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'ACTING WIFE': MARRIAGE MARKET INCENTIVES AND LABOR MARKET
INVESTMENTS

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ABSTRACT

Do single women avoid career-enhancing actions because these actions could signal personality traits, like ambition, that are undesirable in the marriage market? We answer this question through two field experiments in an elite U.S. MBA program. Newly-admitted MBA students filled out a questionnaire on job preferences and personality traits to be used by the career center in internship placement; randomly-selected students thought their answers would be shared with classmates. When they believed their classmates would not see their responses, single and non-single women answered similarly. However, single women reported desired yearly compensation \$18,000 lower and being willing to travel seven fewer days per month and work four fewer hours per week when they expected their classmates would see their answers. They also reported less professional ambition and tendency for leadership. Neither men nor non-single women changed their answers in response to peer observability. A supplementary experiment asked students to make choices over hypothetical jobs before discussing their choices in their career class small groups; we randomly varied the groups' gender composition. Single women were much less likely to select career-focused jobs when their answers would be shared with male peers, especially single ones. Two results from observational data support our experimental results. First, in a new survey, almost three-quarters of single female students reported avoiding activities they thought would help their career because they did not want to appear ambitious. They eschewed these activities at higher rates than did men and non-single women. Second, while unmarried women perform similarly to married women in class when their performance is kept private from classmates (on exams and problem sets), they have significantly lower participation grades.

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1 Introduction

Even in the 21st century, men prefer female partners who are less professionally ambitious than they are (Fisman et al., 2006). Men tend to avoid female partners with characteristics usually associated with professional ambition, such as high levels of education (Hitsch et al., 2010; Greitemeyer, 2007; Brown and Lewis, 2004). It is relatively unlikely that a woman will earn more than her husband, and when she does, marital satisfaction is lower and divorce is more likely (Bertrand et al., 2015). Promotions increase the chance of divorce for women, but not for men (Folke and Rickne, 2016).

Single women may thus face a trade-off: actions that lead to professional success might be sanctioned in the marriage market because they signal ambition and assertiveness.¹ For example, while volunteering for leadership roles or asking for a promotion might help women’s careers, they may also send negative signals to the marriage market. This trade-off can be pervasive and is not limited to large, discrete decisions. Daily activities such as speaking up in meetings, taking charge of a project, working late, or even certain outfits, haircuts, and make-up can be desirable in one market and not in the other. Hiding career-enhancing actions from potential partners might be challenging for single women: it is likely difficult to hide working late or traveling for work, for example. Moreover, the workplace is the most common place to meet a partner.² Similar to minority students who shy away from educational investments to avoid “acting white,” (Austen-Smith and Fryer, 2005; Fryer and Torelli, 2010), single women might try to improve their marriage options by “acting wife.”³ On the other hand, for men, the consequences of actions in the labor and marriage markets are more closely aligned: women value their partner’s intelligence and education, even when these exceed their own (Fisman et al., 2006; Lee, 2009).

In this paper, we test for the existence and the implications of this trade-off by studying students in an elite U.S. MBA program. Graduate school is a natural place to study this trade-off. Many students are both investing in their professional career and looking for a long-term partner.⁴ For example, a 2015 survey of Harvard Business School (HBS) MBA alumni indicates that among the

¹Throughout the paper, we refer to the marriage market. However, this trade-off is not necessarily limited to women seeking a spouse. It may also exist for women seeking a romantic relationship that is not expected to lead to marriage (i.e., it may apply to a more general “dating market”).

²According to the survey by Rosenfeld et al. (2015), 16% of partnered people reported meeting their partner at work, the most common response. A 2011 survey by Careerbuilder.com of 7,780 full-time US workers found that 38% had dated a co-worker at least once and that 31% of those who did so married a co-worker.

³In Austen-Smith and Fryer (2005), students might avoid educational investments that would help them in the labor market because these investments would send a negative signal (about their “social type”) to their peer group. In our setting, single women might similarly avoid actions that would help them in the labor market because these actions would send a negative signal (about their personality type) to the marriage market.

⁴For example, a New York Times article describes how a female Harvard MBA student dealt with such trade-off: “*Judging from comments from male friends about other women (‘She’s kind of hot, but she’s so assertive’), Ms. Navab feared that seeming too ambitious could hurt what she half-jokingly called her social cap, referring to capitalization,*” and wondered about her goals: “*Were her priorities purely professional, were they academic, were they to start dating someone?*” It also describes how after she “*started dating ... [she] felt freer to focus on her career once she was paired off.*” (Kantor, 2013).

youngest surveyed cohort (“Generation Y”, aged 25-30), 31% of married women and 16% of married men are married to an HBS alum.⁵ Many actions in graduate school are observable to peers – and thus may influence marriage outcomes – and are potentially important for the labor market. These include joining professional clubs and organizations, on-campus interviews, trips to career fairs, and participation in case competitions. There are substantial gender differences in career outcomes for elite MBA program graduates (Bertrand et al., 2010). Even these highly-ambitious men prefer less ambitious women (see Fisman et al., 2006, who study Columbia University graduate students, including MBA students).

We start by providing observational evidence that single women avoid activities that could help their careers to avoid signaling traits that may be penalized in the marriage market. We conducted a survey asking first-year MBA students whether in the two years before business school they had avoided certain actions they thought would help their careers because they were concerned it would make them “look too ambitious, assertive, or pushy.” Sixty-four percent of single females said they had avoided asking for a raise or a promotion for that reason, relative to only 39% of women who were married or in a serious relationship and 27% of men. Over half (52%) of single women reported avoiding speaking up in meetings, relative to 33% of non-single women, and 28% of men. Overall, almost three quarters (73%) of single women said they had avoided actions they believed would help their career because they were worried about looking too ambitious.

Next, we document that unmarried female MBA students have lower class participation grades than married ones. Class participation is observable to peers and may signal students’ ambition or assertiveness.⁶ It is not the case that unmarried women, in general, perform worse in class than married women: both groups perform similarly on their midterm exam, final exam, and problem sets. The difference – approximately a third of a standard deviation – is only present for the observable part of the grade. It is not driven by observable differences between the two groups. For men, who do not face the same trade-off, marital status predicts neither participation grades nor grades in the rest of the class. Note that lower participation grades are consequential: they are a component of final grades, which this school discloses to potential employers.

Our main results come from two field experiments that directly test whether single women respond to the studied trade-off by explicitly changing their behavior, making themselves look less professionally appealing. In the first (primary) experiment, we randomize whether actions with positive labor market consequences (potential signals of ambition) are expected to be observed by one’s classmates. Classmate observability allows the actions to have larger marriage market

⁵The rates of marriage within the HBS alumni network are also high for other cohorts. In the “Generation X” cohort (aged 31-47), 23% of married women and 9% of married men are married to an HBS alum. In the “Baby Boomer” generation (aged 48-66), these rates are 23% and 5%, respectively (Ely, 2015). We do not know which marriages occurred before business school.

⁶A New York Times article about HBS reports that “*after years of observation, administrators and professors agreed that one particular factor was torpedoing female class participation grades: women, especially single women, often felt they had to choose between academic and social success*” (Kantor, 2013).

consequences.

On the first day of the MBA program, during a career advising session for the newly-admitted class, a career counselor asked students to complete a questionnaire about their job preferences. The questionnaire asked about students' preferences over fields and geography and included a number of questions for which we expect that the answers that would make respondents more appealing job candidates would also make women less attractive spouses. It asked about students' desired compensation, hours of work, and days per month of travel. It also asked students to rate their leadership abilities and professional ambition. These questions are commonly used in recruiting MBA students and shape what positions are considered a good fit for a candidate. From the students' standpoint, this questionnaire had substantial stakes. This was the first information the career center collected on students' preferences and they were told the information would be used to place them into summer internships.⁷ The career office informed us that students' reported preferences would have impacted their placement: for example, if a student was not willing to travel at least four days per week, she would be steered away from consulting, while if she reported not wanting to work long hours, she should not be placed in investment banking.⁸

There were two slightly different versions of the instructions; which version a student received was randomized. Both stated that a career counselor would see their answers. In the public version, students were also told that "your" answers will be discussed in the career class, while in the private version, students were told that "anonymized" answers would be discussed. The two versions of the questionnaire looked essentially identical – they only differed by one word ("your" vs. "anonymized") – so students did not know there were two versions of the questionnaire.⁹ When students thought that their answers would only be viewed by a career counselor, single and non-single women answered similarly.¹⁰ However, when single women expected their classmates to see their answers, they portrayed themselves much less favorably to the labor market. They reported desired compensation \$18,000 per year lower. They said they would be willing to travel seven fewer days per month and work four fewer hours per week.¹¹ They also reported significantly lower levels of professional ambition and tendency for leadership. Neither non-single women nor men, regardless of their relationship status, changed their answers when they expected their peers to observe their

⁷The summer internship is perhaps the most important step for post-MBA placement. In the last graduating cohort, 38% of MBA students accepted a post-graduation job at the same firm at which they completed their summer internship (from personal correspondence with the career office).

⁸In practice, after learning about the large effects of our treatment for single women, the career center decided not to use the questionnaires in placement. However, when completing the questionnaires, students did not know this was an experiment or have any reason to believe the questionnaires would not be used.

⁹This is similar to the design used in Bursztyn and Jensen (2015). Note that both versions of the questionnaire were factually true: students' answers were eventually discussed in their career class, but anonymously.

¹⁰While the grades data indicate only students' marital status, the questionnaire asked a more detailed question about their relationship status. We classify as non-single all students who do not indicate they are single: those who are "in a serious relationship", "cohabiting", "engaged", or "married."

¹¹In the private treatment, single female students reported desired compensation of \$131,000, and were willing to travel 14 days a month and work 52 hours a week, on average.

choices.¹²

To rule out an alternative interpretation that single women are simply more humble in public, we included a placebo question on self-reported writing ability. Writing skills are valued in the labor market, but not sanctioned in the marriage market. Thus, while we would predict that single women would report similar writing abilities in both treatments, a humility explanation would not. Consistent with our hypothesis, single women (and all other groups) rate their writing skills equally in the public and private treatments.

Perhaps surprisingly, there are very small gender differences in the private treatment. Women report lower desired compensation than men, but similar willingness to travel and work long hours, professional ambition, and leadership abilities. Gender gaps emerge once students expect their preferences to be shared with their peers. In other words, the bulk of the gender gap in responses is driven by (single women’s response to) expected observability and not by differences in private, which are perhaps more likely to reflect “true” preferences.

The primary experiment results indicate that single women, but not women in a relationship, avoid actions that could help their careers when these actions have negative marriage market consequences. A supplementary experiment shows that single women present themselves less favorably to the labor market – and more favorably to the marriage market – when they believe their choices will be seen by men as opposed to women. During a career class, students were asked to make choices over three pairs of hypothetical jobs. Students made these choices individually, but were told that if there was time at the end of class, the instructor would discuss their answers with the small groups in which they were completing the rest of the class activities. These small groups change from day-to-day and, on this day, they were randomized such that some single women were in all-female groups while the remainder had all male groupmates. This was a natural activity during a session discussing job fit and students did not know this was an experiment. They were told that these forms would be collected at the end of class, so they knew the career center would see them.

When placed in all-female groups, 68% of women reported that they would prefer a job with a higher salary that required 55-60 hours of work per week over a job with a lower salary requiring only 45-50 hours per week. But, when placed with male peers, women were 26 percentage points less likely to make this choice. Similarly, in all-female groups, 79% of single women reported preferring a job with quicker promotion to partner but substantial travel over a job with slower and less certain promotion but no travel. When placed with male peers, women were 42 percentage points less likely to choose this option. Single women’s answers to a placebo choice between a job with

¹²Of course, regardless of the questionnaire instructions, students’ internship and some personality traits will eventually be observed. Having classmates observe their questionnaire answers both provides information more quickly and provides information about student preferences that might not be perfectly inferred from actual placement. For example, a student could tell her classmates that she was lucky to get a high-paying internship, without revealing her underlying ambition. Similarly, some students may aim for, but not receive a prestigious internship. In the private treatment, potential romantic partners would not necessarily observe the student’s career goals.

a positive social impact and a job with collegial coworkers were not affected by their groupmates' gender. We also exploit the random variation in the share of married men within the groups. Single women are less likely to choose the career-focused option when there are more single – as opposed to married – men in the group, consistent with marriage market signaling.¹³

General differences between single and non-single women are unlikely to drive our results. In the primary experiment, single and non-single women report similar preferences and self-assessments in the private treatment and even in the public treatment when answers are unlikely to be sanctioned in the marriage market. Single and non-single women do not differ on observable characteristics. Differences in single and non-single women's responses to the public treatment are robust to adding interactions of the public treatment dummy with covariates. Similarly, in the observational data, married and unmarried women have similar performance on exams and problem sets: differences only arise for the participation grades, and remain unchanged after controlling for covariates. Finally, the supplementary experiment shows that single women's decision to portray themselves as less ambitious in public is driven by the presence of *male* peers, and especially *single* male peers.

Our results suggest that single women avoid actions that would help their careers because of marriage market concerns. Many schooling and initial career decisions – such as whether to take advanced math in high school, major in engineering, or become an entrepreneur – occur early in life when most women are single. These decisions can have labor market consequences that last long after these women get married. While extrapolating to other settings is beyond the scope of this paper, elite female MBA students comprise a selected group that presumably places a higher value on career success than the general female population. This suggests the effects of marriage market signaling are perhaps even larger in other contexts.

These findings point to marriage market signaling as an additional explanation for gender differences in the labor market. Marriage market signaling is related to explanations surrounding norms over gender identity and the propensity to negotiate.¹⁴ However, these existing explanations have difficulty explaining our results. Gender differences stemming from these explanations would have likely appeared when comparing answers by male and female students *in private* and would have likely not been restricted to single women, particularly given that single and non-single women

¹³To keep the discussion of the results concise, we implicitly abstract from the possibility that some respondents might be interested in same-sex partners. No data on students' sexual orientation is collected. Ninety-seven percent of the US population labels itself as heterosexual (2014 National Health Interview Survey). The interpretation of our observational and primary experiment results is unchanged if one assumes that homosexual and bisexual women have similar partner preferences as heterosexual men, although whether this is true is an open question. The interpretation of the supplementary experiment is based on the assumption that single women in our sample are interested in male partners. The presence of a substantial share of women interested in same-sex partners would attenuate the results.

¹⁴See, for example, Alesina et al. (2013), Akerlof and Kranton (2000), Baldiga (2014), Bertrand et al. (2015), Bordalo et al. (2016), Coffman (2014), Dohmen et al. (2011), Eckel and Grossman (2008), Fernández and Fogli (2009), Fernández et al. (2004), and Niederle and Vesterlund (2007) on gender norms and identity and Exley et al. (2016), Flory et al. (2014), and Leibbrandt and List (2015) on the propensity to negotiate. A large literature, surveyed by Jayachandran (2015), studies the role of social norms in explaining gender inequality in developing countries.

behave similarly in private. Our results also add to the literature on how individuals' economic decisions are affected by social image concerns.¹⁵

The remainder of this paper proceeds as follows. In the next section, we present descriptive statistics on our sample and present results from the observational data: the survey about pre-MBA career choices and classroom grades. Section 3 lays out the design of the primary and supplementary experiments and presents the experimental results. Section 4 concludes.

2 Observational Evidence

2.1 Descriptive Statistics

We have four datasets on students in an elite MBA program. The first is administrative data on students' grades in their (required) introductory economics class for the 2010 to 2015 entering cohorts. The other three datasets – the survey, the primary experiment, and the supplementary experiment – were collected on the 2016 entering cohort. Except for the survey, which was anonymous, we link all of the datasets to admissions records, which has information on student characteristics.

The first column of Table 1 provides descriptive statistics on the 1,880 students who entered the program between 2010 and 2015. Almost 70% of students are male. They average 28 years old, with five years of work experience. Two-thirds are U.S. citizens, with most of the remainder coming from Asia. The average GMAT score is above the 90th percentile of the national distribution, consistent with admission to an elite business school. The second column provides statistics on the primary experiment sample. Because the experiment was conducted on the first day of the program at the career center introductory session, 98% of the class participated. The 2016 cohort looks similar to the earlier cohorts.

Admissions records for the 2010 to 2015 cohorts contain information on whether students were married or in a domestic partnership at the time they applied to the program: only 18% of students were.¹⁶ In the data we collect from the 2016 cohort, we have more detailed information on students' relationship status.¹⁷ In the primary experiment, while only 20% of students are married, less than half (46%) call themselves single. Twenty-two percent of students are in a serious relationship at the start of the MBA program, while just under 10 percent are cohabiting or engaged. These fractions are similar in the survey data (Column 3). The survey was voluntary and conducted during

¹⁵See Austen-Smith and Fryer (2005), Bursztyn and Jensen (2015), and Fryer and Torelli (2010) on educational choices; DellaVigna et al. (2017) on voting; Bénabou and Tirole (2006) on prosocial behavior in general; Charles et al. (2009) on consumption; and Bursztyn and Jensen (2017) for a review of the topic.

¹⁶The admissions office did not collect this information for the 2016 entering cohort.

¹⁷We did not ask for this information in the supplementary experiment. In the supplementary experiment analysis, we use students' reported relationship status from the primary experiment.

the economics class during the middle of the semester and 76% of the class participated.¹⁸ In the grades analysis, we can only compare married and unmarried students, while in the experimental and survey data, we compare single students and students in serious relationships, including engagements, cohabitations, and marriages. To distinguish this from the comparison of married and unmarried students, we refer to these students as “single” and “non-single.”

Appendix Table 1 presents descriptive statistics for the grades and primary experiment samples separately by gender and marital status. Married women are about two years older on average than unmarried women and have more work experience. They are less likely to be U.S. citizens and are more likely to be from Asia or Central or South America. However, their GMAT scores are similar to those of unmarried women. Married men are also older (2.4 years on average), less likely to be U.S. citizens, and more likely to be from Asia or Central or South America than unmarried men. Married and unmarried men also have similar GMAT scores.

Single and non-single women look much more similar. Non-single women are neither significantly older nor do they have significantly more work experience. Single women are less likely to be U.S. citizens, although the difference is not statistically significant. Again, there is little difference in the GMAT scores between single and non-single women. In the supplementary experiment, we only analyze data from women who reported being single in the primary experiment. We discuss the descriptive statistics of this sample in Section 3.4.

2.2 Survey on Past Behaviors

In October 2016, the first-year MBA cohort was asked to answer a short anonymous survey on its prior work experience.¹⁹ The survey, presented in Appendix Figure 1, was conducted during a required class (economics). It was intended as motivational evidence to assess (1) how often single women avoid actions beneficial to their careers to avoid appearing too ambitious or assertive and (2) whether single women avoid these actions more than other groups, in particular non-single women. Specifically, it asked:

In the last two years, are there behaviors or activities at your work that could have helped you professionally that you didn’t undertake because you might have looked too ambitious, assertive, or pushy?

We asked students who responded affirmatively to mark any of four behaviors they did not undertake for that reason: (1) speaking up at meetings, (2) offering to make a presentation or sales pitch, (3) asking for a leadership role in a team or task force, and (4) taking initiative in negotiating

¹⁸We do not know whether students who did not take the survey were absent or simply chose not to participate. Based on typical absence rates, we estimate an approximate 90% response rate among present students. Attendance is not required or measured in this course.

¹⁹Admissions data show that 96% of students in the 2016 cohort had at least two years of prior work experience.

a raise or asking for a promotion. We also left space for students to write in other activities that they avoided, but no one did.²⁰ We also asked students' age and gender and information about their relationship status.

While this survey was not intended to provide causal evidence that single women adjust their behavior because of marriage market concerns, the results displayed in Table 2 are striking. Relative to the other groups and across all options provided, single women were more likely to report having avoided these workplace behaviors, by amounts that are both economically and statistically significant. For example, 64% of single women did not take initiative in asking for a raise or a promotion because they were worried about looking too ambitious, relative to 39% of non-single women (the p-value of the difference is 0.030), 30% of non-single men, and 25% of single men (the p-value of the difference between single women and all other groups is below 0.001). Fifty-two percent of single women avoided speaking up at meetings for the same reason, relative to 33% of non-single women (the p-value of the difference is 0.095), 29% of non-single men, and 28% of single men (the p-value of the difference between single women and all other groups is 0.002). Moreover, forty percent of single women avoided asking for a leadership role, and one quarter refrained from offering to make a presentation or a sales pitch, despite the fact that they thought these activities could help them in their careers. Almost three quarters of single women (73%) reported avoiding activities that they thought would help them professionally because they were concerned about how it would make them look. Adding up the number of these actions that each group avoided in the past generates a similar picture: the average number of avoided actions was 1.77 for single women, 1.12 for non-single women (p-value of the difference is 0.018), 0.92 for single men and 0.88 for non-single men (the p-value of the difference between single women and all other groups is below 0.001). Overall, women's relationship status is predictive of avoiding these behaviors. Across all four actions, non-single women look more similar to men than to single women; the largest differences are between single and non-single women.²¹

2.3 Results from Students Grades

As additional observational evidence, we compare students' participation and non-participation (midterm, final, and problem set) grades in their required first-year economics course. Students' participation is visible to their classmates and can affect the marriage market, whereas their performance in the rest of the class can be kept private. Thus, we expect that unmarried women should perform relatively worse on class participation than married women.

²⁰In practice, almost all students (98%) who said they avoided some activity marked one of the four activities we listed. This indicates either that we captured the set of activities that students had avoided or that students largely only considered whether they avoided the specific activities we listed when answering the umbrella question.

²¹As described in the registration of the survey (AEARCTR-0001686), the differences we observe between single and non-single women may actually underestimate the behavior differences between these two groups. Many of the currently single women may have been in relationships within the two-year window, and vice versa. Moreover, non-single women may be in relationships specifically because they avoided these seemingly-ambitious behaviors.

All economics sections are graded in the same way: grades from the midterm exam, the final exam, problem sets, and class participation combine to produce the overall class grade. Unlike some other top business schools, this one reports grades to potential employers, so that grades can have direct labor market consequences. Figure 1A compares married and unmarried women’s participation and non-participation grades. Married and unmarried women perform virtually the same on exams and problem sets. Unmarried women receive a 79.2, compared to 79.7 for married women (p-value of difference: 0.668). Married and unmarried women also perform similarly on each of the individual components of this grade (Appendix Figure 2A).

However, unmarried women perform almost six points, or a third of a standard deviation, lower on class participation (71.9 vs. 77.6, p-value=0.013).²² In contrast, married and unmarried men perform similarly on exams and problem sets (82.0 for unmarried men vs. 82.6 for married men, p-value=0.259) and the components of this grade (Appendix Figure 2B). There is also little difference in their participation grades (76.9 vs. 76.1, p-value=0.488) (Figure 1B).²³

Figure 2 shows the distribution of single and married women’s participation (Panel A) and non-participation grades (Panel B). Consistent with Figure 1, the distributions of non-participation grades for married and unmarried women look very similar. However, the distribution of unmarried women’s participation grades is shifted to the left. This shift appears throughout the distribution. It is not the case, for example, that the top married and unmarried women participate equally or that, below a certain threshold, there is no longer a difference in participation grades by marital status. Figure 3 shows that the distributions of participation and non-participation grades for married and unmarried men are almost identical.

While married and unmarried women do have different observable characteristics, these characteristics do not drive the differences in their participation grades. Appendix Table 2 shows that the difference in participation grades is almost identical and there is still no difference in the non-observable parts of the grade when controlling for other covariates observed at admission: age, GMAT score, number of years of work experience, U.S. citizenship, and section (class) fixed effects.²⁴ The difference in participation grades by marital status is present throughout the GMAT score distribution and for both U.S. and non-U.S. citizens. It is stronger for younger women in the sample, but this may be in part because younger women are more likely to be truly single (not in long-term relationships), even among the unmarried set. Because some unmarried students are

²²The p-values reported in this section are based on robust standard errors (regression coefficients are presented in Appendix Table 2). Clustering at the classroom level leads to similar conclusions: the p-value of the difference in participation grades between single and married women is 0.008. Given the relatively small number of clusters (27), we also calculated a p-value equal to 0.006 using the wild cluster bootstrap-t procedure proposed by Cameron et al. (2008).

²³We can reject that the difference in participation grades by marital status for women is equal to the difference in their exam and problem set grades (p-value: 0.034) and that it is equal to the difference in men’s participation grades by marital status (p-value: 0.012).

²⁴Unmarried women tend to be younger than married women and younger women have (insignificantly) lower participation grades. Yet unmarried women are more likely to be U.S. citizens, who have higher participation grades.

actually in relationships, the true difference in participation grades between single and non-single women may be larger than what we observe.²⁵

While professors have discretion over participation grades and these grades are by their nature subjective, it is unlikely that our results are driven by professors discriminating against unmarried women. Unconscious bias could lead professors to give women lower participation grades than men for the same comments.²⁶ However, it seems less likely that professors would discriminate against unmarried women relative to married women. In personal correspondence, these professors reported that they did not know their students' relationship status. Additionally, the point estimates are very similar when we restrict the sample to individual professors, indicating the behavior of a subset of instructors cannot drive the results. The difference in female participation grades by marital status is equally present under male and female professors.

3 Experimental Evidence

3.1 Primary Experiment Design

The primary experiment took place on the first day of the MBA program during a 45-minute session the career center hosted for the entire incoming class to discuss its role in student placement. The instructor asked students to fill out an introductory questionnaire that would be used to help with summer internship placement. Summer internships are a key stepping stone to landing a permanent position. Roughly 50% of students in the program's last graduating cohort received a post-graduation job offer from their internship company, and over two-thirds of these students accepted it.²⁷ Because summer internships are so important for ultimate placement, MBA programs spend substantial time and resources preparing students for internship interviews.

Two versions of the introductory questionnaire were distributed: a public and a private version which were identical aside from one word in the instructions. Both versions said that students' career advisor would see their answers and that employers would not. However, the public version told students that "your" answers will be discussed in the career class, while the private version told students that "anonymized" answers will be discussed.²⁸ Specifically, the instructions read:

The information on this survey will help the career office get to know you and help it find the right fit for your first-year internship. This information will not be shared

²⁵In the 2016 cohort, 41% of unmarried women were in serious relationships. If we assume this statistic is similar in previous cohorts and that married women and women in relationships have similar participation grades, the difference between the participation grades of single and non-single women is 57% of a standard deviation (9.6 points).

²⁶Women perform 4.2 points lower than men on participation, relative to 2.9 points lower on exams and problem sets. We have no reason to believe this difference is due to professor bias.

²⁷This is from personal correspondence with the career center.

²⁸The career class is a for-credit class that is required for all students. It covers skills such as networking, resume creation, interviewing, and negotiating.

with employers, so please express your true preferences, not just what you think employers want to hear. This information will be shared with your career advisor and [your/anonymized] answers will be discussed during the [name of the career class].

In practice, only de-identified survey answers were discussed in class.²⁹ This is a subtle treatment: to the extent that some students did not read the instructions carefully or some students in the public treatment assumed that they could opt out of discussing their responses, our results provide a lower bound estimate of the true impact of making responses public.

An equal number of public and private questionnaires were randomly sorted into a pile that was passed out in class.³⁰ Students received their questionnaire with a cover page, so when they were passing the questionnaires, they would neither have seen their classmates' answers (consistent with answer privacy in the private treatment), nor would they have noticed the slight difference in instruction wording between the versions. To our knowledge, no one noticed the difference in the questionnaires.

The questionnaire, which is presented in Appendix Figure 3, was developed to ask information that is important when helping students find internships. The questionnaire first asks for demographic information – students' age, gender, and relationship and parental status. It then asks for students' preferences over industries and geography. The most popular industries were technology (mentioned by 59% of women and 50% of men) and consulting (mentioned by 37% of women and 41% of men).³¹ Nine percent of students indicated they were willing to move anywhere in the world, while an additional 14% were flexible within the United States. An additional 40% of students specifically indicated interest in staying in the metropolitan area of the university (in addition to possibly other areas). Whether students were in the public or private treatment did not affect their stated preferences over industries or geography.

For our purposes, the heart of the questionnaire is a series of questions designed to present a trade-off for single women: responses which would improve women's careers would have potentially negative marriage market consequences. The questionnaire asks how often students are willing to travel for work, the number of hours per week they are willing to work, and their desired compensation.³² They were also asked to rate their ambition relative to their most recent work colleagues and their tendency to lead in day-to-day interactions on a 1-to-5 scale.

Positive answers to all these questions can all be seen as signals of professional ambition. Fisman et al. (2006) show male Columbia graduate students (including MBAs) find ambition in female

²⁹This is consistent with both sets of instructions as the public version did not explicitly say that the answers would be identifiable when discussed.

³⁰The randomization was stratified as follows. Let n index the questionnaire's place in the pile. For any odd n , questionnaire n and $n + 1$ were never of the same version. Questionnaire n had equal likelihood of being the public or private version.

³¹On average, students listed two to three industries.

³²Desired compensation was asked for students' first year after graduation, including base pay, performance pay, and equity, but excluding the signing bonus.

partners undesirable when it exceeds their own. Willingness to travel and work long hours signal less availability for home production. Bertrand et al. (2010) find that differences in work hours partly explains the gender gap in earnings among Booth MBA graduates. Research in psychology also indicates that an inclination for leadership is viewed more negatively in women than men (e.g., Eagly and Karau, 2002; Rudman et al., 2012).

Finally, we asked students to rate their agreement (on a 1-to-5 scale) with the statement that they have above-average writing skills. This was intended as a placebo to differentiate our theory – in which single women avoid traits sanctioned in the marriage market – from one in which single women want to appear more humble and rate themselves worse on any positive attribute when they think others will see their answers. Focus group testing on Mechanical Turk supported our hypothesis that men typically view writing skills as having a positive or no impact on a relationship. Students were also asked to rate their comfort in competitive environments. While we had intended this to capture students’ competitiveness, our results and focus grouping suggest that men did not view this as a negative signal in the marriage market. The focus group suggested that many men did not read this to imply that women were themselves competitive, but instead that they were comfortable in a variety of settings. We deliberately chose not to ask respondents to rate their own competitiveness since, unlike ambition and leadership, competitiveness is not necessarily viewed positively by employers (per our discussions with human resources and career services personnel).

Because students were told that the questionnaire would be used in first-year internship placement, it had relatively high stakes for them. This was the first information the career center had on students’ work preferences (outside of general fields of interest reported on the application). Students’ preferences heavily affect what jobs the career center views as good fits for them. For example, the director of the career center told us that if students reported desiring less travel, they would be steered away from consulting (which commonly requires traveling four or more days per week), and if students reported not wanting to work long hours, they should not be placed in investment banking. However, after the questionnaire was administered, the career center decided not to use the questionnaire in placement since the large effects of the public treatment would have harmed single women.³³ Students did not know the questionnaire was part of a research project, making the possibility of experimenter demand effects unlikely. Three months after the experiment took place, we presented the results to interested students and no one mentioned that they suspected these questionnaires could have been part of a research project.

³³The career center was not surprised by the direction of our measured effects. It was interested in running this experiment because it believed that single women were less willing to take jobs with substantial travel or long hours due to marriage market concerns. However, the center was surprised by the magnitude of the effects.

3.2 Supplementary Experiment Design

Three months after the primary experiment, we ran a supplementary experiment designed to identify whether single women would disproportionately represent themselves as less ambitious and career-focused in front of their *male* classmates.

During the career class’s last meeting of the semester (on job fit), students were given a questionnaire with three pairs of hypothetical jobs and asked to choose their preferred job in each pair. The questionnaire is presented in Appendix Figure 4. Each job was described by one sentence and the pairs were designed to present a clear trade-off. Students chose between a job with a high salary requiring 55-60 hours per week and a job with a lower salary requiring 45-50 hours per week. They also chose between a job with constant travel, but with the opportunity of rapid promotion to partner and a job with no travel, but in which promotion was slower and less certain. To disguise the intent of the exercise and to act as a placebo students were asked to choose between a job with a positive social impact but little interaction with coworkers and a job with a collegial and collaborative work environment, but no social impact.

The two questions of interest were designed to capture – as in the primary experiment – the trade-off between labor market success (higher salary, quick promotion to partner) and desirability in the marriage market (shorter hours, no travel). We presented a choice between two jobs so this would not seem too similar to the primary experiment questionnaire. These are relevant choices that students need to consider and it seems natural for them to do so in a class on job fit.³⁴

Students were placed into small groups of six or seven for other class activities, a common practice in the course. They were asked to complete the questionnaire before they started the day’s group work and were told to move onto the rest of the group work when finished. Specifically, the instructions read:

Please fill out the following questionnaire. There are no right or wrong answers. Once you have finished the questionnaire, continue onto the rest of the group work. If there is time at the end of class, the instructor will circulate and discuss your answers with your small group. The forms will be collected at the end of class.

Thus, students thought their answers would be seen by the career counselor and potentially by the rest of their small group. While students likely believed that this questionnaire did not have as high stakes as the primary experiment questionnaire, they still had reason to believe the career center was interested in their answers and thus, their answers could affect their placement.³⁵

The key manipulation was that we randomized the gender composition of the small groups. Approximately half of single women were placed into all-female groups and the remainder were

³⁴After this experiment, we presented the results to interested students and no one mentioned that they suspected these questionnaires could have been part of a research project.

³⁵Students’ responses were not actually used in placement, given the large effects of groupmates’ gender we find.

placed with all male groupmates. Thus, some single women thought that their answers could be shared with other women, while the remainder thought their answers could be shared with men.³⁶

Due to limited power and the finding from the primary experiment that only single women’s answers are affected by peer observability, we focus on the effect of peer gender on single women’s responses. To form enough all-female groups so that half of single women could be in them and to maximize the number of separate all-female groups single women were in, all non-single women were placed into all-female groups. Some men were in groups with one single woman, while the remainder formed all-male groups. Since there is no variation in gender group composition for non-single women and very little for men (all are in predominantly male groups), we only report the effect of group gender composition on single women. The other three groups’ average choices are presented in an appendix figure. Men were allocated to their groups at random, without reference to their relationship status.³⁷ While the groups were randomized within section, students’ allocation to sections was determined in part by their schedule and field of interest.³⁸ Thus, we control for section fixed effects throughout.

3.3 Primary Experiment Results

Because the primary experiment was conducted on the first day of the program, virtually the whole class (98%) participated. Throughout the analysis, we compare single students to non-single students: those who are in a serious relationship, cohabiting, engaged, or married. This provides more precision than categorizing students by their marital status alone since students in serious relationships are less likely to be affected by marriage market concerns.³⁹ Table 3 shows that the randomization produced balanced samples within each of the four gender-by-relationship-status subgroups, while Appendix Table 3 shows that the randomization was balanced within the sample as a whole. We find no significant differences between the public and private treatment samples in any of the four subgroups or the entire sample. Table 3 also shows that single and non-single women look relatively similar on observable characteristics: they are of similar ages with similar work experience and have similar GMAT scores. The only difference is that single women are (insignificantly) less likely to be U.S. citizens.

Before discussing each outcome individually, we provide an overall test of our main hypothesis. Following Kling et al. (2007), we construct an index pooling all six of our outcomes, directly ad-

³⁶This questionnaire did not ask for students’ relationship status. While this type of demographic information is commonly asked on placement questionnaires, it would be odd to ask this information in a class exercise. Because we needed to know students’ relationship status before the experiment to create the groups, we used students’ reported relationship status from the primary experiment.

³⁷These decisions were pre-registered in AEARCTR-0001774.

³⁸These factors do not affect students’ allocation to the economics sections analyzed in Section 2.3.

³⁹Separating out students who are in serious relationships from those who are married shows that neither group systematically changes their answers when they believe their answers will be public. However, we cannot rule out small changes by unmarried women in relationships.

addressing the issue of multiple hypothesis testing. The index is $(1/6) \sum_{k=1}^6 (k - \mu_k) / \sigma_k$, where k indexes an outcome, and μ_k and σ_k are the mean and standard deviation of that outcome for non-single female students in the private treatment. Results are similar using the mean and standard deviations of other groups. The index conservatively includes the comfort-with-competitive-environment question for which, as previously discussed, our predictions are not as clear. It does not include the writing skills question as that was designed as a placebo.

The first column of Table 4 provides the results of regressing the index on an indicator for being in the public treatment, separately for each of the four gender-by-relationship-status subgroups. Non-single women and single and non-single men do not change their answers when they expect their answers to be shared with classmates. The effect for these groups is not only insignificant but also relatively small. Yet single women do change their answers. Single women decrease their responses by an average of 0.56 standard deviations due to peer observability. This effect is significant at the 1% level. We can formally reject that the effect for single women is the same as for non-single women (p-value: 0.032) and all other students (p-value below 0.001).

A natural question about Table 4 is whether our statistical inferences are sound, given the relatively small number of observations in each experimental condition. As an alternative to standard t-tests to determine statistical significance, throughout the discussion of our experimental findings, we also report results from (Fisher-exact) permutation tests. The permutation test for the effect for single women leads to a p-value of 0.0002: out of the 10,000 random reassignments of treatment status we performed, only two generated effects of absolute size equal or greater to the one observed in the data.⁴⁰

The four subgroups have similar mean values of this index in the private treatment. Single women have average private responses that are only 0.06 standard deviations lower than non-single women (p-value: 0.677). In other words, single and non-single women respond differently when they believe their answers will be public, but they behave similarly in private. This suggests that single and non-single women have similar career goals and would like to send similar signals to their career advisor, but that single women face a more significant trade-off between signaling their career advisor and their classmates. Appendix Table 4 shows these results do not change when we include controls for student characteristics.

The effects of the public treatment on responses to each individual question are presented in Figures 4 through 10. Table 4 and Appendix Table 4 show regression results are similar without and with controls, while Appendix Figures 5 through 11 show the CDFs of responses.

In the private treatment, single women and women in a relationship report similar desired

⁴⁰ All reported permutation p-values use 10,000 repetitions and are two-sided. The permutation p-values for the effect of the treatment on the other three groups (non-single women, single men, and non-single men) are not significant (all above 0.29).

compensation (\$131,000 and \$135,000, respectively, Figure 4).⁴¹ Students aiming for higher-paying industries report desiring higher salaries. Even in the private treatment, men report higher desired compensation than do women (\$147,000 and \$141,000 for single men and men in a relationship, respectively). This is not driven by industry preferences; men report higher desired compensation than women conditional on the industries they report wanting to work in.

Single women dramatically decrease their reported desired compensation – by \$18,000 per year or 14% – when they think their classmates will see their responses.⁴² This difference is significant using both robust standard errors (p-value: 0.030) and a permutation test (p-value: 0.029). As in the grade analysis, the effect shows up throughout the distribution. While 16% of single women in the private treatment report desired compensation above \$150,000, only 3% of single women in the public treatment do. Meanwhile, while 10% of women in the private treatment report desired compensation below \$100,000, 21% of women in public do (Appendix Figure 5). In contrast, non-single women and single and non-single men’s reported desired compensation does not change with the treatment.

Single women also report being willing to travel significantly less in the public treatment. In the private treatment, they report being willing to travel an average of 14 days per month. However, this decreases to seven in the public treatment (Figure 5). This effect is significant at the 1% level using both the robust standard errors (p-value: 0.005) or a permutation test (p-value: 0.006). In the private treatment, 32% say they would rather not travel or are only willing to travel a few days a month. The public treatment does not increase this fraction. However, in the private treatment, 32% of single women report being willing to travel as much as necessary. No single women reported that in the public treatment. According to the career center, students should not be placed in consulting jobs unless they are willing to travel at least four days per week for extended periods of time. While 39% of single women in the private treatment reported they were willing to travel that much, only 14% of single women in the public treatment did. As above, the treatment did not significantly affect the reported preferences of non-single women (for which the effect is close to zero) or single or non-single men (who both report more willingness to travel in public, although the effect is not statistically significant).

In the private treatment, all four groups reported being willing to work between 51 and 53 hours per week on average (Figure 6). In the public treatment, however, both single and non-single women reported wanting to work four fewer hours.⁴³ Single men did not change their responses,

⁴¹For all questions where students chose a range – desired compensation, hours of work, and days of travel – we code answers as the midpoint of the chosen range. As suggested by the distribution of responses presented in Appendix Figures 5 through 11, our results are robust to coding responses as the maximum or minimum of the chosen range and to different codings of the endpoint ranges.

⁴²Because the career center decided not to use this questionnaire in placement, we do not know the causal impact of reporting lower desired compensation on ultimate career outcomes. A small dataset from a recruiting firm with data on desired and eventual compensation finds that they are highly correlated: a \$1 increase in desired salary is correlated with an additional \$0.77 in actual salary. However, this may not be causal.

⁴³The p-value of this difference for single women is 0.071 (robust standard errors) or 0.091 (permutation test).

but surprisingly, non-single men reported wanting to work three more hours per week in the public treatment. Overall, very few people (2%) reported wanting to work 40 hours or fewer per week. The disparities in the public and private treatments come at higher hours of work. For example, while 52% of single women are willing to work more than 50 hours per week in the private treatment, only 31% are willing to do so in the public treatment (Appendix Figure 7).⁴⁴

Figures 7 and 8 show self-reported tendency to lead and professional ambition, reported on a 1-to-5 scale. When they think their classmates will see their responses, single women rate themselves substantially lower on both metrics.⁴⁵ No single woman in the public treatment rated herself as a 5 (the top rating) in either question. However, in the private treatment, 16% and 42% of single women rated themselves as a 5 on leadership and professional ambition, respectively (Appendix Figures 8 and 9). Single women’s self-reports in the private treatment were similar to those of non-single women, single men, and non-single men, none of whose self-reports were affected by the treatment.

Throughout the questionnaire, single women change their answers to look less professionally ambitious – and hence less desirable to the labor market – when they think their classmates will see their answers. Non-single women are much less likely to do so. In principle, this could result from general differences in how single and non-single women portray themselves in public (single women could be shyer, for example). However, four pieces of evidence suggest this is not the case.

First, the supplementary experiment shows that single women’s self-portrayal varies substantially with their audience’s gender (see Section 3.4). Second, single and non-single women provide similar answers in the private treatment. This suggests that they have similar skills and career preferences. Additionally, any difference between single and non-single women that drives single women’s differential responsiveness to the public treatment must be uncorrelated with their behavior in private.⁴⁶

Third, Appendix Table 5 directly addresses whether observable differences between single and non-single women can explain our results. We regress survey responses on the interaction of the single dummy and public treatment indicator, controlling for observable characteristics (age, years of work experience, GMAT score, and U.S. citizenship) and the interactions of these characteristics with the public treatment indicator. Regressions are limited to women and include controls for the single and public indicators themselves. If it were not women’s relationship status that made them differentially responsive to the public treatment, but instead some other characteristic correlated

⁴⁴Bertrand et al. (2010) find that in only one of 27 job categories (management) did Chicago Booth MBA graduates work fewer than 50 hours per week on average. The two industries with the longest hours are investment banking (74 hours per week) and consulting (61 hours per week).

⁴⁵The permutation-based p-values of the effects for single women are 0.055 for tendency to lead and below 0.001 for professional ambition.

⁴⁶For example, suppose single women are more humble than non-single ones, and hence more likely to avoid portraying themselves positively to classmates. Then, we would also expect single women to portray themselves less positively to their career advisor, which they do not.

with relationship status, adding these interactions should reduce the measured effect of the treatment for single women. But this is not the case. For example, on the index, the regressions indicate that single women decrease their responses in the public treatment by a statistically significant 0.47 standard deviations more than do non-single women, which is similar to the 0.41 standard deviations we obtain without controls (Table 4). While adding the controls decreases power, across all outcomes the coefficients with controls are similar to the results without. This also shows that if differences between single and non-single women’s *unobservable* characteristics are driving the results, these unobservable characteristics must be more highly correlated with women’s relationship status than with any of the other controls.

Fourth, to directly test whether single women rate themselves more poorly on all dimensions in public or only those that may harm them in the marriage market, we asked students to rate their writing skills, skills we do not expect to be penalized in the marriage market. All four groups rated themselves highly in private: about 70% rated themselves as a four or a five. However, neither single women nor any other group significantly changed their answers in the public treatment (Figure 9 and Appendix Figure 10).

Figure 10 shows that single women (and all other groups) rated their comfort in competitive environments similarly in the public and private treatments. While this question was originally intended to measure individuals’ own competitiveness, as discussed above, it is likely that individuals did not interpret it this way. In fact, our focus group indicated many men prefer women who are comfortable in a range of environments. Hence, this result is consistent with single women changing their responses in public to look less appealing to the labor market only when this can improve their marriage market prospects.

Finally, we assess how much peer observability contributes to the gender gap in responses. Table 5 shows the results of regressing outcomes on a female dummy separately in the public and private treatments. In the private treatment, men and women behave similarly. Men desire approximately \$11,000 more in annual compensation, but have similar willingness to travel and work long hours. In fact, despite the fact that female MBAs work fewer hours after leaving school (Bertrand et al., 2010), in the private treatment, women report being willing to work (an insignificant) 0.9 hours per week more than do men. Men also report similar ambition and tendency for leadership in the private treatment. However, gender gaps emerge in the public treatment. In the public treatment, women report being willing to travel 7 fewer days per month and work 5 fewer hours per week. They also rate themselves as less ambitious with less tendency towards leadership. The gap in desired compensation increases by about 50% as well.

While we are reluctant to extrapolate the results of these regressions to gender gaps in other contexts, this analysis suggests that the trade-off between maximizing labor and marriage market success has the potential to explain at least a part of existing gender gaps.

3.4 Supplementary Experiment Results

The supplementary experiment was designed to assess whether single women would portray themselves less favorably to the labor market in front of male than female peers. Only students who came to the last session of the career class participated. The two-thirds of single women who participated look similar to the remainder who did not (Appendix Table 6). The randomization is also balanced: the characteristics of single women with male and female peers are similar, conditional on section fixed effects (Appendix Table 7). Intended treatment was unknown to students before the experiment and does not predict participation.

Figure 11 shows the key results. The Female Peers bars contain the fraction of single women in all-female groups who chose the indicated job. Because treatment was only random within section, the Male Peers bars are calculated through regressions. First, we determine the effect of being with male (relative to female) peers from regressions with section fixed effects. Then, we add this treatment effect to the Female Peers mean. Standard errors are clustered at the group level.⁴⁷

The first question asked students to choose between a job with a high salary requiring 55-60 hours per week and a job with a lower salary, requiring 45-50 hours per week. When placed in all-female groups, 68% of single women chose the higher salary job. However, with male peers, single women were 26 percentage points less likely to do so (p-value: 0.067). Similarly, when asked to choose between a job with the opportunity of quick promotion to partner, but constant travel and a job with no travel but in which promotion to partner was slower and less certain, 79% of single women in all-female groups chose the job with better promotion possibilities. Single women were 42 percentage points less likely to do so (p-value: 0.012) when placed with male peers. Unsurprisingly, single women’s reported preferences over a job with a social impact relative to a job with a collegial work environment were unaffected by peer gender.

These results are not driven by within-group correlation in responses. Consistent with students completing the questionnaires on their own, there is no correlation between an individual’s responses and the responses of the rest of the group, conditional on treatment status. The results are robust to adding controls for students’ demographic characteristics (Appendix Table 8). Table 6 shows regression results, including results for the Kling et al. (2007) index for the two questions of interest (excluding the placebo question).⁴⁸ Single women decrease the career-focus of their answers on this index by approximately 0.8 standard deviations when male, as opposed to female peers, will see their answers. This effect has a p-value of 0.002 using standard errors clustered at the group level (Table 6). To account for the relatively small number of observations and groups, we also performed permutation-based inference (p-value: 0.006) and the wild cluster bootstrap-t procedure proposed

⁴⁷ Appendix Figure 12 displays the choices of non-single women and single and non-single men.

⁴⁸ Here, when constructing the index, we use the mean and standard deviation from single women in all-female groups. Results are robust to using other groups’ mean and standard deviation instead.

by Cameron et al. (2008) (p-value: 0.006).⁴⁹

Our group assignment procedure also generated random variation in the marital status of male peers.⁵⁰ Because of limited power and the career center’s belief that women would not know their groupmates’ relationship status, we did not plan to utilize this variation (AEARCTR-0001774). However, with the caveat that this was not pre-registered, we can assess how single women’s answers change with the fraction of their male peers who are unmarried.⁵¹ Panel B of Table 6 shows that single women represent themselves as less career-focused when there are more unmarried – relative to married – men in their group. There is a negative and significant (at the 1% level) effect of the share of unmarried male groupmates on the index and the preference for a high salary relative to a better work schedule. However, there is no significant effect of this share on single women’s reported preference for quick promotion relative to less travel.

These results are based on a broad variation in the share of single men across groups, and do not appear to be driven by a few outliers (Appendix Figure 13). They are robust to the inclusion of controls (Appendix Table 8). Given the small number of groups, we also performed inference based on permutations and the Cameron et al. (2008) wild cluster bootstrap-t procedure and find similar p-values.^{52,53}

4 Conclusion

Single women shy away from actions that could improve their careers to avoid signaling undesirable personality traits to the marriage market. Three-quarters of single female students at an elite U.S. MBA program report having avoided activities they thought would help their careers to avoid looking ambitious, assertive, or pushy. They are more likely to have avoided these activities than non-single women or men. Unmarried women participate much less in class than married women, despite the fact that they perform equivalently on the parts of the grade unobservable to their peers. When they expect their classmates to observe their answers, single women report substantially less

⁴⁹Single women were in 32 separate groups. The permutation-based p-values for the individual answers are 0.130 (prefers salary over fewer hours), 0.010 (prefers promotion over less travel), and 0.953 (placebo question). The respective bootstrap-based p-values are 0.064, 0.030, and 0.976.

⁵⁰The share of unmarried men in a group is uncorrelated with characteristics of their single female groupmates, as expected given the random assignment (Appendix Table 7).

⁵¹We consider the share of men who are unmarried as opposed to not in a relationship since marital status is more observable (i.e., by wedding rings).

⁵²The permutation p-value for the index is 0.050, while for the salary, promotion, and placebo questions they are 0.001, 0.851, and 0.243, respectively. The bootstrapped p-values are 0.060, 0.008, 0.780, and 0.210, respectively.

⁵³Because of limited power and the nature of the class setting, we did not include a control group in this experiment in which single women’s answers were not shared with any classmates. Thus, the results from this experiment alone could be explained by single women trying to look more ambitious (than they would in private communication with the career center) around female and married male peers. However, this is hard to reconcile with our results from the primary experiment. If single women wanted to look more ambitious in front of women and married men, to rationalize our results in the primary experiment, they would have to want to look extremely unambitious in front of unmarried male classmates.

career ambition in a questionnaire designed to be instrumental in finding them a summer internship. They also express much less career ambition in front of their (single) male than female classmates.

Our results have implications for understanding gender gaps in labor market outcomes. It also highlights the importance of social norms – particularly what is differentially expected from (and preferred in) a husband and a wife – in explaining gender gaps. Women make many important schooling and career decisions while looking for a romantic partner. Our results raise the possibility that a desire to succeed in the dating or marriage markets may affect choices that range from investment in middle- or high-school math to college major or industry of work that have long-term consequences for women’s careers. We hope future work extends the analysis to other contexts, explores the long-run consequences of this trade-off, and assesses interventions that may mitigate its effects on women’s careers. For example, schools and workplaces often have to decide the extent to which students’ and employees’ actions are observable to others. Our results suggest that obscuring certain actions could affect gender gaps.

Another open question is whether women hold accurate beliefs about men’s marriage market preferences. Existing work (e.g., Fisman et al., 2006) suggests that even men in elite graduate school programs prefer less ambitious and assertive partners. Nevertheless, women may be over- or under-estimating these preferences.

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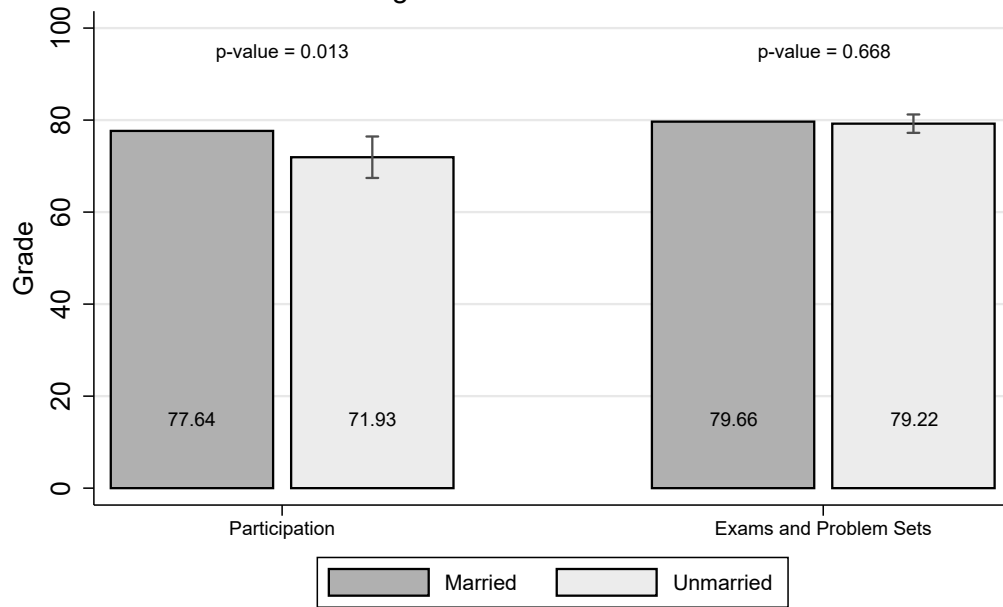
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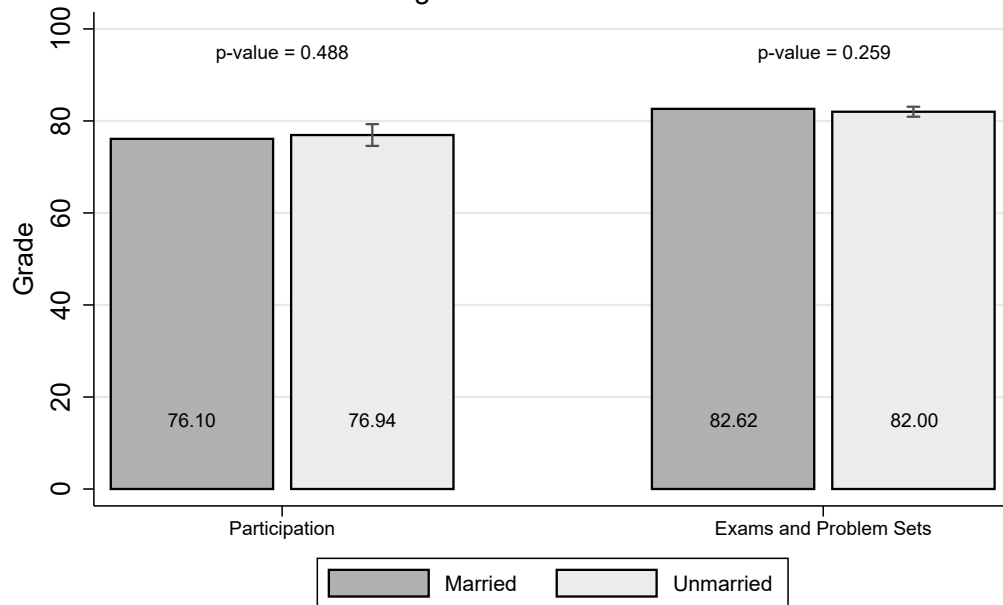
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Figure 1A. Women's Grades



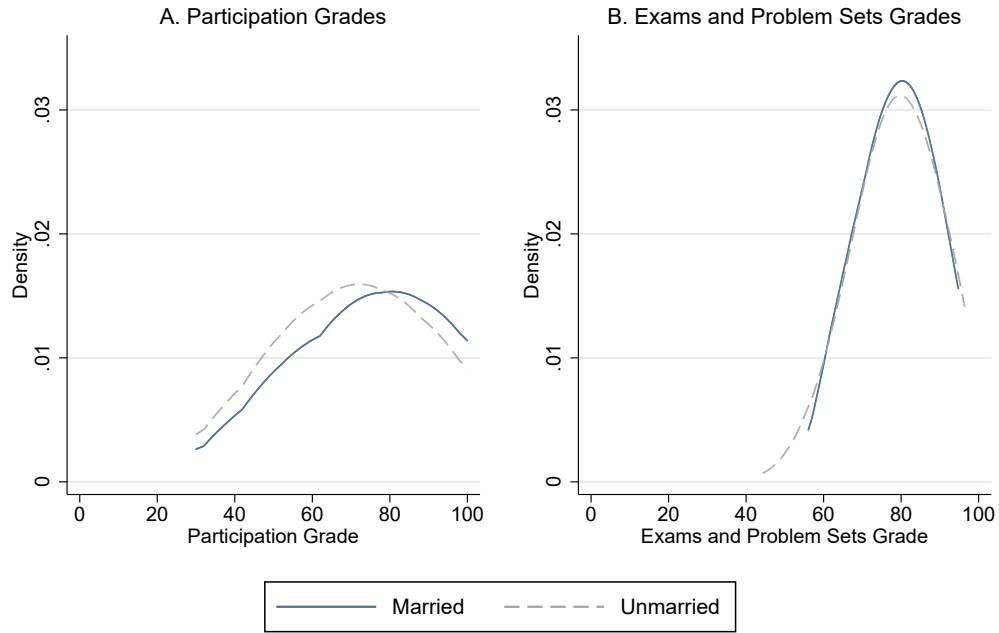
Notes: "Participation" is the participation grade assigned by the instructor. "Exams and Problem Sets" is a weighted average of grades on the midterm exam, the final exam, and problem sets, where the weights are the ones used by instructors in calculating the final grade. Both measures are out of 100. Whiskers show the 95% confidence interval calculated from a regression of the outcome on an indicator for being unmarried using robust standard errors.

Figure 1B. Men's Grades



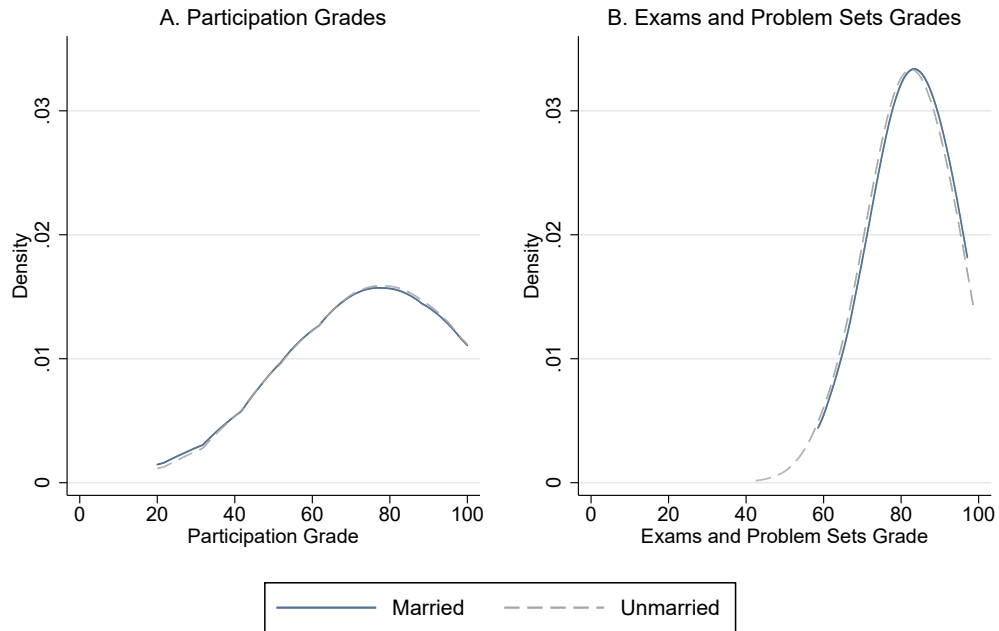
Notes: "Participation" is the participation grade assigned by the instructor. "Exams and Problem Sets" is a weighted average of grades on the midterm exam, the final exam, and problem sets, where the weights are the ones used by instructors in calculating the final grade. Both measures are out of 100. Whiskers show the 95% confidence interval calculated from a regression of the outcome on an indicator for being unmarried using robust standard errors.

Figure 2. Distribution of Women's Grades



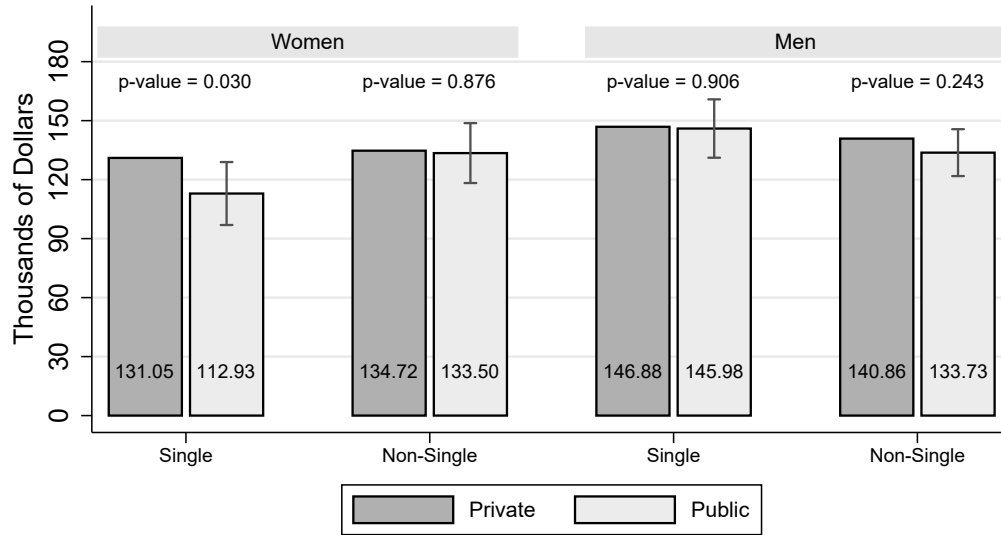
Notes: Binwidth of kernel density estimate in Panel A is one standard deviation of women's participation grades (17.01). Binwidth in Panel B is one standard deviation of women's exams and problem sets grades (8.78).

Figure 3. Distribution of Men's Grades



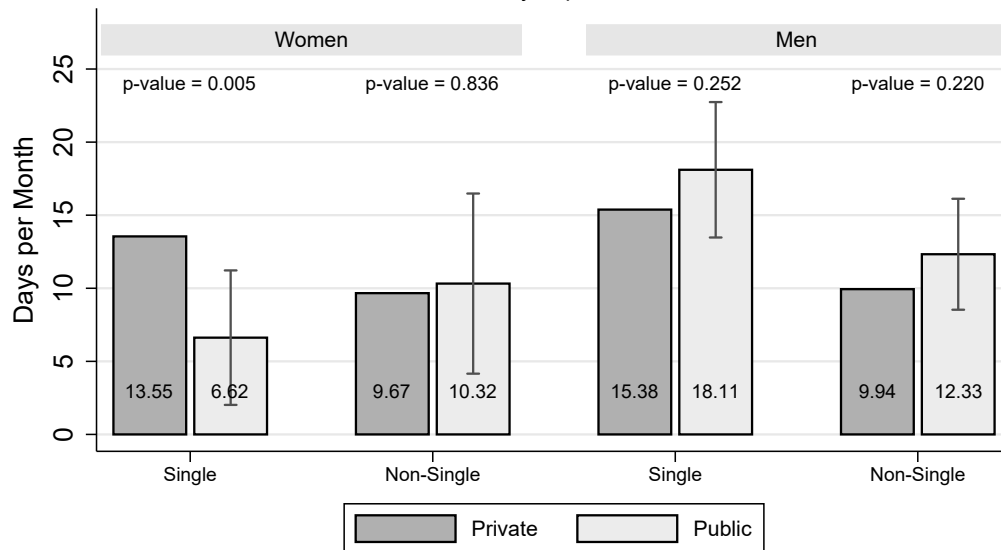
Notes: Binwidth of kernel density estimate in Panel A is one standard deviation of men's participation grades (17.11). Binwidth in Panel B is one standard deviation of men's exams and problem sets grades (8.27).

Figure 4. Desired Compensation
Primary Experiment



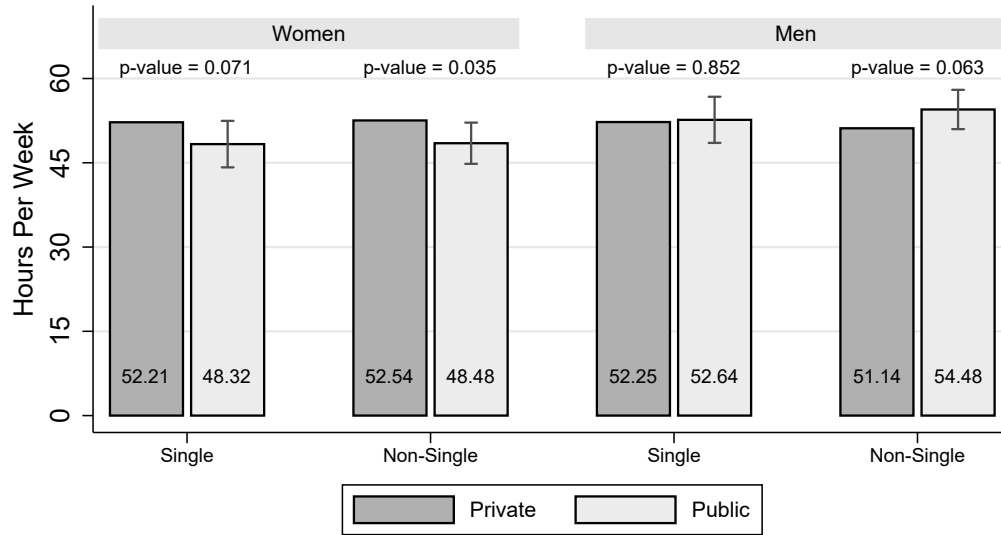
Notes: Students were asked their desired compensation in their first year after graduation, including base pay, performance pay, and equity, but excluding signing bonus. Desired compensation is coded as the midpoint of the chosen range, except for "under \$75,000" (coded as \$62,500) and "above \$250,000" (coded as \$262,500). Some respondents chose two or more consecutive answers. Their responses are coded as the midpoint of the full range chosen. Whiskers show the 95% confidence interval calculated from regressions of desired compensation on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 5. Days per Month Willing to Travel
Primary Experiment



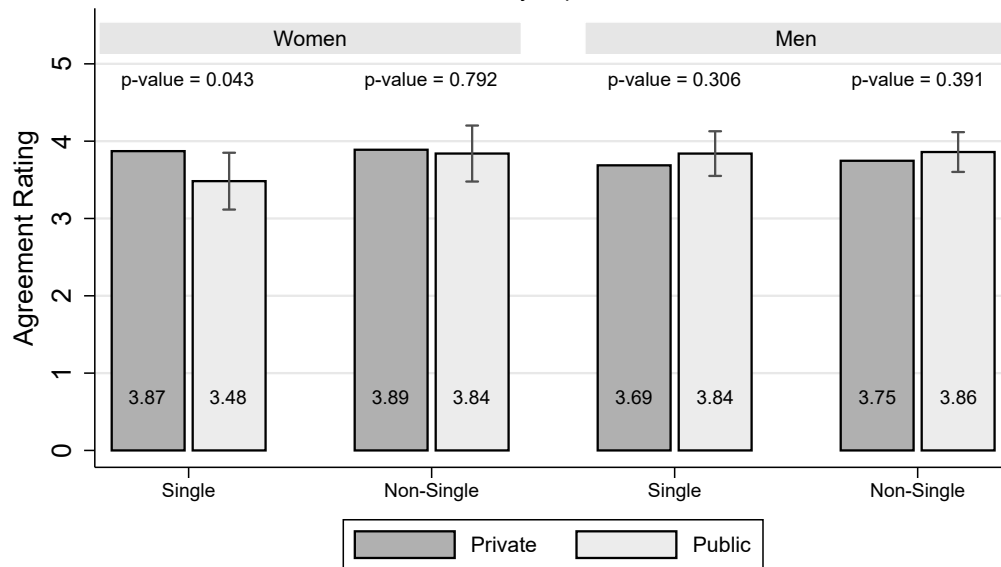
Notes: Students were asked how often they are willing to travel for work. Willingness to travel is coded as the midpoint of the chosen range, except for "rather not travel" (coded as 0) and "as much as necessary" (coded as 30). Whiskers show the 95% confidence interval calculated from regressions of the number of days per month the respondent was willing to travel on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 6. Desired Weekly Hours of Work
Primary Experiment



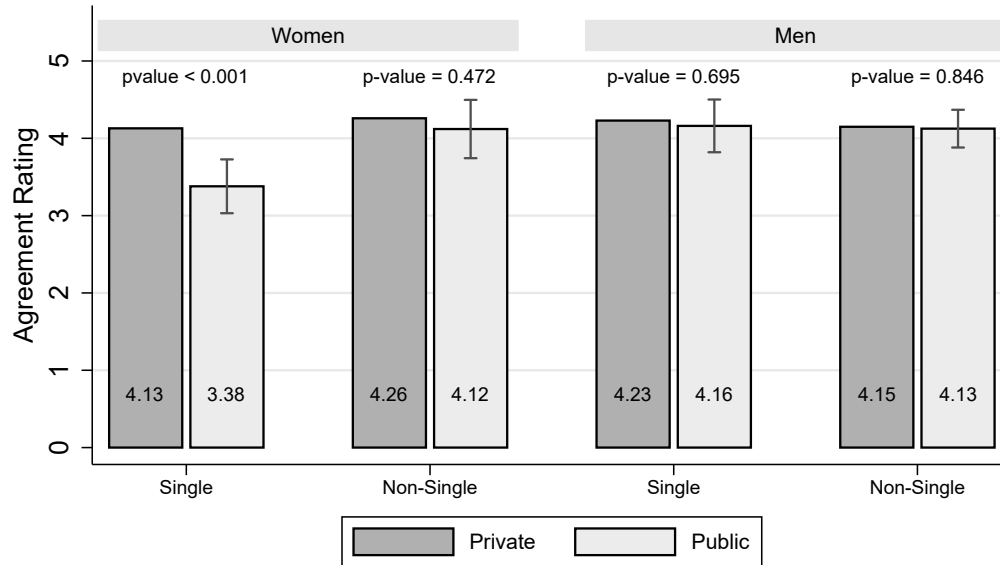
Notes: Students were asked how many hours per week they are willing to work on a regular basis. Desired hours of work is coded as the midpoint of the chosen range, except for "over 80" (coded as 85.5, which would be the midpoint of an 81 to 90 hour range, since ranges are 41-50 hours, 51-60 hours, etc.). Some respondents chose two or more consecutive answers. Their responses are coded as the midpoint of the full range chosen. Whiskers show the 95% confidence interval calculated from regressions of the number of hours the respondent was willing to work on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 7. Tendency to Lead
Primary Experiment



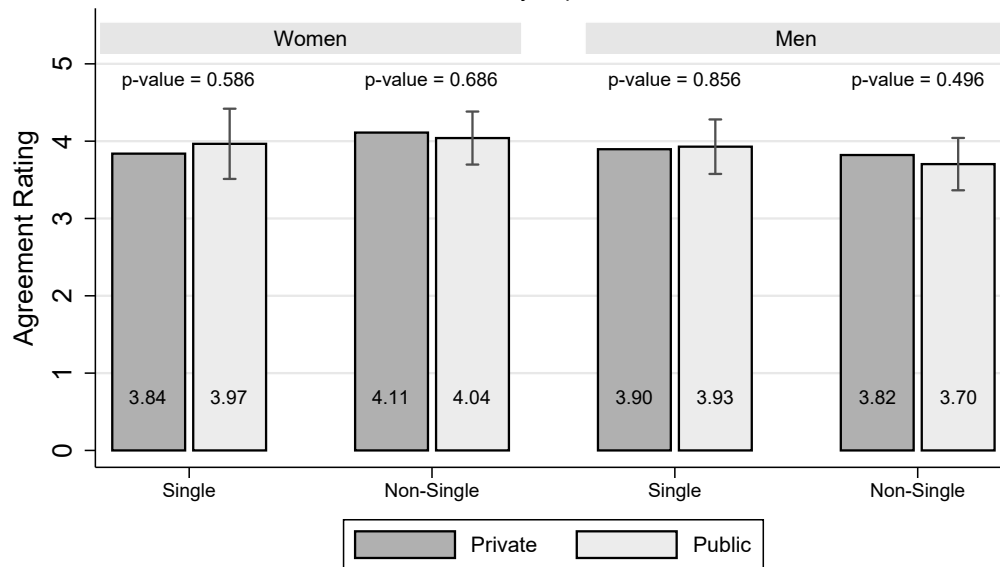
Notes: Students rated agreement with the statement "You tend to lead in your day-to-day interactions" on a 1-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Whiskers show the 95% confidence interval calculated from regressions of students' answers on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 8. Professional Ambition
Primary Experiment



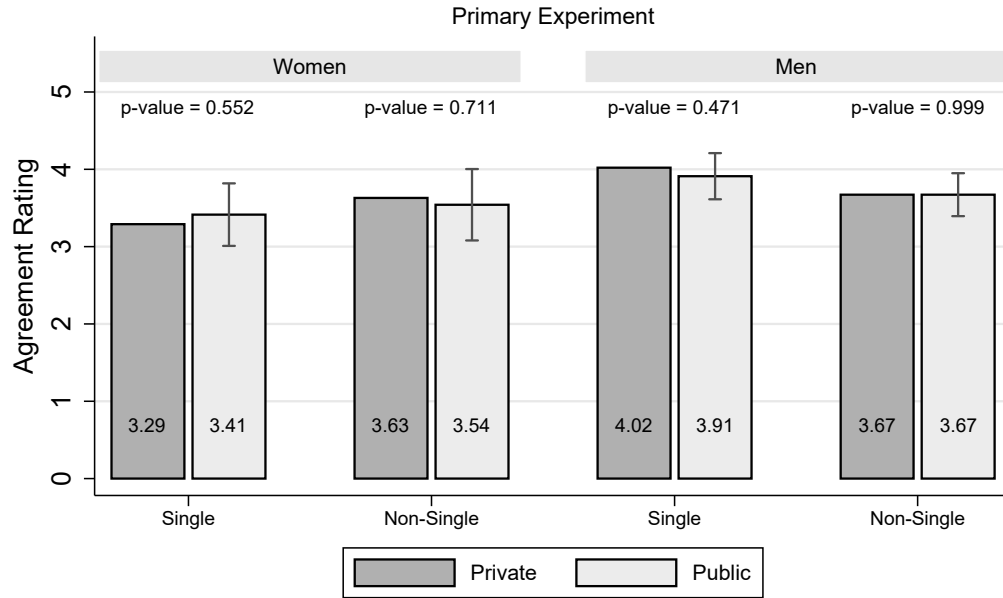
Notes: Students rated agreement with the statement "You are more professionally ambitious than your most recent work colleagues" on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Whiskers show the 95% confidence interval calculated from regressions of students' answers on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 9. Writing Ability
Primary Experiment



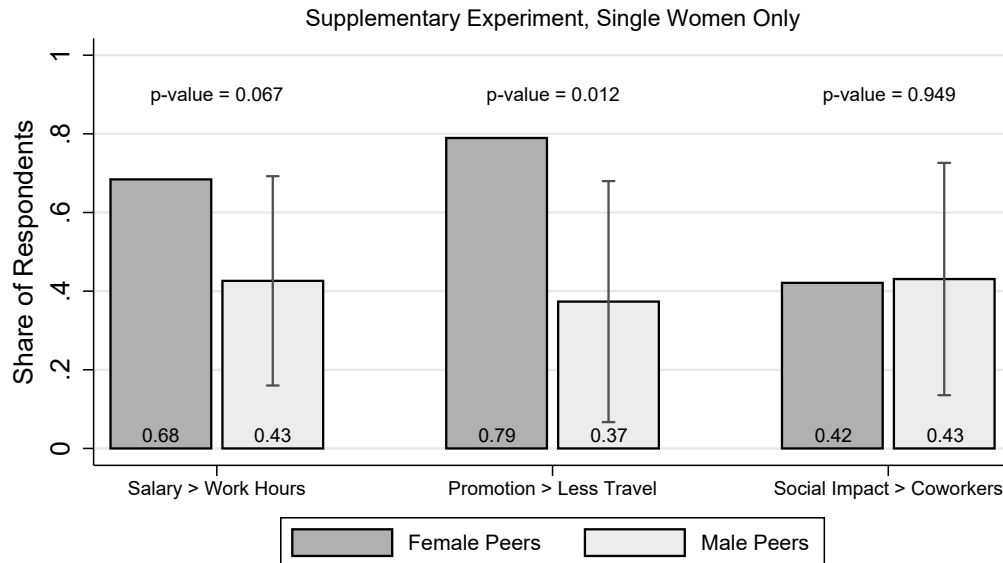
Notes: Students rated agreement with the statement "You have above-average writing skills" on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Whiskers show the 95% confidence interval calculated from regressions of students' answers on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 10. Comfort in Competitive Environments



Notes: Students rated agreement with the statement "You feel very comfortable in competitive environments" on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Whiskers show the 95% confidence interval calculated from regressions of students' answers on an indicator for being in the public treatment using robust standard errors. Non-single respondents are in a serious relationship, cohabiting, engaged, or married.

Figure 11. Group Gender Composition and Reported Job Preferences



Notes: Each set of bars represents the fraction of single women who reported a preference for (1) a job with a higher salary over a job with shorter work hours, (2) a job with better promotion opportunities over a job with less travel, or (3) a job with a social impact over a job with more interactions with coworkers. The "Female Peers" bars show the mean for single women in all-female groups. The "Male Peers" bars are constructed by adding the treatment effect of having male peers from a regression with section fixed effects to the female peer mean. Standard errors are clustered at the group level. Only single women are included. Whiskers show the 95% confidence interval.

Table 1. Descriptive Statistics

	2010-2015 Cohorts	2016 Cohort	
	Grades Data	Primary Experiment	Survey
Male	68.5%	67.9%	67.3%
Age	27.9	27.9	28.1
Has Children	4.6%	5.7%	
Years of Work Experience	5.0	5.2	
GMAT Score	708	715	
<i>Marital/Relationship Status (Self-Reported)</i>			
Single		46.2%	53.3%
In a Serious Relationship		22.0%	18.0%
Cohabiting		3.7%	2.9%
Engaged		5.9%	4.8%
Married		20.0%	19.9%
No Response		2.3%	1.1%
<i>Marital/Relationship Status (Admissions Data)</i>			
Single	77.3%		
Married or In a Domestic Partnership	18.4%		
No Response	4.3%		
<i>Citizenship</i>			
United States	66.7%	62.5%	
North America (without U.S.)	4.1%	3.9%	
Asia	21.1%	24.5%	
Europe	4.2%	2.0%	
Central or South America	3.1%	6.2%	
Africa	0.5%	0.6%	
Oceania	0.3%	0.0%	
Observations	1,880	355	272

Notes: The table shows descriptive statistics from the grades primary experiment, and survey samples. The grades and primary experiment data are linked to admissions records, though admissions records for the 2016 entering cohort do not contain information on marital status. The survey was anonymous and cannot be linked to admissions records.

Table 2. Avoidance of Workplace Behaviors by Gender and Relationship Status
Survey Data

	Taking Initiative in Negotiating a Wage Raise or Promotion	Asking for a Leadership Role in a Team or Task Force	Offering to Make a Presentation or Sales Pitch	Speaking Up at Meetings	Any Behavior	Observations
Single Women	63.5%	40.4%	25.0%	51.9%	73.1%	52
Non-Single Women	39.4%	24.2%	15.2%	33.3%	60.6%	33
Single Men	25.3%	23.0%	18.4%	27.6%	43.7%	87
Non-Single Men	30.3%	23.6%	6.7%	29.2%	50.6%	89
<i>p-values of Differences</i>						
Single vs. Non-Single Women	0.030	0.129	0.284	0.095	0.234	85
Single Women vs. Others	0.000	0.014	0.031	0.002	0.002	261

Notes: Data are from a survey administered to first-year MBA students in the fall of 2016. Each percentage in the first four rows of data provides the fraction of the group indicated by the row that avoided the action indicated by the column in their previous two years of work, despite the fact that they believed it could help their careers because they were concerned about appearing too ambitious, assertive, or pushy. *Non-Single* refers to respondents in a serious relationship, cohabiting, engaged, or married.

Table 3. Randomization Assessment by Subgroup

Primary Experiment

	Private Treatment	Public Treatment	p-Value of Difference	Private Treatment	Public Treatment	p-Value of Difference
	<u>A. Single Women</u>			<u>B. Non-Single Women</u>		
Age	27.4	27.2	0.715	27.7	27.3	0.483
Has Children	3.3%	0.0%	0.338	0.0%	0.0%	-
GMAT Score	703	712	0.205	701	700	0.974
Years of Work Experience	5.0	4.8	0.644	5.0	4.9	0.743
U.S. Citizen	61.3%	55.2%	0.638	77.8%	64.0%	0.282
Observations	31	29	60	27	25	52
	<u>C. Single Men</u>			<u>D. Non-Single Men</u>		
Age	27.5	27.7	0.471	28.4	28.9	0.350
Has Children	0.0%	0.0%	-	12.1%	17.2%	0.418
GMAT Score	719	719	0.924	720	720	0.929
Years of Work Experience	5.3	5.2	0.876	5.4	5.5	0.824
U.S. Citizen	58.3%	71.4%	0.165	65.7%	51.6%	0.103
Observations	48	56	104	67	64	131

Notes: The first and second columns of each panel contain the means of each demographic variable for the sample indicated by the panel among those in the private and public treatments, respectively. The third column shows the p-value of the difference in the means from a two-tailed t-test. *Non-Single* students are those who are in serious relationships, cohabiting, engaged, or married.

Table 4. Effect of Public Treatment on Reported Job Preferences and Skills

Primary Experiment

	Kling-Liebman-Katz Index	Desired Compensation	Days per Month of Travel	Desired Weekly Hours of Work	Tendency to Lead	Professional Ambition	Writing Skills	Comfort in Competitive Environments
<u>A. Single Women</u>								
Public Treatment	-0.56*** (0.13)	-18.12** (8.17)	-6.93*** (2.35)	-3.89* (2.11)	-0.39** (0.19)	-0.75*** (0.18)	0.13 (0.23)	0.12 (0.21)
Private Treatment Mean	-0.06	131.05	13.55	52.21	3.87	4.13	3.84	3.29
Observations	59	60	60	59	60	60	60	60
R-Squared	0.23	0.08	0.13	0.05	0.07	0.23	0.01	0.01
<u>B. Non-Single Women</u>								
Public Treatment	-0.15 (0.14)	-1.22 (7.77)	0.65 (3.14)	-4.06** (1.87)	-0.05 (0.18)	-0.14 (0.19)	-0.07 (0.17)	-0.09 (0.24)
Private Treatment Mean	0.00	134.72	9.67	52.54	3.89	4.26	4.11	3.63
Observations	51	52	52	52	52	52	52	51
R-Squared	0.02	0.00	0.00	0.08	0.00	0.01	0.00	0.00
<u>C. Single Men</u>								
Public Treatment	0.04 (0.12)	-0.89 (7.57)	2.72 (2.36)	0.39 (2.09)	0.15 (0.15)	-0.07 (0.17)	0.03 (0.18)	-0.11 (0.15)
Private Treatment Mean	0.15	146.88	15.38	52.25	3.69	4.23	3.90	4.02
Observations	103	104	103	104	104	104	104	104
R-Squared	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
<u>D. Non-Single Men</u>								
Public Treatment	0.09 (0.10)	-7.13 (6.08)	2.39 (1.94)	3.34* (1.78)	0.11 (0.13)	-0.02 (0.12)	-0.12 (0.17)	0.00 (0.14)
Private Treatment Mean	-0.05	140.86	9.94	51.14	3.75	4.15	3.82	3.67
Observations	130	130	131	131	131	131	131	131
R-Squared	0.01	0.01	0.01	0.03	0.01	0.00	0.00	0.00
<u>E. p-values: Difference in Effect of Public Treatment</u>								
Single vs. Non-Single Women	0.032	0.129	0.050	0.952	0.191	0.018	0.490	0.494
Single Women vs. Others	0.000	0.115	0.001	0.033	0.020	0.001	0.483	0.444

Notes: Each cell in Panels A through D presents the results of regressing the outcome indicated by the column on a dummy for being in the public treatment. Regressions are limited to the sample indicated by the panel. No controls are included. The Kling-Liebman-Katz index is defined in the text. The desired compensation and hours of work variables correspond to the midpoint of the range the respondent chose. Desired compensation is in thousands of dollars. The travel variable is the number of days per month the respondent would be willing to travel; it is also coded as the midpoint of the chosen range. The remaining outcomes are on a 1-to-5 scale. Robust standard errors are in parentheses. Panel E provides for each outcome the p-values for the tests that the effect of the public treatment is the same for (1) single and non-single women and (2) single women and all other students. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Gender Differences in the Private and Public Treatments
Primary Experiment

	Kling- Liebman- Katz Index	Desired Compensation	Days per Month of Travel	Desired Weekly Hours of Work	Tendency to Lead	Professional Ambition	Writing Skills	Comfort in Competitive Environments
<u>A. Private Treatment</u>								
Female	-0.07 (0.09)	-10.99* (5.82)	-0.54 (1.87)	0.87 (1.50)	0.14 (0.12)	-0.01 (0.12)	0.11 (0.14)	-0.38*** (0.14)
Male Mean	0.04	143.75	12.28	51.49	3.74	4.20	3.85	3.83
Observations	174	176	175	176	175	176	175	176
R-squared	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.04
<u>B. Public Treatment</u>								
Female	-0.52*** (0.08)	-17.13*** (4.57)	-7.08*** (1.58)	-5.19*** (1.25)	-0.21* (0.11)	-0.42*** (0.12)	0.16 (0.13)	-0.32*** (0.12)
Male Mean	0.12	139.45	15.17	53.75	3.85	4.15	3.82	3.79
Observations	176	178	179	178	179	179	179	178
R-squared	0.15	0.06	0.08	0.05	0.02	0.06	0.01	0.04
<u>C. p-values: Difference between Gender Gap in Public and Private Treatment</u>								
Public vs. Private	0.00	0.41	0.01	0.00	0.03	0.02	0.79	0.72

Notes: Each cell in Panels A and B presents the results of regressing the outcome indicated by the column on a female dummy. Regressions in Panels A and B are limited to students in the private and public treatments, respectively. The Kling-Liebman-Katz index is defined in the text. The desired compensation and hours of work variables correspond to the midpoint of the range the respondent chose. Desired compensation is in thousands of dollars. The travel variable is the number of days per month the respondent would be willing to travel; it is also coded as the midpoint of the chosen range. The remaining outcomes are on a 1-to-5 scale. Robust standard errors are in parentheses. Panel C provides p-values for the tests that the *Female* coefficients are the same in Panels A and B. *, *** denote significance at the 10% and 1% levels, respectively.

Table 6. Effect of Group Composition on Single Women's Reported Job Preferences
Supplementary Experiment

	Kling-Liebman-Katz Index	Prefers Higher Salary over Fewer Hours	Prefers Promotion over Less Travel	Prefers Social Impact over Interactions with Coworkers
<u>A. Peer Gender</u>				
Male Peers Indicator	-0.77*** (0.23)	-0.26* (0.14)	-0.42** (0.16)	0.01 (0.15)
Mean for Women in Female Groups	0.00	0.68	0.79	0.42
Observations	40	40	40	40
R-Squared	0.29	0.14	0.26	0.09
<u>B. Marital Status of Male Peers</u>				
Share of Male Peers who are Unmarried	-1.20*** (0.34)	-1.23*** (0.19)	0.08 (0.27)	0.44 (0.33)
Mean for Women in Male Groups	-0.58	0.43	0.52	0.38
Observations	21	21	21	21
R-Squared	0.36	0.61	0.19	0.22

Notes: Panel A shows the results of regressing either the King-Liebman-Katz index or an indicator for choosing a given job on a dummy for being in a group with male peers, controlling for section fixed effects. Panel B shows the results of regressing the same dependent variables on the share of male peers who are unmarried. Regressions are limited to single women in Panel A and to single women in groups with male peers in Panel B. The choices presented and the Kling-Liebman-Katz index are described in the text. Standard errors clustered at the group level are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Supplemental Appendix

Appendix Figure 1. Survey on Workplace Conduct

This is a survey on workplace conduct to be used in a research project by [name and affiliation]. Your participation is voluntary and your answers are completely anonymous. Refusing to participate involves no penalty and will not affect your grade in the course.

What is your age? _____

What is your gender? Male Female Other

In the last two years, are there behaviors or activities at your work that could have helped you professionally that you didn't undertake because you might have looked too ambitious, assertive, or pushy?

Yes No

If yes, mark any of the behaviors you did not undertake for that reason:

Speaking up at meetings	Yes	No
-------------------------	-----	----

Offering to make a presentation or sales pitch	Yes	No
--	-----	----

Asking for a leadership role in a team or task force	Yes	No
--	-----	----

Taking initiative in negotiating a wage raise or promotion	Yes	No
--	-----	----

Other: _____

What is your marital status?

Single In a serious relationship Cohabiting Engaged Married

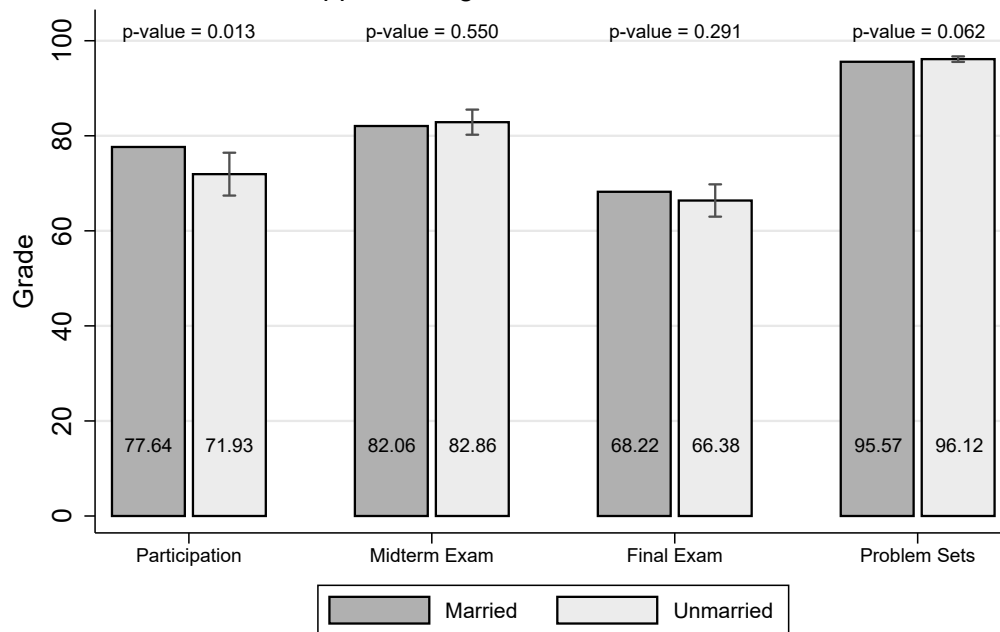
If not single, how long have you been in your current relationship?

Less than a year Between one and two years More than two years Not applicable

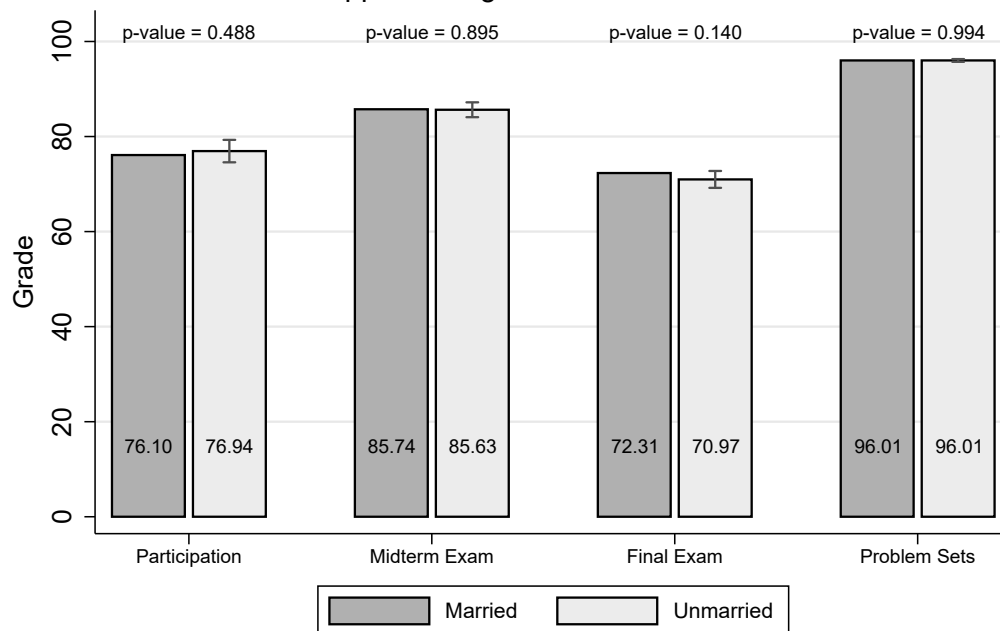
If you have any questions, comments or concerns about the research, you can talk to one of the researchers. Please contact [name and contact information]. If you have questions about your rights while taking part in this study, or you have concerns or suggestions and you want to talk to someone other than the researchers about the study, you may contact [IRB name and contact information].

Notes: Identifying information is redacted to protect the anonymity of the MBA program.

Appendix Figure 2A. Women's Grades



Appendix Figure 2B. Men's Grades



Appendix Figure 3. Primary Experiment Questionnaire

The information on this survey will help the career office get to know you and help it find the right fit for your first-year internship. This information will not be shared with employers, so please express your true preferences, not just what you think employers want to hear. This information will be shared with your career advisor and [your/anonymized] answers will be discussed during the [name of career class].

UID Number: _____ **Name:** _____

Gender Identity (Optional): Male Female Other _____ **Age:** _____

Marital Status: Single In a serious relationship Cohabiting Engaged Married

Do you have children, either biological or adopted? Yes No

What industries are you interested in working in? List these below.

Tell us about any geographic preferences.

For the questions below, please circle only one answer.

What is your desired compensation level in your first year after graduation? Include base pay, performance pay, and equity, but not the signing bonus.

Under \$75,000 \$75,000-\$100,000 \$100,000-\$125,000 \$125,000-\$150,000 \$150,000-\$175,000
\$175,000-\$200,000 \$200,000-\$225,000 \$225,000-\$250,000 Above \$250,000

How often are you willing to travel for work?

Rather not travel A few days a month 1-2 days a week
4-5 days a week As much as necessary

How many hours per week are you willing to work on a regular basis?

Under 40 hours 40 hours 41-50 hours 51-60 hours 61-70 hours 71-80 hours Over 80 hours

Rate your agreement with the following statements:

1. You tend to lead in your day-to-day interactions.

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

2. You are more professionally ambitious than your most recent work colleagues.

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

3. You feel very comfortable in competitive environments.

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

4. You have above-average writing skills.

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

Notes: The name of the career class is redacted. Whether students saw the word “your” or the word “anonymized” in the instructions was randomized.

Appendix Figure 4. Supplementary Experiment Questionnaire

Please fill out the following questionnaire. There are no right or wrong answers. Once you have finished the questionnaire, continue onto the rest of the group work. If there is time at the end of class, the instructor will circulate and discuss your answers with your small group. The forms will be collected at the end of class.

Name _____ UID _____

In each of the following questions, circle the job you would prefer.

Question 1:

Job A: A job with a high salary that requires 55-60 hours of work per week.

Job B: A job with a lower salary that requires 45-50 hours of work per week.

Question 2:

Job A. The work has a positive social impact, but you would not interact often with co-workers.

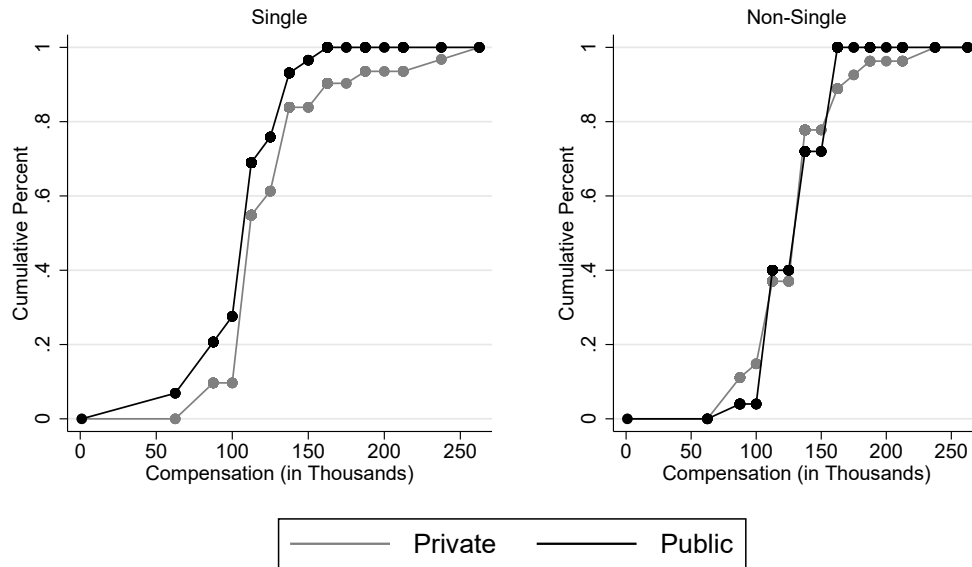
Job B. The job has a collegial and collaborative work environment, but the work does not have a social impact.

Question 3:

Job A. The job provides the opportunity of rapid promotion to partner, but requires constant travel.

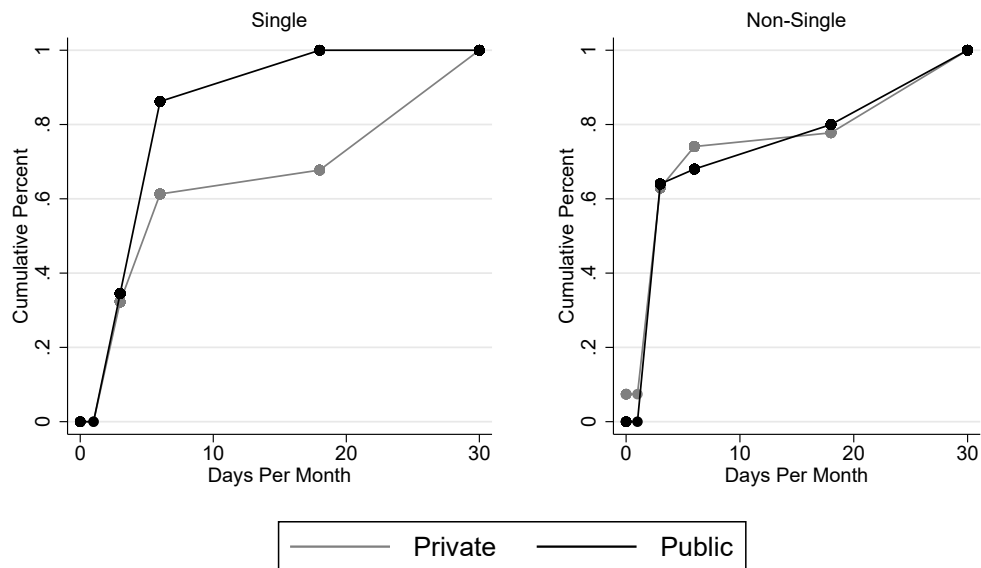
Job B. The job has no travel, but promotion to partner level is slower and less certain.

Appendix Figure 5. Desired Compensation
Primary Experiment, Distribution of Women's Responses



Notes: Plotted lines show the cumulative distribution function of desired compensation for the indicated group. Desired compensation is coded as the midpoint of the chosen range, except for "under \$75,000" (coded as \$62,500) and "above \$250,000" (coded as \$262,500). Some respondents chose two or more consecutive answers. Their responses are coded as the midpoint of the full range chosen. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

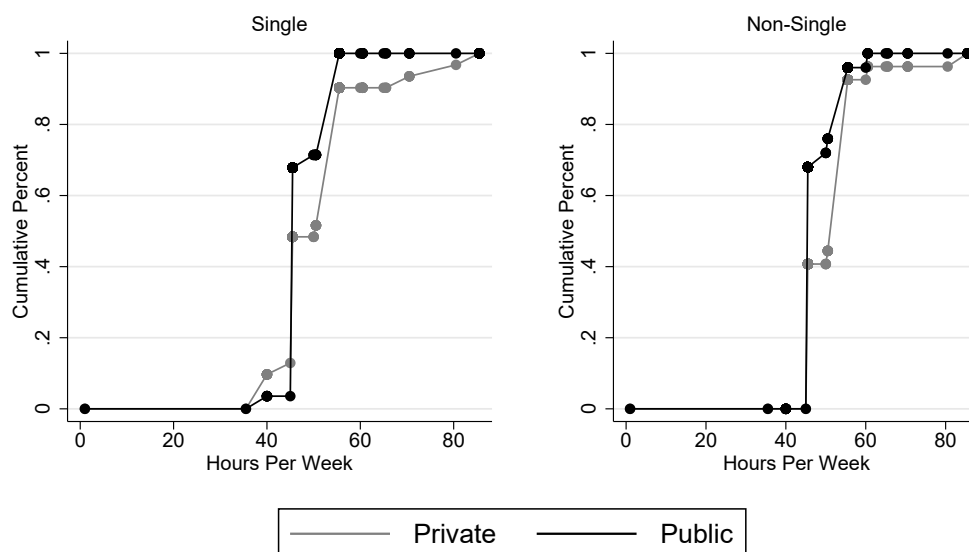
Appendix Figure 6. Days per Month Willing to Travel
Primary Experiment, Distribution of Women's Responses



Notes: Plotted lines show the cumulative distribution function of the number of days per month the respondent was willing to travel. Willingness to travel is coded as the midpoint of the chosen range, except for "rather not travel" (coded as 0) and "as much as necessary" (coded as 30). Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

Appendix Figure 7. Desired Weekly Hours of Work

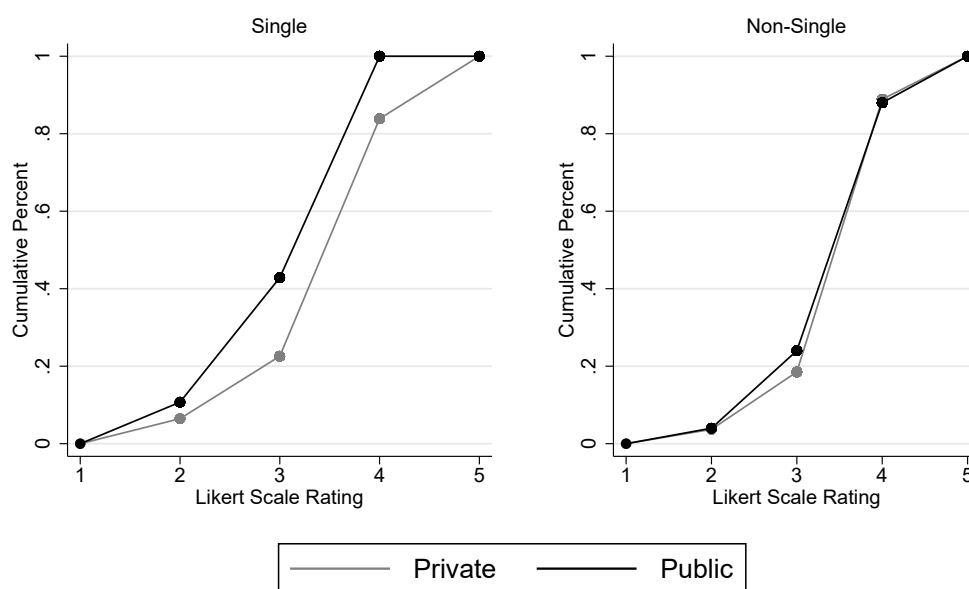
Primary Experiment, Distribution of Women's Responses



Notes: Plotted lines show the cumulative distribution function of the number of hours per week respondents reported being willing to work on a regular basis. Desired hours of work is coded as the midpoint of the chosen range, except for "over 80" (coded as 85.5, which would be the midpoint of an 81 to 90 hour range, since ranges are 41-50 hours, 51-60 hours, etc.). Some respondents chose two or more consecutive answers. Their responses are coded as the midpoint of the full range chosen. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

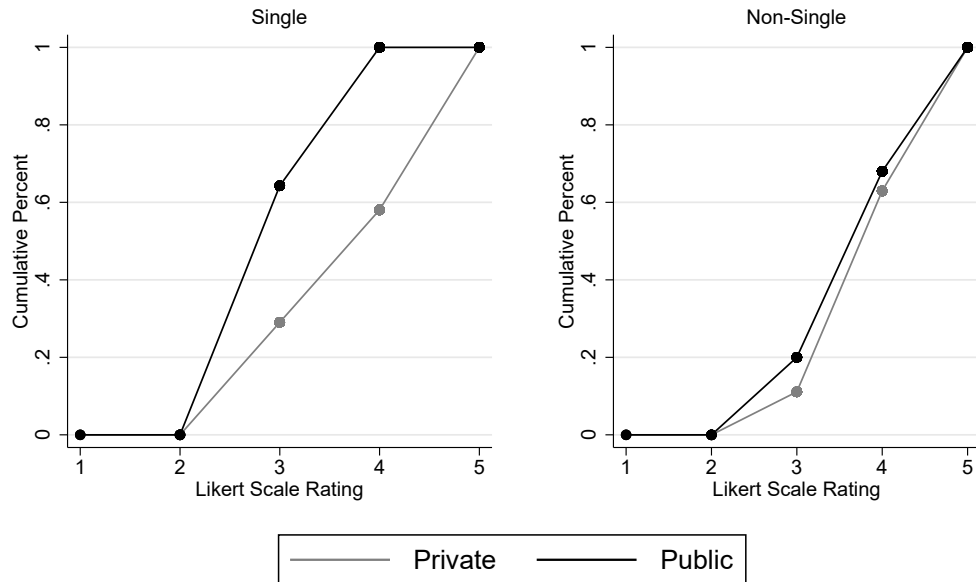
Appendix Figure 8. Tendency to Lead

Primary Experiment, Distribution of Women's Responses



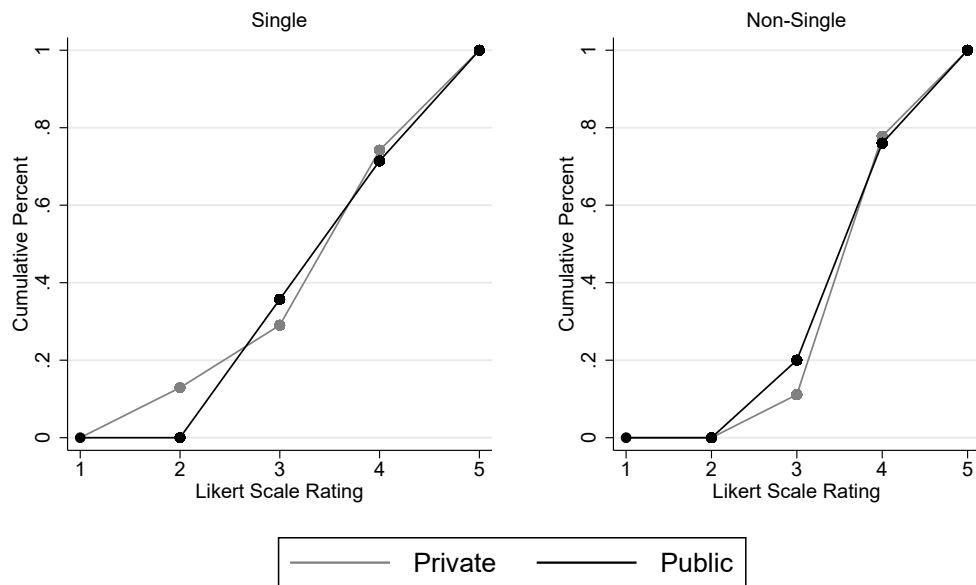
Notes: Plotted lines show the cumulative distribution function of students' agreement with the statement "You tend to lead in your day-to-day interactions." Responses were on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

Appendix Figure 9. Professional Ambition
Primary Experiment, Distribution of Women's Responses



Notes: Plotted lines show the cumulative distribution function of students' agreement with the statement "You are more professionally ambitious than your most recent work colleagues." Responses were on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

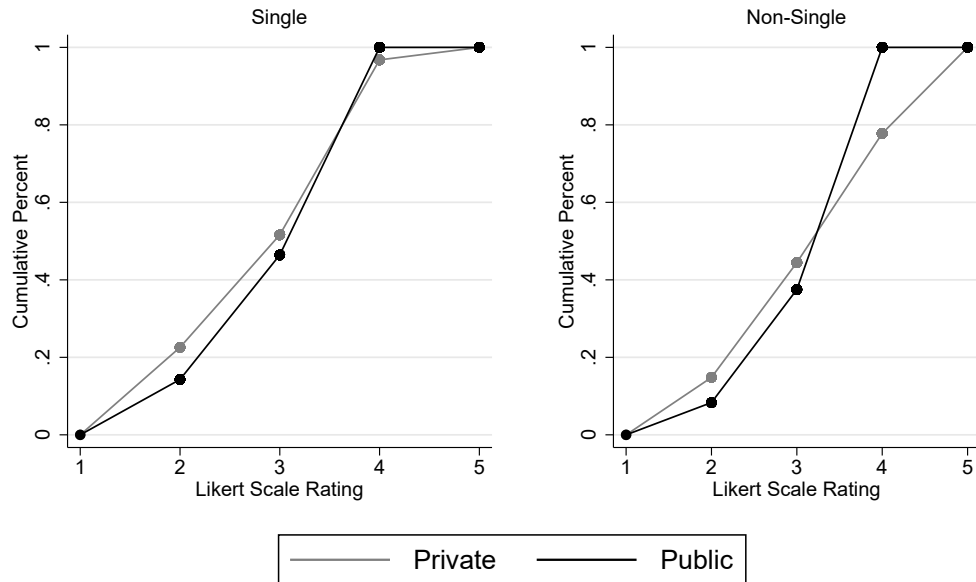
Appendix Figure 10. Writing Ability
Primary Experiment, Distribution of Women's Responses



Notes: Plotted lines show the cumulative distribution function of students' agreement with the statement "You have above-average writing skills." Responses were on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

Appendix Figure 11. Comfort in Competitive Environments

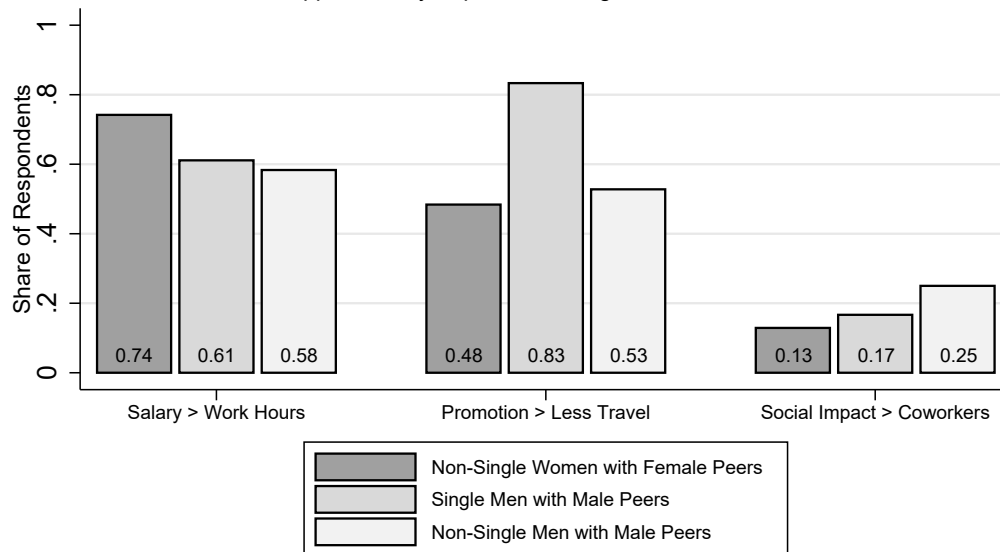
Primary Experiment, Distribution of Women's Responses



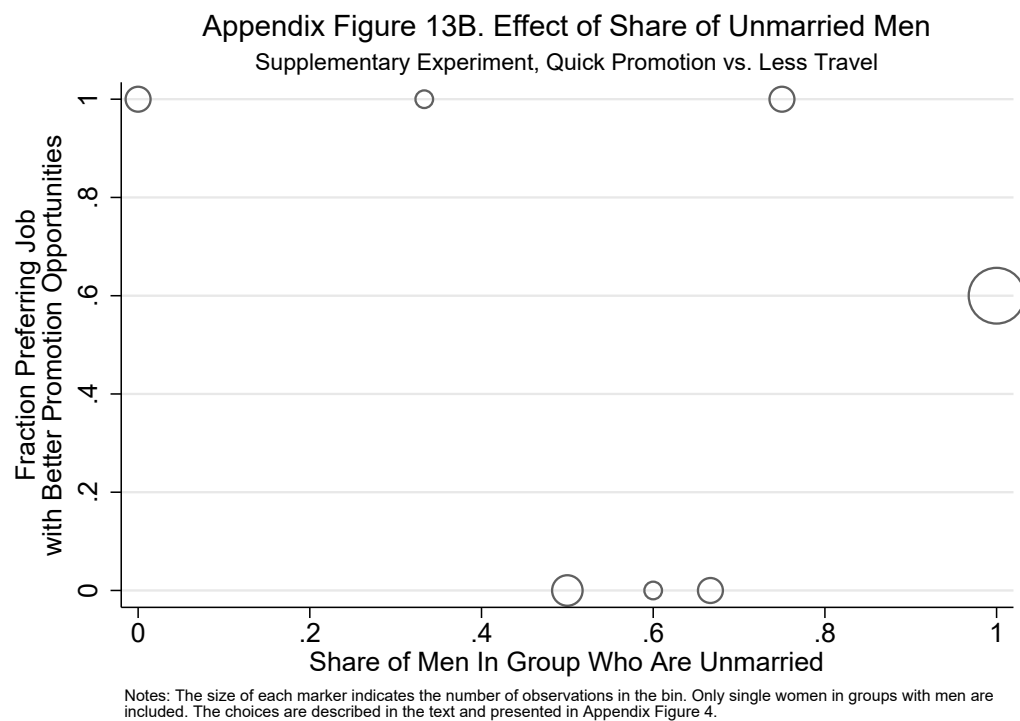
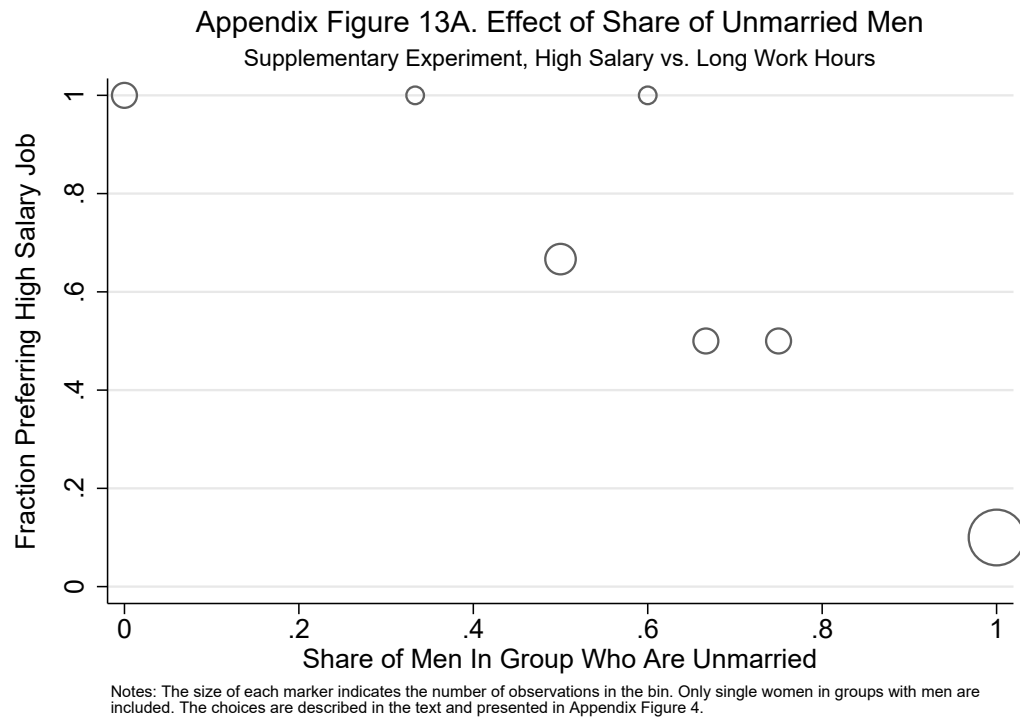
Notes: Plotted lines show the cumulative distribution function of students' agreement with the statement "You feel very comfortable in competitive environments." Responses were on a 1-to-5 scale, where 1 is Strongly Disagree and 5 is Strongly Agree. Only women are included. Non-single women are in a serious relationship, cohabiting, engaged, or married.

Appendix Figure 12. Job Preferences of Other Groups

Supplementary Experiment, Single Women Excluded



Notes: Each set of bars represents the fraction of the given group who reported a preference for (1) a job with a higher salary over a job with shorter work hours, (2) a job with better promotion opportunities over a job with less travel, or (3) a job with social impact over a job with more interactions with coworkers. Non-single students are in a serious relationship, cohabiting, engaged, or married.



Appendix Table 1. Descriptive Statistics by Gender and Relationship Status
Grades and Primary Experiment Data

	<u>A. Grades Data</u>						<u>B. Primary Experiment Data</u>					
	Men			Women			Men			Women		
	Unmarried	Married	p-value of Difference	Unmarried	Married	p-value of Difference	Single	Non-Single	p-value of Difference	Single	Non-Single	p-value of Difference
Age	27.6	30.0	0.00	27.0	29.0	0.00	27.6	28.6	0.00	27.3	27.5	0.61
Has Children	0.1%	26.7%	0.00	0.0%	18.1%	0.00	0.0%	14.6%	0.00	1.7%	0.0%	0.35
Years of Work Experience	4.9	6.3	0.00	4.6	5.8	0.00	5.2	5.5	0.36	4.9	5.0	0.77
GMAT Score	712	711	0.52	702	707	0.21	719	720	0.88	707	701	0.31
<i>Citizenship</i>												
United States	70.3%	48.0%	0.00	68.9%	51.4%	0.00	65.4%	58.8%	0.30	58.3%	71.2%	0.16
North America (without U.S.)	5.3%	4.0%	0.00	2.2%	6.9%	0.03	1.9%	5.3%	0.61	3.3%	5.8%	0.08
Asia	16.6%	34.1%	0.00	22.9%	33.3%	0.05	21.2%	23.7%	0.65	35.0%	19.2%	0.06
Europe	5.0%	4.8%	0.89	3.1%	2.8%	0.89	3.8%	0.8%	0.10	1.7%	1.9%	0.92
Central or South America	2.2%	9.2%	0.00	1.8%	5.6%	0.05	4.8%	11.5%	0.07	1.7%	1.9%	0.92
Africa	0.4%	0.0%	0.29	0.6%	0.0%	0.51	1.9%	0.0%	0.11	0.0%	0.0%	-
Oceania	0.3%	0.0%	0.36	0.4%	0.0%	0.59	0.0%	0.0%	-	0.0%	0.0%	-
Fraction of Gender Group	77.9%	22.1%		87.2%	12.8%		44.3%	55.7%		53.6%	46.4%	

Notes: In Panel B, *Non-Single* refers to individuals who report being in a serious relationship, cohabiting, engaged, or married. The grades data include the 2010-2015 entering cohorts. The primary experiment data is from the 2016 entering cohort.

Appendix Table 2. Relationship Status and Class Participation
Grades Data

	Participation	Exams and Problem Sets	Midterm Exam	Final Exam	Problem Sets
<u>A. Women, No Controls</u>					
Unmarried	-5.72** (2.30)	-0.44 (1.02)	0.81 (1.35)	-1.84 (1.74)	0.55* (0.30)
Dependent Variable Mean	77.64	79.66	82.06	68.22	95.57
Observations	561	561	561	561	561
R-squared	0.01	0.00	0.00	0.00	0.01
<u>B. Women, With Controls</u>					
Unmarried	-5.59*** (2.15)	-0.81 (0.95)	-1.21 (1.38)	-1.10 (1.62)	0.05 (0.25)
Dependent Variable Mean	77.64	80	82	68	96
Observations	544	544	544	544	544
R-squared	0.27	0.27	0.17	0.33	0.45
<u>C. Men, No Controls</u>					
Unmarried	0.84 (1.21)	-0.62 (0.55)	-0.11 (0.80)	-1.34 (0.91)	0.00 (0.15)
Dependent Variable Mean	76.10	82.62	85.74	72.31	96.01
Observations	1,238	1,238	1,238	1,238	1,238
R-squared	0.00	0.00	0.00	0.00	0.00
<u>D. Men, With Controls</u>					
Unmarried	-0.39 (1.24)	-1.27** (0.54)	-0.92 (0.82)	-2.32*** (0.88)	0.07 (0.13)
Dependent Variable Mean	76.10	82.62	85.74	72.31	96.01
Observations	1,219	1,219	1,219	1,219	1,219
R-squared	0.14	0.27	0.18	0.29	0.46

Notes: Each column in each panel shows the results of regressing the grade indicated by the column (out of 100) on a dummy for being not married or in a domestic partnership. Regressions in Panels A and B are limited to women, while regressions in Panels C and D are limited to men. Regressions in Panels B and D include controls for age, GMAT score, years of work experience, U.S. citizenship, and section fixed effects. Robust standard errors are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 3. Randomization Assessment
Primary Experiment

	Private Treatment	Public Treatment	p-Value of Difference
Male	67.0%	68.7%	0.737
Age	27.8	28.0	0.635
Has Children	5.2%	6.2%	0.684
GMAT Score	713	716	0.408
Years of Work Experience	5.2	5.2	0.721
U.S. Citizen	64.8%	60.3%	0.389
<i>Relationship Status (Self-Reported)</i>			
Single	44.9%	47.5%	0.624
In a Serious Relationship	21.6%	22.3%	0.864
Cohabiting	4.0%	3.4%	0.755
Engaged	6.8%	5.0%	0.476
Married	21.0%	19.0%	0.634
No Response	1.7%	2.8%	0.491
Observations	176	179	355

Notes: The first and second columns of data contain the means of each demographic variable for those in the private and public treatments, respectively. The third column of data shows the p-value of the difference in the means from a two-tailed t-test.

Appendix Table 4. Effect of Public Treatment on Reported Job Preferences and Skills
Primary Experiment, With Controls

	Kling- Liebman- Katz Index	Desired Compensation	Days per Month of Travel	Desired Weekly Hours of Work	Tendency to Lead	Professional Ambition	Writing Skills	Comfort in Competitive Environments
<u>A. Single Women</u>								
Public Treatment	-0.55*** (0.14)	-18.43* (9.65)	-5.74** (2.43)	-3.35 (2.12)	-0.45** (0.21)	-0.72*** (0.20)	0.11 (0.23)	0.09 (0.22)
Private Treatment Mean	-0.06	131.05	13.55	52.21	3.87	4.13	3.84	3.29
Observations	51	52	52	51	52	52	52	52
R-Squared	0.29	0.20	0.22	0.14	0.12	0.27	0.24	0.07
<u>B. Non-Single Women</u>								
Public Treatment	-0.18 (0.16)	-0.85 (8.49)	-0.65 (3.24)	-3.82* (2.00)	-0.13 (0.20)	-0.14 (0.21)	-0.16 (0.18)	-0.09 (0.27)
Private Treatment Mean	0.00	134.72	9.67	52.54	3.89	4.26	4.11	3.63
Observations	47	48	48	48	48	48	48	47
R-Squared	0.18	0.19	0.14	0.14	0.10	0.11	0.14	0.10
<u>C. Single Men</u>								
Public Treatment	-0.01 (0.12)	-3.56 (7.94)	2.95 (2.43)	0.68 (2.07)	0.12 (0.15)	-0.17 (0.16)	-0.09 (0.17)	-0.18 (0.16)
Private Treatment Mean	0.15	146.88	15.38	52.25	3.69	4.23	3.90	4.02
Observations	100	101	100	101	101	101	101	101
R-Squared	0.06	0.08	0.11	0.05	0.05	0.05	0.09	0.06
<u>D. Non-Single Men</u>								
Public Treatment	0.14 (0.10)	-0.82 (5.99)	3.11 (1.95)	3.27* (1.91)	0.10 (0.13)	0.00 (0.13)	0.05 (0.16)	0.09 (0.15)
Private Treatment Mean	-0.05	140.86	9.94	51.14	3.75	4.15	3.82	3.67
Observations	122	122	123	123	123	123	123	123
R-Squared	0.04	0.09	0.04	0.05	0.04	0.04	0.25	0.07
<u>E. p-values: Difference in Effect of Public Treatment</u>								
Single vs. Non-Single Women	0.063	0.147	0.182	0.863	0.235	0.036	0.339	0.598
Single Women vs. Others	0.000	0.093	0.002	0.053	0.018	0.002	0.539	0.561

Notes: The table replicates Table 4, where controls for age, GMAT score, years of work experience, and U.S. citizenship are included in all regressions.

*, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 5. Effect of the Public Treatment by Student Characteristics
Primary Experiment, Women Only

	Kling- Liebman- Katz Index	Desired Compensation	Days per Month of Travel	Desired Weekly Hours of Work	Tendency to Lead	Professional Ambition	Writing Skills	Comfort in Competitive Environments
Single x Public	-0.47** (0.22)	-20.86 (12.84)	-5.77 (4.32)	-0.60 (3.23)	-0.33 (0.30)	-0.73** (0.30)	0.23 (0.30)	0.08 (0.34)
Single	-0.04 (0.17)	0.18 (10.92)	1.80 (3.22)	0.54 (2.85)	0.02 (0.21)	-0.11 (0.23)	-0.27 (0.22)	-0.32 (0.28)
U.S. Citizen x Public	0.04 (0.23)	5.78 (13.80)	2.43 (4.75)	0.22 (3.66)	0.13 (0.30)	0.01 (0.33)	0.06 (0.35)	-0.27 (0.38)
U.S. Citizen	0.01 (0.20)	6.54 (11.92)	-5.56 (3.80)	1.36 (3.33)	-0.07 (0.21)	-0.06 (0.27)	0.63** (0.28)	0.37 (0.32)
Years of Work Experience x Public	0.04 (0.06)	5.68 (4.33)	-2.18* (1.23)	-0.77 (1.03)	0.09 (0.11)	0.06 (0.14)	-0.08 (0.10)	0.12 (0.14)
Years of Work Experience	-0.02 (0.04)	-2.98 (3.51)	2.37** (0.95)	0.69 (0.84)	-0.09 (0.09)	-0.03 (0.09)	0.01 (0.06)	-0.12 (0.10)
GMAT Score/10 x Public	0.05* (0.02)	-0.09 (1.89)	0.20 (0.59)	0.57 (0.50)	0.00 (0.04)	0.09** (0.04)	-0.02 (0.04)	0.07* (0.04)
GMAT Score/10	-0.02 (0.02)	0.88 (1.68)	-0.48 (0.51)	-0.29 (0.47)	0.01 (0.03)	-0.02 (0.03)	0.02 (0.03)	-0.02 (0.04)
Age x Public	-0.10 (0.07)	-7.61* (4.31)	-0.55 (1.37)	0.10 (1.03)	-0.06 (0.10)	-0.09 (0.11)	0.01 (0.08)	-0.13 (0.11)
Age	0.10* (0.05)	7.97** (3.63)	-0.07 (0.85)	0.47 (0.89)	0.10 (0.08)	0.03 (0.07)	-0.02 (0.05)	0.09 (0.07)
Public	-0.99 (2.33)	184.56 (172.23)	10.02 (56.43)	-42.74 (40.94)	0.89 (4.17)	-4.30 (3.89)	1.12 (3.59)	-2.02 (3.83)
Dependent Variable Mean	-0.18	128.38	10.50	50.82	3.79	3.99	3.96	3.45
Observations	98	100	100	99	100	100	100	99
R-squared	0.27	0.20	0.20	0.13	0.10	0.24	0.21	0.11

Notes: Each column presents the results of a regression of the dependent variable indicated by the column on student covariates, these covariates interacted with being in the public treatment, and an indicator for being in the public treatment. Robust standard errors are in parentheses. *, ** denote significance at the 10% and the 5% levels, respectively.

Appendix Table 6. Participation in Supplementary Experiment
Single Women Only

	Participated in Supplementary Experiment	Did not Participate in Supplementary Experiment	p-Value of Difference
Age	27.1	27.7	0.301
Has Children	0.0%	5.3%	0.154
GMAT Score	706	709	0.794
Years of Work Experience	4.8	5.1	0.465
U.S. Citizen	60.0%	55.0%	0.717
Observations	40	20	60

Notes: The first and second columns of data contain the means of each demographic variable among those who did and did not participate in the supplementary experiment, respectively. The third column of data shows the p-value of the difference in the means from a two-tailed t-test. The table is limited to single women.

Appendix Table 7. Randomization Assessment
Supplementary Experiment, Single Women Only

	Coefficient	Characteristic Mean
<u>A. Any Male Peers</u>		
Age	0.77 (0.83)	27.1
GMAT Score/10	0.96 (1.01)	70.6
Years of Work Experience	0.35 (0.71)	4.8
U.S. Citizen	0.02 (0.19)	0.60
Observations	40	40
<u>B. Share of Unmarried Men</u>		
Age	-0.54 (1.38)	26.9
GMAT Score/10	2.45 (1.47)	69.9
Years of Work Experience	-0.75 (1.21)	4.6
U.S. Citizen	0.01 (0.29)	0.6
Observations	21	21

Notes: Each row in Panel A presents the results of a separate regression of the variable indicated by the row on an indicator for being in a group with male peers, controlling for section fixed effects. Regressions in Panel A are limited to single women. Each row in Panel B presents the results of a separate regression of the variable indicated by the row on the share of unmarried men in the group, controlling for section fixed effects. Regressions in Panel B are limited to single women in groups with male peers. Standard errors clustered at the group level are in parentheses.

Appendix Table 8. Effect of Group Composition on Single Women's Reported Job Preferences
Supplementary Experiment, With Controls

	Kling-Liebman-Katz Index	Prefers Higher Salary over Fewer Hours	Prefers Promotion over Less Travel	Prefers Social Impact over Interactions with Coworkers
<u>A. Peer Gender</u>				
Male Peers Indicator	-0.81*** (0.25)	-0.28 (0.17)	-0.43*** (0.15)	0.05 (0.14)
Mean for Women in Female Groups	0.00	0.68	0.79	0.42
Observations	34	34	34	34
R-Squared	0.52	0.23	0.52	0.50
<u>B. Marital Status of Peers</u>				
Share of Male Peers who are Unmarried	-1.22*** (0.41)	-1.42*** (0.24)	0.22 (0.25)	0.48 (0.35)
Mean for Women in Male Groups	-0.58	0.43	0.52	0.38
Observations	18	18	18	18
R-Squared	0.65	0.76	0.59	0.62

Notes: The table replicates Table 6, where in addition to section fixed effects, controls for age, GMAT score, years of work experience, and U.S. citizenship are included in all regressions. *** denotes significance at the 1% level.