (18116.8)	10750.5 (18750.7)
Exp 2 (> 3 yrs, < 5 yrs)	11311.6 (17437.1)	9773.4 (17891.8)	9587.7 (17039.6)	9224.3 (18154.1)	9236.4 (18792.6)
Exp 3 (> 5 yrs)	16544.8 (18198.5)	15333.4 (18550.7)	14417.7 (17882.2)	14508.5 (18950.5)	14863.5 (19605.3)
Sponsored	1649.1 (2664.1)	856.3 (2753.15)	1793.7 (2762.24)	1207.8 (2675.26)	591.5 (2813.33)
Finance	-2227.1 (4362.25)	-1908.0 (4372.8)	-2810.8 (4470.8)	-2234.5 (4540.7)	-2363.8 (4502.5)
Consulting	10552.1 ** (2349.1)	9594.9 ** (2182.7)	10592.7 ** (2209.8)	10010.3 ** (2228.27)	10375.3 ** (2223.02)
General Management	-1942.0 (3300.7)	-1549.1 (3437.0)	-1821.8 (3295.1)	-1270.9 (3410.3)	-729.0 (3442.9)
Cohort 2009	827.1 (3164.1)	161.2 (3024.2)	603.5 (3127.8)	198.9 (3149.4)	393.0 (3160.4)
Age	-966.2 (676.8)	-1126.4 (681.5)	-999.8 (675.0)	-1120.3 (672.7)	-1140.2 (684.3)
White	-1287.3 (2879.6)	-271.4 (2761.6)	-1073.1 (2877.1)	-242.4 (2749.5)	-394.0 (2750.6)
Black	-5537.6 (5630.7)	-6226.3 (6344.0)	-4914.6 (5875.2)	-5629.9 (6309.9)	-5329.6 (6338.8)
Hispanic	-1143.0 (4822.3)	-475.5 (4616.6)	-543.7 (4818.3)	135.1 (4518.5)	247.2 (4699.0)
Asian	-1142.8 (3182.5)	-2251.0 (3314.7)	-867.8 (3385.5)	-1614.4 (3081.5)	-1637.8 (3080.5)
Formal	-648.0 (2324.5)			-2493.4 (4597.82)	-2440.4 (4591.32)
Informal		-13361.9 ** (2998.6)		-13424.4 ** (5105.83)	-13027.7 * (5035.12)
Internship			6388.5 ** (2058.6)	2281.2 (4395.0)	-890.8 (4859.3)
Internship x Female					11100.6 ** (4248.9)
Constant	77228.7 (40262.7)	88932.2 * (41541.3)	83329.6 * (40059.5)	89684.0 * (39845.7)	85928.6 * (39731.9)
N	371	371	371	371	371

Clustered standard errors, **p < 0.01, *p<0.05; two-tailed tests

Table 7. Heckman Selection Model of Salary Offer

	(11)	(12)	(13)
Female	-9250.4 ** (2820.2)	-8992.2 ** (2773.3)	-12574.9 ** (3150.9)
GPA	13622.6 * (6088.8)	12402.5 * (5974.3)	12835.7 * (5939.8)
GMAT	-24.21 (32.9)	-28.38 (32.6)	-23.73 (32.5)
Total offers	4494.9 ** (1339.4)	5008.7 ** (1377.9)	5255.9 ** (1371.1)
Previous salary	0.16 ** (0.05)	0.16 ** (0.05)	0.16 ** (0.05)
Exp 1 (>1 yrs, < 3 yrs)	18913.0 (13931.9)	17400.1 (13656.1)	17542.7 (13564.1)
Exp 2 (> 3 yrs, < 5 yrs)	17177.0 (13833.9)	15405.3 (13548.6)	15539.8 (13457.7)
Exp 3 (> 5 yrs)	21709.6 (14355.6)	19884.8 (14072.6)	20424.0 (13981.6)
Sponsored	6009.6 (3739.0)	5749.9 (3679.5)	5146.6 (3668.3)
Finance	-2501.8 (3303.2)	-2970.7 (3224.0)	-2962.4 (3199.0)
Consulting	11237.0 ** (2739.3)	10508.7 ** (2669.8)	11140.8 ** (2666.1)
General Management	-707.8 (5125.5)	-324.4 (4974.3)	332.8 (4953.0)
Cohort 2009	-2384.6 (2597.5)	-3269.0 (2557.7)	-3031.0 (2540.2)
Age	-1234.4 (742.0)	-1441.9 (731.3)	-1471.8 * (727.7)
White	-347.0 (2807.3)	475.9 (2734.4)	135.9 (2723.3)
Black	-3007.3 (7733.3)	-2888.3 (7482.1)	-2534.7 (7436.9)
Hispanic	47.2 (6201.6)	1736.3 (6101.3)	1653.0 (6023.7)
Asian	122.5 (3487.1)	-784.0 (3409.7)	-826.1 (3388.4)
Formal		676.7 (3243.1)	721.7 (3201.8)
Informal		-11906.5 ** (3832.3)	-11333.6 ** (3809.5)
Internship		5348.1 (3300.0)	1915.3 (3602.3)
Internship x Female			12293.0 * (5194.2)
Constant	55784.8 (38109.4)	71040.9 (37497.5)	66459.3 (37348.5)

**p < 0.01, *p<0.05; two-tailed tests

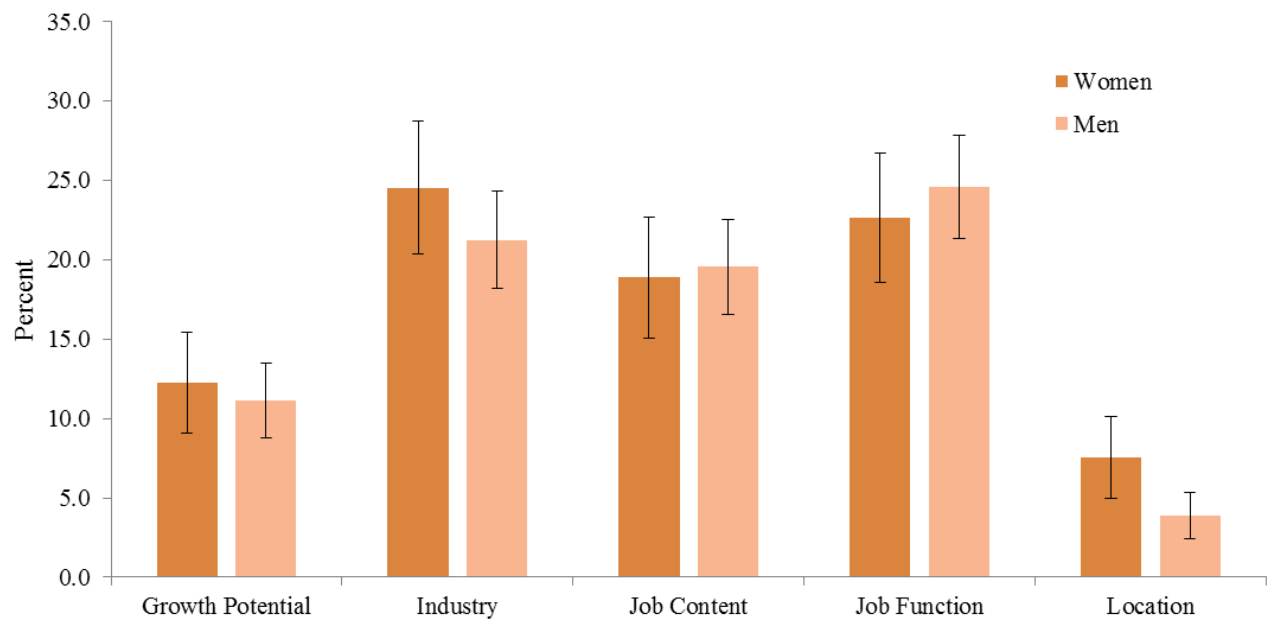


Figure 1. Reasons for Internship Selection

Note: Show above are responses for the 2010 cohort that completed internships in 2009. N=285.
Error bars are ± 1 std. dev. of the mean proportion.

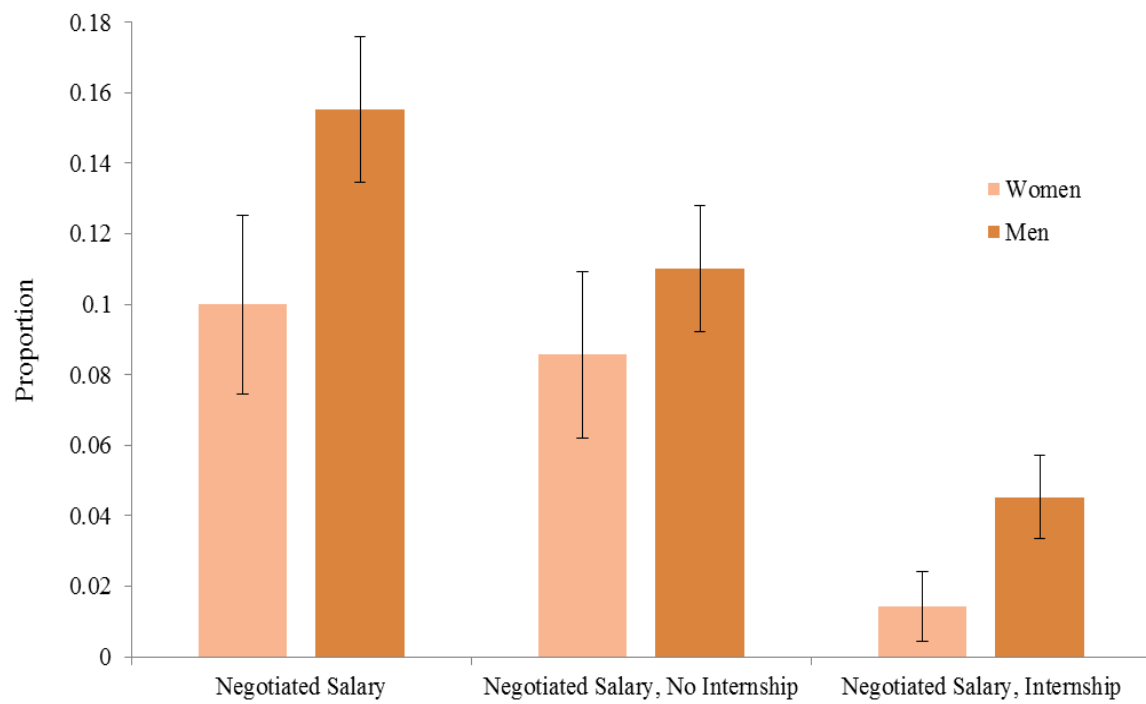


Figure 2. Comparison of Negotiation by Source

Note: Error bars are ± 1 std. dev. of the mean proportion.

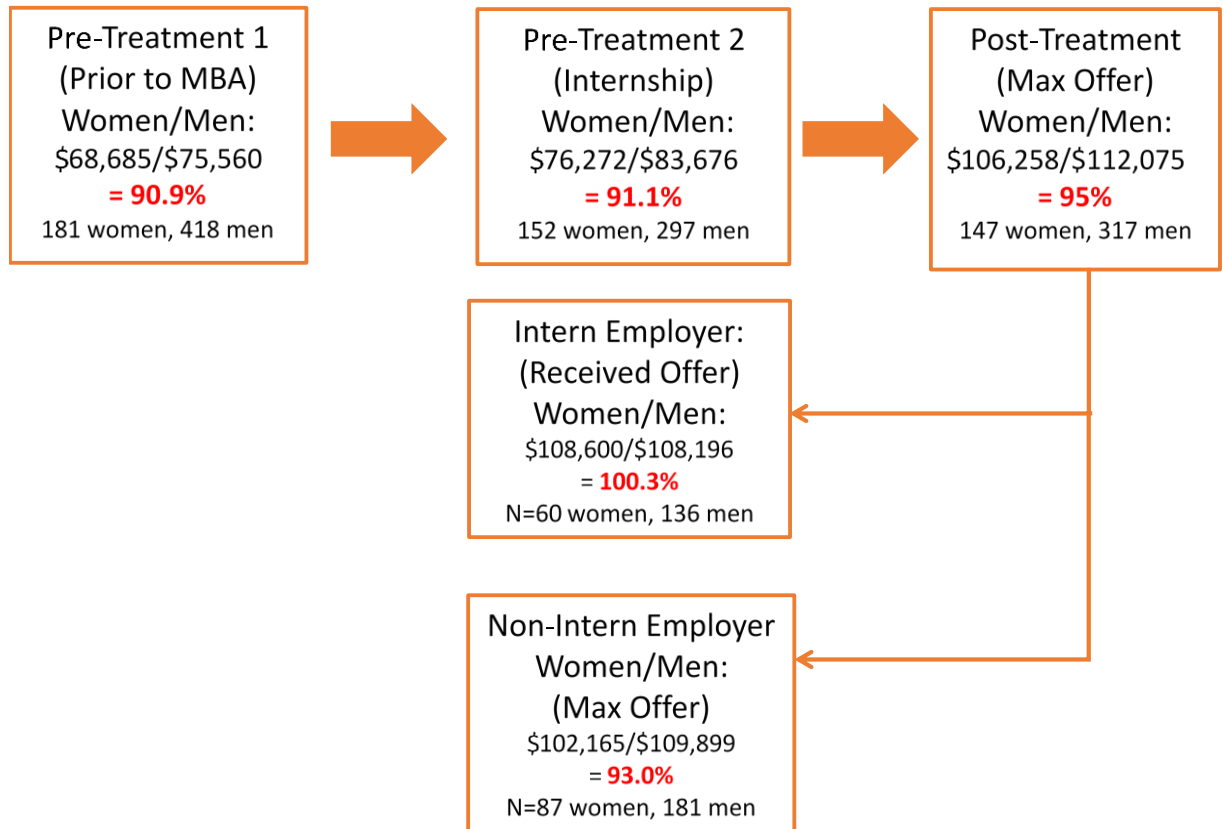


Figure 3. Comparison of Salary Offers across Stages

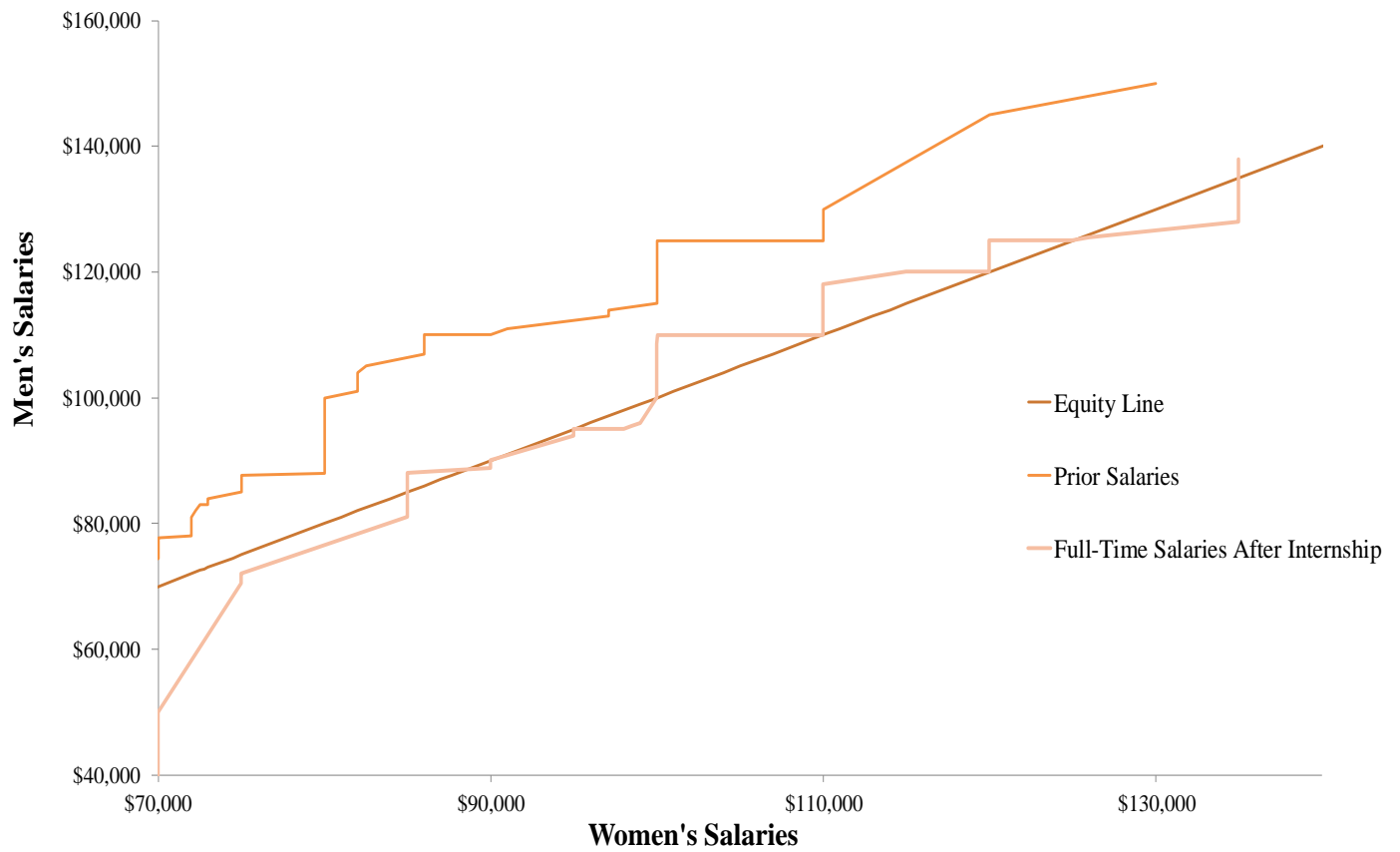


Figure 4. Percentile Distribution of Salaries

Appendix

In this appendix we outline additional alternative explanations for our findings.

Do Men Pursue Jobs at Higher-Paying Employers Than Do Women?

An alternative explanation for our findings is that women pursue jobs at employers that pay less than employers offering jobs pursued by men. This might be the case if men overestimate their own abilities or qualifications as compared with women's or if women underestimate their own abilities or qualifications as compared with men's (i.e. Correll, 2001). To examine this question we retrieved data about the job application behavior of women and men in the 2010 cohort (the cohort for which such data were available) from the school's career office. We then used this data to assess how applicant behavior differs by gender for 79 employers that used an online system to post jobs. These employers include many of the largest and most prestigious companies with headquarters in the US. Altogether 184 individuals used the online system, including 139 individuals for whom we have full information on gender, GPA, and GMAT score. These 139 represent the "at risk" set of individuals who could have applied for jobs. Next, we ran 77 logistic regressions, one for each employer in the data (two of the 79 companies had only one applicant, and thus drop out), to investigate the job application behavior of the 139 individuals at risk of applying. The dependent variable is dichotomous (1 if the individual applied for a job; else 0).

In our analysis we find scarce evidence that application behavior differs by gender, nor is there indication that women are applying for jobs at lower-paying employers. In 67 of the 77 companies there was no statistically significant effect of gender on the likelihood of an individual applying for a job. Women were significantly more likely to apply for a job at one of the remaining companies—one of the most prestigious and well-paying firms in the consulting industry. In the other nine cases only men applied for jobs, and again, there is no evidence that these are higher-paying employers than in the larger sample. Five of these firms seem to have

low appeal: four or fewer individuals applied, much lower than 17, the average number of applications received by the 77 companies. We looked more closely at the four companies to which at least five individuals—but no women—applied. One of them employs independent contractors; two are technology companies and one is a utility company. No professionals in the sample ended up working for three of these four companies, so no salary information could be obtained. Simply stated, no evidence suggests that women pursue jobs at lower paying employers.

Is There Differences in Acceptance Behavior?

Further we also investigated aspects of candidates' acceptance behavior. If candidate acceptance behavior differs by gender, this may affect the provision of full-time offers after the internship differentially by gender. In this sample, 75% of those who reported accepting an offer accepted the highest one but in many cases it was the highest by default (a sole offer). Among 157 individuals receiving two or more offers, 56% of the candidates accepted the highest offer. For this 157-person subsample ran a regression analysis and found that gender did not have a statistically significant effect on whether the accepted offer was the highest-paying one (provided in Table A2). To probe this further we investigated acceptance rates of offers stemming from internship employers by gender. Among those receiving offers from their internship employers, we find that 76% of women and 73% of men accept them, a difference that is not statistically significant.

Is There A Difference in Behavior due to "Outside Options"?

Perhaps the most qualified men indicated in their internships that they would seek jobs elsewhere (and attempt to find the highest paying job regardless), whereas the most qualified

women indicated they would readily accept a job offer from an internship employer. This would lead to selection into who is offered a job post-internship, based on quality that differs by gender. To examine this we ran a logistic regression model for subsamples of women and men where the dependent variable is whether or not the respondent received a full-time offer from their intern employer (provided in Table A3). We find there is no indication that employers are being more selective when making full-time offers to women than men after the internship.

An additional alternative explanation that we considered focuses on the interview process. Perhaps women perform worse than men do in traditional job interviews. If this is the case, this suggests it is not the internship process per se that helps—it's skipping the interview. To assess this we used data we had on the full list of interviewees for three large employers in our sample at the internship stage. We found no evidence that women were performing worse than men, conditional on an interview. More specifically, women were no less likely than men, once interviewed, to receive an offer. We show this model in Table A4.

Could Employers Offering Internships Be More Equitable?

There may be omitted heterogeneity in organizations that use internships as a human resource (HR) practice. For instance, it could be that organizations with internships are more equitable. Notably, it is worth mentioning that in interviews conducted with HR managers and supervisors, no interviewee identified any recruiting aims for internships other than to screen prospective employees. Even so, engaging in internship programs could be linked to an unstated aspect of the organization's culture vis-à-vis equity—in which case the effect of internships on women's salaries may be spurious.

To address this possibility we performed a number of different analyses. First, we run firm fixed effect regressions which helps determine whether or not internships affect salary offers within the *same* organization. The results are provided Table A5. Here the dependent variable is the accepted job's salary, not the maximum salary offered (although the two might be identical) because employer information is available only for the accepted offer. The sample size is smaller than in the previous models because each candidate accepted but a single offer (and also because some respondents did not name their respective employers).

Given the relatively few numbers of employers that have women and men that accepted offers across multiple sources in their firm in the sample, care must be taken in interpreting the results. With this stipulation in mind, Model 14 (building from the prior models) shows that including firm fixed effects results in an insignificant main effect for gender. That is, there is an element of sorting of individuals across firms that leads to a gender effect in the previous models. Once individuals are compared within the same firm, women and men do not receive significantly different initial salary offers. However, the models shed light on why women's and men's salaries do not differ significantly within the same organization. In Model 15 we include the interaction between the female dichotomous variable and internships and find a positive and statistically significant effect ($p < 0.05$). This suggests that within organizations individuals are hired through different methods, and one reason women do not receive significantly different salaries from men is that they have been hired through internships. Additionally, we ran all regressions in Tables 5, 6, and 7 in the main paper with accepted offer rather than maximum offer. We found no substantive difference in the results in the main paper.

Finally, to proxy for unobserved aspects of organizations we reran the baseline models with a dichotomous variable for whether or not an organization has an internship program.

Information about these internship programs was coded based on data provided by the business school's career office, company websites, and other related websites (e.g., vault.com). Inclusion of this proxy variable in the models did not influence the results.

Table A1. Correlation Table with Source Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1. Maximum Offer	1.00																				
2. Female	-0.13*	1.00																			
3. GPA	0.13*	-0.06	1.00																		
4. GMAT	0.04	-0.08	0.35*	1.00																	
5. Previous Salary	0.23*	-0.09	0.10	0.05	1.00																
6. Exp1 (>1 yrs, <3 yrs)	-0.06	0.10	0.00	-0.06	-0.19*	1.00															
7. Exp2 (> 3 yrs, <5 yrs)	-0.04	0.03	0.03	0.05	-0.17*	-0.38*	1.00														
8. Exp3 (>5 yrs)	0.10	-0.10	-0.02	-0.01	0.34*	-0.38*	-0.70*	1.00													
9. Sponsored	0.06	-0.06	0.04	0.01	0.02	0.03	-0.04	0.03	1.00												
10. Finance	-0.10	-0.06	-0.18*	-0.20*	0.06	0.00	-0.05	0.06	-0.19*	1.00											
11. Consulting	0.22*	0.00	0.18*	0.18*	-0.02	-0.03	0.05	-0.02	-0.11*	-0.39*	1.00										
12. General Management	-0.04	-0.08	-0.04	-0.01	0.04	-0.06	0.02	0.00	0.09	-0.13*	-0.21*	1.00									
13. Cohort 2009	0.00	-0.13*	0.11*	0.03	-0.11*	0.01	-0.05	0.02	0.07	-0.06	-0.01	0.03	1.00								
14. Age	0.06	-0.13*	-0.06	0.01	0.33*	-0.45*	-0.30*	0.67*	0.07	0.03	0.03	-0.04	-0.10	1.00							
15. White	0.06	0.00	0.20*	0.15*	0.07	0.04	-0.09	0.05	0.14*	-0.25*	0.11*	0.02	0.07	-0.04	1.00						
16. Black	-0.02	-0.06	-0.06	-0.22*	0.06	0.05	-0.08	0.05	-0.06	0.09	-0.07	0.05	0.00	0.01	-0.13*	1.00					
17. Hispanic	-0.02	-0.09	-0.03	-0.13*	-0.09	-0.02	0.05	-0.06	0.07	0.00	-0.09	0.00	-0.05	-0.04	-0.14*	-0.03	1.00				
18. Asian	-0.02	0.05	-0.01	0.06	0.18*	-0.10	0.09	0.00	-0.04	0.13*	-0.02	-0.01	0.03	-0.04	-0.39*	-0.07	-0.11	1.00			
19. Formal	0.07	0.05	0.00	0.05	-0.02	-0.08	0.07	-0.01	0.13*	-0.15*	0.13*	0.04	-0.03	0.02	-0.06	-0.01	0.06	0.14*	1.00		
20. Informal	-0.23*	0.06	-0.04	-0.01	-0.09	0.08	-0.01	-0.06	-0.02	0.01	-0.08	0.04	-0.03	-0.11*	0.11*	0.00	0.04	-0.13*	-0.28*	1.00	
21. Internship	0.06	-0.01	0.10	0.09	0.02	0.09	-0.08	0.03	-0.11	0.13*	-0.01	-0.05	0.08	0.01	0.00	-0.01	-0.09	0.01	-0.48*	-0.27*	1.00

Note: This table includes the source variables and the correlations with other variables for only those respondents that had one maximum offer. N=330.

*p < 0.05

Table A2. Likelihood of Accepting Highest Full-Time Salary Offer

Female	0.09	
	(0.41)	
GPA	1.67	
	(0.94)	
GMAT	-0.01	
	(0.00)	
Total Offers	-1.10	**
	(0.29)	
Previous Salary	-0.00	
	(0.00)	
Exp1 (>1 yrs, <3 ys)	-13.74	
	(1367.7)	
Exp2 (> 3 yrs, <5 yrs)	-13.63	
	(1367.7)	
Exp3 (>5 yrs)	-13.94	
	(1367.7)	
Sponsored	-0.36	
	(0.50)	
Finance	-0.30	
	(0.57)	
Consulting	0.29	
	(0.45)	
General Management	0.02	
	(0.75)	
Cohort 2009	0.32	
	(0.40)	
Age	0.11	
	(0.11)	
White	-0.74	
	(0.44)	
Hispanic	-0.58	
	(0.73)	
Asian	-0.04	
	(0.63)	
Constant	12.19	
	(1367.7)	
N	157	

Note: DV is *accepted highest offer*. The variable *black* does not appear in the table, as there is no variance in the dependent variable.

*p<0.05, **p < 0.01

Table A3. Likelihood of Receiving a Full-Time Offer from Intern Employer

	Men	Women
GPA	1.93 ** (0.59)	1.50 † (0.88)
GMAT	-0.00 (0.00)	-0.01 (0.00)
Exp1 (>1 yrs, <3 ys)	1.88 (1.17)	-0.69 (1.28)
Exp2 (> 3 yrs, <5 yrs)	1.52 (1.16)	-0.59 (1.32)
Exp3 (>5 yrs)	1.72 (1.21)	-1.37 (1.49)
Cohort 2009	0.41 (0.26)	-0.19 (0.38)
Age	-0.06 (0.07)	0.14 (0.13)
White	0.037 (0.30)	0.34 (0.42)
Black	0.69 (0.68)	0.38 (1.30)
Asian	0.14 (0.40)	0.41 (0.49)
Constant	-9.74 ** (3.33)	-6.76 (5.87)
N	300	162

Note: Sample includes only those who had internships. DV is whether or not the individual received an offer from the intern employer. The *Hispanic* variable was excluded, as there was no variance in the outcome in the subsample of women. In the pooled analyses (N=462) gender does not affect whether or not an offer is received. *p<0.05, **p < 0.01

Table A4. Likelihood of Receiving an Offer, Conditional on Having an Interview

Female	-0.40	
	(0.59)	
GPA	1.58	
	(1.22)	
GMAT	-0.0019	
	(0.00)	
Exp1 (>1 yrs, <3 yrs)	12.9	**
	(0.92)	
Exp2 (>3 yrs, < 5 yrs)	12.0	**
	(0.94)	
Exp3 (>5 yrs)	13.2	**
	(0.84)	
Firm Dummies	Yes	
Constant	-21.0	**
	(5.23)	
N	198	

Note: DV is *offer for internship*. Demographic variables were not included beyond ‘female’ in order to preserve degrees of freedom. Inclusion of demographic variables does not substantively affect the results.

*p < 0.05, ** p < 0.01

Table A5. Firm Fixed Effect Regression Models of Accepted Salary Offer

	(14)	(15)
Female	393.2 (1798.1)	-3743.0 (2409.6)
GPA	3043.4 (3604.2)	4324.4 (3593.2)
GMAT	11.8 (20.8)	7.3 (20.7)
Total offers	1082.4 (856.5)	1731.7 (911.3)
Previous salary	0.09 ** (0.03)	0.10 ** (0.03)
Exp 1 (>1 yrs, < 3 yrs)	13629.3 (10486.5)	13731.4 (10398.7)
Exp 2 (> 3 yrs, < 5 yrs)	9858.1 (10398.9)	10350.4 (10314.0)
Exp 3 (> 5 yrs)	11607.0 (10710.4)	12051.6 (10656.6)
Sponsored	-3943.4 (2804.2)	-3066.9 (2891.1)
Finance	-10370.7 * (4337.4)	-11634.3 ** (4378.2)
Consulting	-7214.3 (6600.9)	-6934.0 (6596.5)
General Management	-9063.4 * (3824.3)	-9921.1 * (3876.2)
Cohort 2009	-1297.9 (1573.9)	-1413.0 (1595.7)
Age	-648.2 (461.2)	-829.6 (475.7)
White	-1258.6 (1873.5)	-1255.1 (1851.1)
Black	-6339.1 (6360.7)	-6795.0 (6340.2)
Hispanic	2346.3 (4237.5)	3029.3 (4193.6)
Asian	-3152.7 (2194.2)	-2858.1 (2180.3)
Formal		1072.4 (3421.9)
Informal		-641.2 (4919.5)
Internship		2388.9 (3615.2)
Internship x Female		7970.3 * (3474.1)
Constant	93031.3 ** (24780.3)	92931.5 ** (24840.8)
Firm Fixed Effects	Yes	Yes
N	318	318

**p < 0.01, *p<0.05; two-tailed tests