When do women present themselves as leaders?*

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Abstract

I examine the circumstances in which women present themselves as possessing leadership skills on professional networking site LinkedIn, which is widely used for recruiting. US women are 16% less likely than men to list leadership skills, even within occupation and company. I interpret this statistic as evidence of the supply-side factors that contribute to the scarcity of women in leadership roles. The self-reported leadership gap is about double in most socially conservative states, and nearly absent at companies in the top decile of Glassdoor work-life balance ratings. The gap among junior workers is not smaller at firms with senior women.

JEL Classifications: J16 (Economics of gender); J2 (Demand and supply of labor); J24 (Human capital); J71 (Discrimination); J44 (Professional labor markets); M51 Personnel economics: Firm employment decisons; promotions); M54 (Labor management)

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1 Introduction

As positions grow in pay, prestige, and power, the share of women occupying those positions declines. For instance, Fewer than 10% of Fortune 500 companies are led by women, and until 2017, they were outnumbered by men named John.[1] Explanations for the relative scarcity of women in senior leadership roles generally fall into two categories. We now have broad evidence for demand-side explanations for the gap, including audit studies that have corroborated widespread direct or statistical discrimination against women by employers (e.g. Neumark, Bank and Van Nort, 1996). Supply-side explanations, largely drawn from surveys or studies of individual firms, include the proposition that women have different preferences for jobs or hours, or do not self-promote or "lean in" to leadership opportunities.

This study provides broad evidence across a set of supply-side explanations by examining how men and women present leadership skills on the professional social network platform LinkedIn. LinkedIn has nearly one billion members globally, and the 181 million profiles listed in the U.S. is similar to the number of workers in the U.S. labor force. The site prompts users to list the top skills they use in their current role and suggests a set of pre-populated skills based on their current position and the skills that recruiters seek.

Across US users on LinkedIn, 12.3% of women list the standardized skills of "leadership," "team leadership," or "team building" on their profiles, which is 77.8% the rate reported by men. A nontrivial portion of the gap is not explained by sorting; even within the exact same job title and company, women are only 91.6% as likely as men to report leadership. It is also not explained by the number of common skills women and men list on their profiles: men and women are similarly likely to list the "average" top-20 most-frequently listed skill, but within the same occupations, men are more likely to list team leadership skills and the related agentic skills of negotiation, project management, strategic planning, whereas women are more likely to report support skills and tools like general purpose software products, time management, and event planning. The gap also does not appear to be driven by an aversion to teams *per se*; controlling for occupation and seniority, women are 45% *more* likely than men to list "teamwork."

This gap in self-reported leadership skills is potentially important because of the central role that online profiles play for job matching in the modern labor market. LinkedIn in particular is widely used both by jobseekers and recruiters, and job matching is heavily integrated into many aspects of its design. For instance, when a user creates a profile, the site makes clear that recruiters use worker's skill selections to screen potential candidates. Moreover, the site prompts users to add

[1] Boyle and Green's Bloomberg article, "Women CEOs (Finally) Outnumber those named John," April 25, 2023. Bertrand and Hallock (2001) and Blau and Kahn (2017) provide a general overview of declining female shares in top jobs.

skills based on their job and company, suggesting that the self-reported leadership gap reflects a greater likelihood by women to skip over listing these even when prompted.

Further analysis reveals substantial heterogeneity in the self-reported leadership gap across genders, allowing scrutiny of existing prevailing theories of discrimination. My findings examine this gap by geography, the employer's work-life balance, occupations, and the share of female leaders in the worker's firm. Though the skills reported by men and women corroborate gender differences reported in the literature *on average*, US states and European countries exhibit stark variation in the self-reported leadership gap. For instance, the gap in the ratio of women reporting leadership rates is more than double in Utah than in California with and without controlling for occupation and seniority. In general, states with more traditional social values, a larger gender-pay gap, and more children at home have larger self-reported leadership gaps. In an analysis that connects user profiles on LinkedIn to their employers' work-life balance ratings on Glassdoor, I find that workplaces with strong work-life balance ratings have far greater rates of reporting leadership skills both both genders, but particularly women. The self-reported leadership gap is almost completely eliminated for workers whose employers are in the top 10% of work-life balance ratings, corroborating the importance that work-life balance may also play in advancing women (Goldin and Katz, 2016; Blau and Kahn, 2017). Third, the leadership gap exhibits considerable variation by occupation, but is roughly equal at all stages of career seniority. Finally, and perhaps surprisingly, the self-reported leadership gap among junior workers is greater in firms managed by women. The gap does not appear to be driven by inattention to LinkedIn profiles. Both men and women update their profiles at similar rates (scraped profiles were updated a median of 35 days ago for both genders) and update frequency has little relation to the probability of reporting leadership skills, such that controlling for recent updates has no material effect on results. Therefore, while the self-reported leadership gap is consistent with the broad themes existing in the present literature, the heterogeneity analysis reveals the importance of systemic cultural and environmental factors that manifest at this important stage of the job matching process.

The paper proceeds as follows. Section 3 describes the setting, data, and main estimation strategy. Section 2 uses prior theory and evidence to provide a discussion of why women may be less likely to report leadership skills. Section 4 presents two basic results: women are less likely to report leadership skills across specifications with some effect played by sorting, and women are not less likely to report skills in general but instead are less likely to report negotiation and leadership skills. Section 5 examines results across four dimensions of heterogeneity: geographic (US states, state characteristics, and European countries), firm work-life balance ratings, occupation and seniority, and the share of managers in the who are women. Section 6 relates findings to prior literature.

2 Why would women be less likely to report leadership skills?

The question of why there are relatively few women in senior leadership roles is the subject of extensive study across the social sciences. Perhaps the majority of these these studies examine demand-side bias, i.e., bias by employers when hiring and evaluating women. Economists have classically approached gender discrimination from the lens of Beckerian taste-based discrimination, whereby employers prefer to hire men, or from Phelps (1972) statistical discrimination, whereby employers believe gender is correlated with less desired attributes like job interruption from childrearing responsibilities. Recent work has documented the roles of workplace dynamics: women lack access to workplace social networks (Cullen and Perez-Truglia, 2023), face bias in subjective evaluations (Eagly and Karau, 2002; Mocanu, 2022; Benson, Li and Shue, 2024), face greater backlash from subordinates (Alan et al., 2020; Chakraborty and Serra, 2024), or are assigned to tasks that lack visibility and are rarely recognized with advancement (Babcock et al., 2017).

For research purposes, evaluating professional skills listings is attractive because they are entirely a product of the worker's choice: any user can list any skill. Other outcomes, such as whether a worker is hired or given an equitable wage, is a product of decisions and strategic interactions made by both the worker and the firm. Even the decision to apply is typically a product of outreach by recruiters (for a review, see Lane, Lakhani and Fernandez, 2023). In this sense, examining professional profiles mirrors a demand-side discrimination literature that has sought to control for supply-side factors by holding the worker's profile constant, for instance, by experimentally manipulating the names on resumes and tracking employer callbacks (Neumark, Bank and Van Nort, 1996; Bertrand and Mullainathan, 2004; Kline, Rose and Walters, 2022), or by blinding evaluators to the gender of the applicant (e.g. Goldin and Rouse, 2000). A second strength of evaluating professional skill listings is that it enables a heterogeneity analysis that is often difficult to capture at large scale. For instance, it's not clear whether gender variation in reported leadership skills would be more pronounced in different states or companies. A weakness of evaluating professional skills listings is that it corroborates the existence of supply-side factors, but offers fewer opportunities to corroborate any one factor.

The remainder of this section outlines evidence for potential reasons women may be less likely to report leadership skills on professional profiles.

2.1 Gender differences in preferences

Given that LinkedIn makes clear to users that their listed skills are matched to recruiters' queries, listed skills might be interpreted as the revealed preference of the types of opportunities that the worker would find attractive. A number of prior studies have offered reasons women may place lower

value on jobs that involve leading others. Azmat, Cuñat and Henry (2024), for instance, finds that female lawyers have substantially lower aspirations than their male counterparts. Women tend to work fewer hours and have lower earnings following the birth of a child (see, e.g., Kleven, Landais and Søgaard, 2019), and leading others may impose greater costs in terms of the number or predictability of hours. Folke and Rickne (2020), for instance, use elections data to establish a causal connection between the attainment of a leadership position and the probability of divorce among women in gender-traditional couples. Exploiting cross-time zone corporate acquisitions, Gagliardi, Mariani and Breschi (2024) find that the requirement to be available around the clock inhibits women's career progression. Similarly, others have argued that availability outside of normal work hours is a signal of commitment (Landers, Rebitzer and Taylor, 1996; Cha and Weeden, 2014), a requirement that may conflict with household norms that view women as caregivers (Goldin, 2014; Gicheva, 2013). Barbulescu and Bidwell (2013) find that, among similarly-qualified MBA students, women's applications reflect a greater priority on work-life balance and non-stereotypically masculine jobs.

Women may also find leadership less attractive for workplace-related reasons. Several studies have found that women avoid competition when selecting pay schemes (Niederle and Vesterlund, 2007), occupations (Buser, Niederle and Oosterbeek, 2014), or when deciding to respond to job advertisements (Flory, Leibbrandt and List, 2015; Gaucher, Friesen and Kay, 2011). Female leaders may also face discrimination from subordinates or backlash from subordinates. In a set of lab experiments, Chakraborty and Serra (2024) find that women are less likely to self-select into a leadership position if they may receive backlash from the worker, and workers are also more likely to backlash against female leaders. In a multi-firm field study, Alan et al. (2023) find results that are consistent with the proposition that female leaders invest more heavily in the relationships with female subordinates because females who do not do so would be more penalized. Haegele (2024) finds that women assert their specific disinterest in promotions that would involve leading others, along with evidence that suggests they overestimate the number of direct reports and amount of conflict such roles would entail.

2.2 Gender differences in self-promotion

A second mechanism is that women are less likely to engage in self-promotion behaviors. This hypothesis was popularized by Sheryl Sandberg's (2015) book *Lean In*, which encourages women to be more assertive about their leadership ambitions.

Several studies also lend evidence of a self-promotion gap. In a set of experiments, Exley and Kessler (2022) find that female online participants and school-aged girls rate themselves lower math and science tasks when they are told ratings would be shared with potential employers. Babcock

and Laschever (2009), Leibbrandt and List (2015), and Roussille (2024) have found that women avoid negotiation, which may arise when pursuing a leadership role.

Gender differences in self-promotion may also arise from differences in self-confidence. Women have also been shown to be less willing to contribute their ideas or rate themselves highly in stereotypically male domains, such as technical fields and leadership (Bordalo et al., 2019; Coffman, 2014). In the context of job applications, researchers have found that female jobseekers are less likely to apply to jobs in male-dominated domains, possibly due to greater aversion to rejection (Fernandez-Mateo and Fernandez, 2016; Brands and Fernandez-Mateo, 2017).

Lastly, gender differences in self-promotion may also arise because women do not view themselves as leaders. For instance, women may internalize normative gender role stereotypes, including the stereotype that women are not leaders or are primarily responsible for household labor (Chassin et al., 1985).

2.3 The reflection of pre-market or demand-side factors

Differences in women's job search decisions, such as the decision to list leadership skills on professional profiles, need not originate from underlying differences in preferences or the propensity to self-promote. Rather, such differences may be a product of a jobseeker's environment at home (Berk, 2012), in school (Porter and Serra, 2020), in the media (Santoniccolo et al., 2023), or at work (Chakraborty and Serra, 2024). Indeed, much of the prior work that could provide hints as to why women are less likely to list leadership skills are likely to have systemic roots (Bohren, Hull and Imas, 2022). As a result, apparent differences in preferences are difficult to disentangle from differences in self-confidence, effort, aspirations, or career choices (Azmat, Cuñat and Henry, 2024; Correll, 2001). In the context of an online job profile, a jobseeker may not list leadership skills if they view leadership opportunities as an overly lofty aspiration, and women's aspirations may be endogenously low due to environmental factors (Genicot and Ray, 2017).

This begs the question: if women were to list leadership skills, would they get more positive attention from recruiters? Prior research provides hints. An extensive literature on role congruity theory finds that women are not stereotypically viewed as leaders (Eagly and Karau, 2002; Beaman et al., 2009). However, even if recruiters discount self-reported leadership skills when reported by women, women may still find it advantageous to list leadership skills given a greater likelihood of being discovered. However, listing leadership may not truly be a "free" signal to send. Psychologists and economists have found that women who self-promote stereotypically masculine and agentic traits face backlash or are rated as less likable and immodest (e.g. Bowles, Babcock and Lai, 2007; Heilman et al., 2004; Rudman, 1998). Results among studies that examine hiring conditional on applying have found more mixed results, but these typically study bias in very specific settings. For

instance, Fernandez-Mateo and Fernandez (2016) and (Chan and Wang, 2018) found a female bias when selecting interview candidates in executive search and in online labor markets. Cowgill and Perkowski (2020) find that workers discriminate more against managers than vice versa. Another set of studies has looked specifically at recent MBAs—a group that composes a small share of the overall labor market but one in which jobseekers often market themselves as potential leaders. Barbulescu and Bidwell (2013) find no bias against female MBAs when securing jobs in stereotypically masculine fields conditional on interest, and similarly, Bertrand, Goldin and Katz (2010) find male and female MBA graduates have similar earnings in corporate and finance careers at the outset, but a gap materializes with motherhood. Goldin and Katz (2016), noting the high degree of gender egalitarianism in the pharmacy industry, propose family-friendly job design would catalyze the advancement of women.

2.4 Attention and search effort

A final, more separate possibility is that women are inattentive to their LinkedIn profiles or otherwise update them less frequently. This may be because they are less likely than men to search for new positions, are less likely to update them when they do, or less likely to update their profiles regardless of search activity. For instance, if reporting leadership skills increases with age and job seniority, and women update their profiles less frequently than men, then women may be less likely to report leadership skills due to their profiles reflecting preferences or self-confidence that they had in the past.

3 Background

3.1 Setting

LinkedIn is an employment-focused social network platform in which users create professional profiles. Users can also create public posts, which are usually professional in nature. For instance, they may post that about an educational credential they've earned, a product they've helped launch, or their view on business-related news.

LinkedIn is widely used by jobseekers and recruiters, and recruitment is built into many of LinkedIn's features. When a user creates a profile, they are asked whether they are actively looking for a new job and would like to be connected to recruiters. If they confirm, they are asked what jobs and geographies they are open to, whether recruiters may contact them, and whether they would like to receive alerts for matching positions. Likewise, when a user selects skills, the site prompts workers with a set of related skills often sought by recruiters. The site also prompts users to update skills when signaling to recruiters that the user is "open to work." The skills that a LinkedIn user

selects, which in turn determine whose profiles are discovered by recruiters, have become a principle way that job matching now occurs in the labor market (Bonet, Cappelli and Hamori, 2013; Sharone, 2017; Vallas and Schor, 2020; Fichman, 2021).

3.2 Data

I begin from the near-universe of records scraped from LinkedIn, which come from Revelio Labs Workforce Data 4.0.[2] To make the analysis more clearly defined, and also to mitigate language and selection concerns, I focus on the population of 127,883,298 user profiles from the United States that list a company and job title. For computational purposes, the analysis includes workers belonging to a 10% random sample of company-job title combinations, yielding 12,735,787 profiles.[3]

The main analysis uses a linear probability model of the form:

$$leading_{ijk} = \beta_1 female_{ijk} + \theta_j + \gamma_k + \mathbf{XB} + \varepsilon_{ijk} \tag{1}$$

$leading_{ijk}$ is whether user i in occupation j and seniority level k lists "leadership," "team building," or "team leadership," among their skills. I chose these three skills because they are each in the top-20 of LinkedIn's standardized skills, and they are most directly related to building and leading teams.[4] On LinkedIn, new users are prompted to update their profile by: (1) confirming the listed job is their current job, (2) inputting their skills, and (3) confirming their location and geographic preferences. As a user types their skills in a search box, the site updates its list of matching skills just below the search box, which the user may then select. The site also lists a set of "suggested skills based on your title and the skills recruiters are looking for." These appear as buttons labeled with the skills that, when pressed, are added to the list of skills shown on the profile. Leadership, team building, and team leadership are each among the top-20 most-selected skills, and 14% of profiles list at least one of these.[5]

$female_{ijk}$ is the expectation that the user is female. LinkedIn users do not report gender directly. Rather, the probability of being female is imputed from the shares of the designated sex matched to given names in US Social Security Administration records. All analyses use the continuous coding of

[2] Details are in the appendix.

[3] For reproducibility, the random sample of company-title combinations is constructed from an MD5 hash of the concatenated string of the company and raw job title.

[4] Other standardized leadership skills include technical leadership, cross-functional team leadership, strategic leadership, organizational leadership, thought leadership, leadership development, and educational leadership. The relative share of women reporting these skills are respectively 24%, 49%, 51%, 51%, 65%, 72%, 107%, and 214%. These are generally more male-leaning and smaller than this study's operationalization.

[5] 12.9% report leadership itself, 6.1% report team building, and 1.9% report team leadership, and there is substantial overlap in these skills within profiles. The most common listed skills are, in descending order, Customer service, Microsoft Office, management, leadership, Microsoft Excel, public speaking, training, Microsoft Word, sales, and Powerpoint. Leadership and team leadership are respectively listed 68% and 44% as often as Microsoft Office.

female probability and reports predictive margins of the model when $female$ is 0 or 1. In the data, the mean female probability is 0.494.

θj includes occupation fixed effects. Occupation comes from the job roles provided by the user, then coded into 1500 categories in a semi-supervised process that mixes k-means clustering with adjustments to preserve a nested jobs hierarchy. Note that this is about twice as finely grained than the 6-digit Standard Occupational Classification system used by the Bureau of Labor Statistics. γ_k includes seniority fixed effects. Job seniority follows an ordinal scale from one to seven, and is coded by Revelio using job title, company, and industry, job history, and age. **XB** includes the terms used to evaluate heterogeneity in the self-reported leadership gap. Most predictors in **XB** are correlated with the shares of both men and women who report leadership skills. Therefore, for intuition, results present predictive margins for men and women at the unconditional mean values of X. Errors are clustered at the level of the job title $\times$ company. Because the large sample size yields very precise estimates, some tables describe standard errors in the notes.

4 Results

4.1 Characterizing the self-reported leadership skills gap

I begin by characterizing the gap between men and women in reporting leadership skills, the simplest of which is the raw share of men and women who report a leadership skill. In a regression, this takes the form:

$$leading_i = \beta_0 + \beta_1 female_i + \varepsilon_i \tag{2}$$

where the variables are defined as above. This specification is likely subject to selection bias and sorting effects: women may be less likely to list leadership skills because they are in different jobs than men. This sorting is interesting in itself, as the skills the people list also presumably affect what jobs they enter, and the analysis proceeds by examining how much variation in the probability of listing leadership is explained by sorting effects and how much remains as controls get increasingly fine. The finest specification I consider includes the exact job title within the exact company. In this case, the gender leadership skills gap is identified by cases that men and women report the same titles within the same company, and the remaining cases are dropped. Although these controls provide the most rigorous examination of the gap, it also comes at the cost that the retained sample consists of relatively large and gender-diverse jobs and companies.

Table 1: Gender gap in self-reported leadership skills

Model		Men	Women	Gap	Estimable sample
(1)	No controls	.158	.123	.778	12,735,787
(2)	1,500 occupation FEs; 7 seniority FEs (baseline)	.153	.128	.832	12,735,787
(3)	1,500 occupation FEs; 1,001,879 company FEs	.181	.152	.838	9,499,415
(4)	1,154,528 exact job title × company FEs	.242	.222	.916	5,300,382

Notes: This table reports the conditional means for the share of men and women who report at least one of the three leadership skills: "leadership," "team building," or "team leadership." The conditional means are computed from the predictive margins at the mean values of the controls. The underlying regression and full standard errors are reported in Appendix Table A1. All standard errors are clustered on exact job title × company and are less than 0.001.

Table 1 reports the share of men and women who report having at least one of the three leadership skills. In models (2) - (4), these shares are reported as the predictive margins of $female$ at the mean values of the reported controls.

Selecting a baseline model involves tradeoffs. Model 1, with no controls, is the simplest specification. However, differences in self-reported leadership skills likely reflect large differences in the composition of the jobs held by men and women. These compositional effects are interesting and important in their own right, as they reflect both supply and demand-side dynamics leading up differences in the skills that men and women report, including differences in fields of study, differences in the careers that people pursue, and differences in recruitment and advancement opportunities. However, the goal of the paper is to examine how similar men and women report differences in skills. Model 2, my preferred specification, uses detailed occupation and seniority effects to control for these differences. Model 3, which includes 1,500 occupation effects and 1,001,879 company fixed effects, is more fine-grained but also loses about a quarter of the estimable sample. Singletons in this specification typically have individuals who are unique within the sampled job within the firm.[6] Given that LinkedIn profiles are labor market-facing documents, it is less clear whether controlling for employer is conceptually important. Model 4 adopts the finest controls: 1,154,528 combinations of exact job titles and company effects, at the price of losing more than half the estimable sample because not all job titles within firms have multiple people. Power is less of a concern: Model 4's sample remains large enough for highly precise estimates relative to the observed gender gaps in self-reported skills. However, this sample introduces selection concerns, as the sample shifts toward larger jobs within larger firms. The selection concern of Model 4 also manifests in the share estimates for both men and women: in Model 4's estimable sample, both men and women are much more likely to report leadership skills than the population as a whole.

[6]The estimable sample also shrinks due to singletons because the initial sample is randomly drawn from job titles and companies, not just companies. Dropped companies may have both men and women, but not in the sampled job.

Section 2.4 notes that women may have a lower probability of reporting leadership if they infrequently update their profiles. The data do not support this is the case. For this to drive results, women would need to have more out-of-date profiles, and out-of-date profiles should be less likely to report leadership skills. We can test both of these, and also reconduct the analysis using the days since the profile was last updated at the time that the profiles were scraped. Turning first to the question of whether women more rarely update their profiles, the distributions for update recency are nearly identical for men and women (Appendix Figure A3). The quartiles for days since updating in the raw data are 13, 35, and 46 for men and 13, 35, and 48 for women, and fewer than 10% of scraped profiles hadn't been updated in the past year for both sexes.[7] Second, there is a precisely-estimated near-zero relationship between the number of days since the profile was last updated and the probability that the profile lists leadership skills in the regressions used to estimate the models in Table 1. Taken together, controlling for the log-days since the profile was updated has no substantial effect on the estimated gender gap in reporting leadership skills. The regression coefficient on female remains within 0.001 (-.0350 and -0.0257) in both the raw and baseline specifications (Appendix Table A2), and the predictive margins and estimated gaps reported in Table 1 are also identical within 0.001 for all models.

4.2 The gender gap in the other most commonly listed skills

Next, I examine the gap in other self-reported skills. Doing so serves multiple purposes. First, the analysis examines whether results are driven by any one of the terms "leadership," "team building," or "team leadership." If we interpret these skills as identical, then the failure to find a gap in all three might constitute a failure of robustness. If we interpreted these terms to be slightly different, then differences could hint at the specific features that women decline to list. Second, the analysis allows us to compare different stereotypical aspects of leadership not included within this narrow set, like negotiation and teamwork. Third, the analysis examines whether women generally list fewer skills, or whether there is something unusual about leadership.

To provide a simple illustration of the gender gap that accounts for differences in occupation and seniority, I reestimate the baseline specification for each of the 20 skills that are most commonly listed among men and women on LinkedIn. I then divide the predictive margin for women by the predictive margin for men, yielding a the ratio that men and women report these skills controlling for occupation and seniority.

Figure 1 shows substantial heterogeneity in the skills that men and women select to put on their profiles, even within the same occupation and level of seniority. The greatest gender differences are

[7] Comparing log-mean days since the last update among men and women, women have a mean of 3.531 (sd 1.455, s.e. 0.00101) and men have a mean of 3.4953 (s.d. 1.424, s.e. 0.000979). This gap is a statistically significant, but precisely-estimated difference that corresponds to about one day: 34.16 for men and 32.96 for women.

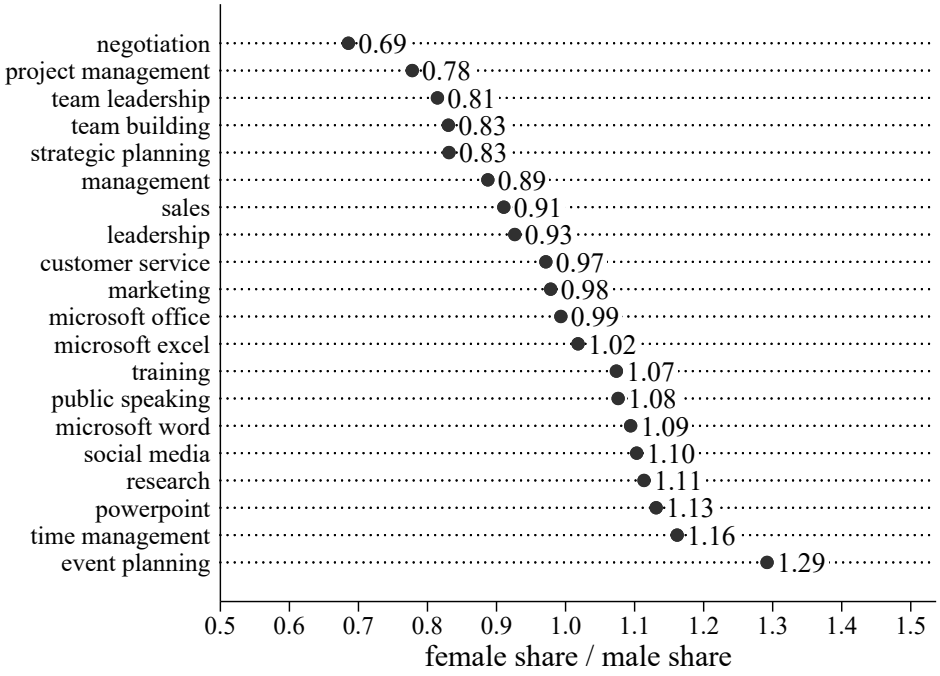


FIGURE 1
Gender gap in reporting the top-20 skills, controlling for occupation and seniority

Relative shares of men and women who list each of the top-20 most frequently-listed skills.

in negotiation, project management, and team leadership. These categories are consistent with a literature that has asserted that women avoid negotiation and competition, are stereotypically less agentic, and are averse to leading others (Babcock and Laschever, 2009; Niederle and Vesterlund, 2007; Eagly and Karau, 2002; Haegele, 2024). In contrast, women are more likely to list support-related skills, again, even within the same occupation and seniority. These include skills in office productivity software, time management, and event planning, which might be interpreted as skills aligned to "non-promotable tasks" (Babcock et al., 2017). To examine whether women's aversion to listing leadership skills reflects an aversion to team-related activities generally, I also examine the relative likelihood that women list "teamwork." Unlike the skills that involve leading others, women are more likely to report teamwork skills: 41.5% in the raw gap specification, 10.9% in the baseline specification, and 7.3% when controlling for exact job title by firm.

5 What drives the self-reported leadership gap?

The previous section establishes that men and women differ to the extent that they list leadership and related skills. Next, we ask: under what circumstances is the gap relatively small? If the gap appears to be constant across environmental circumstances, then it suggests relatively little scope

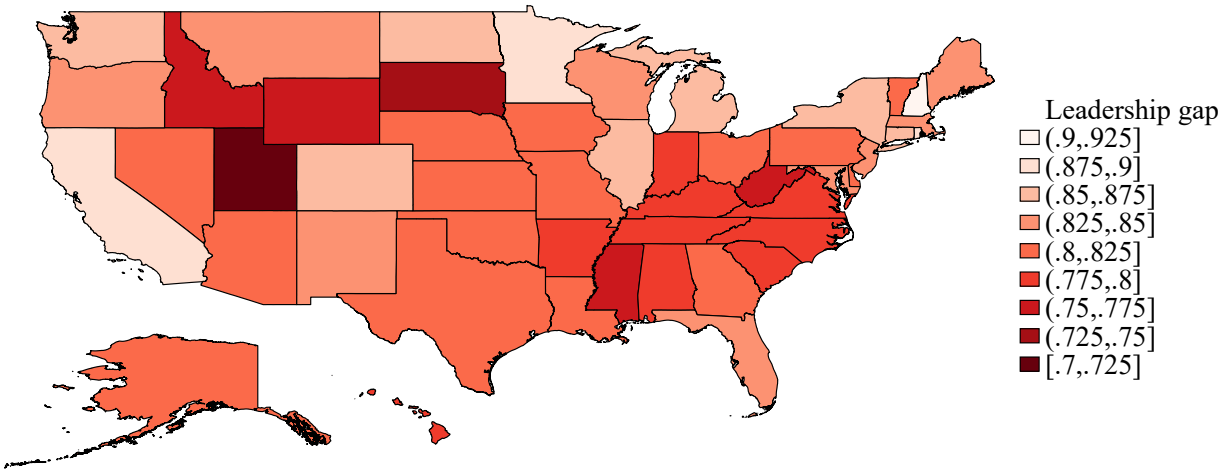


FIGURE 2
Gender gap in self-reported leadership skills by state

The map reports the share of women reporting leadership skills minus share of men reporting leadership skills, controlling for 1500 occupations and seniority.

for environmental changes to reduce this gap. If instead there are some circumstances in which the leadership gap is reduced or eliminated entirely, then it suggests that the existence of the gap is not due to any inherent or immutable differences across genders, but rather a product of circumstances that arose pre-market or in anticipation of responses from the demand-side.

5.1 Socially conservative states

Conceptually, one of the advantages of examining geographic variation is that people and work in states for reasons unrelated to job opportunities. For instance, nearly six in ten adults live within ten minutes of where they grew up (Sprung-Keyser et al., 2022). However, states vary widely with regard to their economic, political, and social environment, including their norms around gender roles at home and at work. To conduct the analysis, I run the baseline specification with the fifty US states interacted with $female$, and examine the coefficients on the interactions.

Figure 2 shows the extensive variation in the statewise self-reported leadership gap that persists after controlling for occupation and seniority. Dividing the share of women who report leadership skills by the share of men, the biggest gaps are in Utah (70.1%), South Dakota (74.4%), Idaho (76.2%), West Virginia (77.2%), and Wyoming (77.4%). Utah is also distinct along many economic, social, and cultural dimensions, and is particularly distinct with regard to the influence of the Mormon Church. A study by the Pew Research Center estimates that 55% of Utah's residents are

Mormons, versus 1.6% nationwide (Pew Research Center, 2024). A report by the Utah Women and Leadership Project found that Utah lags other states across several measures of political and economic representation (Anderson and Madsen, 2024). Neighboring Idaho and Wyoming, which also have large Mormon populations, also have among the largest self-reported leadership gaps. These gaps are larger without controlling for occupation and seniority (respectively 62.6%, 70.0%, 69.8%, 66.6%, and 70.2%), suggesting that sorting magnifies effects. The states with the most equal shares of men and women reporting leadership skills are New Hampshire (90.2%), Rhode Island (88.7%), Minnesota (88.2%), California (88.1%), and Illinois (85.8%), respectively 83.4%, 82.3%, 85.2%, 85.6%, and 84.4% in raw gaps. States vary widely in the raw the average share of men and women who report leadership skills: 10.3% to 17.8% in raw shares, or 11.1% to 17.2% adjusting for baseline controls. However, states with smaller gaps are not systematically more likely to have higher or lower rates of reporting leadership skills, and there is not evidence that smaller gap is due to men reporting at especially low rates or women reporting at especially high rates (Appendix Figure A1.

To provide another example of variation by state, I investigate the skill gap in Utah with California, the latter of which is the most populous state and the state with the smallest raw self-reported leadership gap (Appendix Figure A2). Women in California are more likely to report all of the top-20 skills in compared to women in Utah. This suggests that, whatever the reasons women in some areas are less likely to report leadership skills, they appear to be less likely to report other common skills as well. In the case of "team leadership," the share of women reporting the skill divided by the share of men reporting the skill after controling for role and seniority is 70% in Utah and 83% in California. The same for "team building" is respectively 75% vs 85%, and the same for "leadership" is respectively 84% vs 96%. The case of leadership is especially important, as it is the third most common of all skills: the 2,123,421 people who report leadership is more than twice as large as team building (1,007,203) and thrice as large as team leadership (680,980). The 96% share in California reflects that the gap for this particular skill is nearly nonexistent in this state after job and seniority controls.

What is special about states that have a larger self-reported leadership gap? To examine this question, I compare the gap by measures of economic and social indicators. Figure 3 reports results.

Panels (a), (b), and (c) come from 18-65 year olds in the 2018-2022 American Community Survey 1% samples (Ruggles et al., 2010). Panel (a) reports the share of women reporting leadership skills by the gender pay gap. To do so, I estimate the gender pay gap from the female coefficient from state-level Mincer wage regressions.[8] Panel (b) estimates the share of households in that state that are coded as "opposite-sex husband/wife/spouse household," as a share of all married and unmarried

[8]For workers in each of the fifty states, the regression takes the form $\ln(wage)_i = female_i + education_i + age_i + age_i^2 + year_i + \epsilon_i$, where wage is estimated from the annual age income divided by usual hours worked per weeks times weeks worked last year, and education is a linear term for the worker's general-version years of education.

opposite-sex and same-sex households. Panel (c) uses the mean number of children among women. Panels (d), (e), and (f) come from the Religious Landscape Study of the Pew Research Center (2024). Panel (d) reports the share of adults who report attending religious services at least once per week. Panel (e) reports the percent of adults who identify as conservative, rather than moderate, liberal, or don't know. Panel (f) relates the percent of adults who strongly favor or favor same sex marriage.

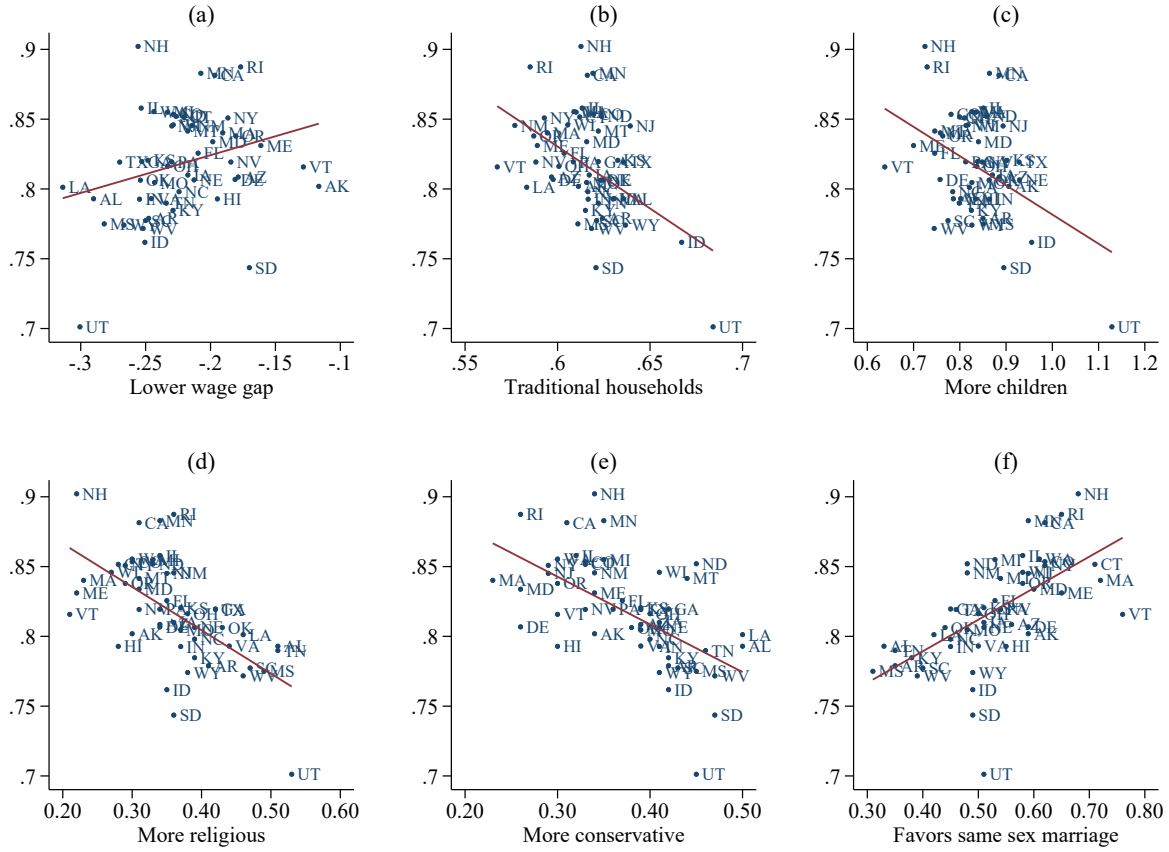


FIGURE 3
Self-reported LinkedIn leadership skills by state characteristics

The figures report the share of women reporting leadership skills divided by men reporting leadership skills on LinkedIn by other state characteristics. Panels (a) - (c) come from the ACS. Panels (d) - (f) come from the Pew Reserarch Center.

The six variables are highly correlated with each other to provide reliable simultaneous estimates within the same regression. However, the correlations of -0.693, -0.617, and 0.682 in panels (d), (e), and (f) are stronger than the correlations of 0.441, -0.459, and -0.314 in (a), (b), and (c), implicating the importance of socially conservative values in explaining statewise variation in the self-reported gender leadership gap. Additional descriptive statistics are in Appendix Table A6.

Lastly, to gain further clues as to the drivers of the self-reported gender leadership gap, I compare the ratio of women reporting leadership as a share of men reporting leadership from the predictive margins of the baseline regression (Appendix Table A7. The largest such gaps are in Belarus (31.1%), Monaco (43.5%), the Czech Republic (67.5%), Poland (67.5%), France (68.4%). The ratio is highest in Iceland (106.7%), Moldova (101.2%), Montenegro (94.6%), Estonia (93.9%), Latvia (90.5%). Oft-studied Nordic countries Norway (89.8%), Sweden (82.4%), and Finland (90.2%) are relatively equitable, though Denmark (68%) is sixth least-equitable behind France.

5.2 Firms with poor work-life balance

A substantial literature proposes that women are less likely to advance due to challenges of simultaneously pursuing both career and household production (e.g. Bertrand, Goldin and Katz, 2010). Motivated by this hypothesis, I examine whether women and men in firms with more favorable work-life balance are more likely to report leadership skills.

Doing so requires merging the LinkedIn data with data from another large platform, Glassdoor, which supplies ratings of employers by incumbent workers. The platform specifically asks raters to assess their employers on dimensions that are difficult for jobseekers to observe directly, including work-life balance (Sockin and Sojourner, 2023). Once again, the data come from Revelio 4.0, and include a 10,376,750 user reviews of 61,784 companies, which was cleaned so that it may be matched to the LinkedIn data. 18.7% of the LinkedIn sample could be matched to their employer on Glassdoor.

Figure 4 shows the probability that a LinkedIn user reports a leadership skill by their employer's work-life balance rating on Glassdoor. Several patterns clear. First, both men and women are more likely to report that that they have leadership skills on LinkedIn when they are at firms with higher ratings for work-life balance on Glassdoor. This is the case in both in the raw data (Panel a) and controlling for occupation and senioirty (Panel b), and it is also the case for both men and women. Second, this effect is *especially* strong for women. Regression models are reported in A5.

To provide a sense of the magnitudes, we can examine workers whose employers have a work-life balance rating of less than 2.864 or greater than 3.924, which would respectively put them in the bottom and top deciles. In Panel (a), workers at low-rated employers have the lowest overall rates of reporting leadership skills and also the largest gender gaps. At the lowest decile, 16.2% of men and 11.9% of women report leadership skills. Workers at high work-life balance employers have both the highest rates of self-reported leadership skills and also the smallest gaps. In the top decile, 20.3% of men and 19.6% of women report leadership skills, nearly closing the gap entirely.[9] Panel (b) shows that some of this effect is due to occupational and seniority composition, possibly as the result of

[9]In the high work-life balance sample, the estimate for men is 0.20345 (se=.0030011), and the estimate for women is 0.19628 (se: .0024871). Overall, it is .15781 (se 0.00014) for men and 0.12283 (se 0.00014) for women.

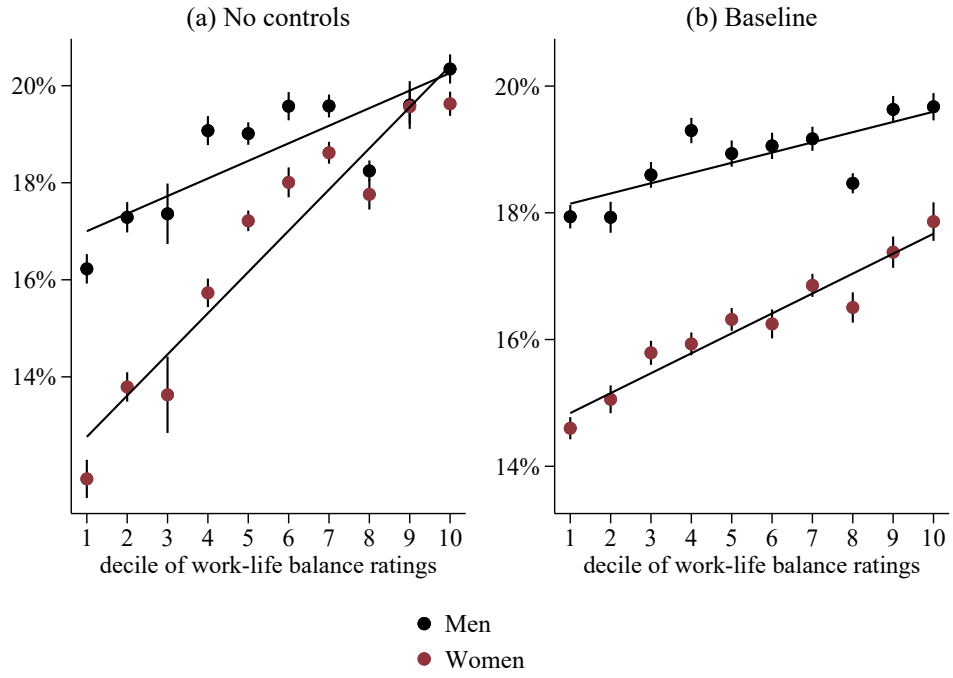


FIGURE 4
Self-reported LinkedIn leadership skills by Glassdoor work-life balance ratings

The figure shows the share of men and women who report a leadership skill on their LinkedIn profile by deciles of their employer's Glassdoor work-life balance ratings, among the 2,383,980 workers in the 10% sample whose firms are matchable across LinkedIn and Glassdoor. Panel (b) reports predictive margins for men and women at the unconditional mean values of job and seniority. Spikes show standard errors.

sorting by women into jobs and companies that have more favorable work life balance. Nonetheless, more highly-rated worklife balance has especially large positive effects on the share of women who report leadership skills. Taken together, work-life balance considerations appear to be a major reason that women are less likely to report leadership skills; some of this is due to the occupations that men and women enter, but it may also be ameliorated at companies with better work-life balance.

This analysis, based on the 18.7% of users who have matchable work-life balance ratings, may not reflect the true relationship between a worker's work-life balance and their decision to list leadership skills. Measurement error in work-life balance presents one concern. Work-life balance ratings on Glassdoor may reflect response bias, aggregation bias (not all workers at a company have the same work-life balance), and classical measurement error from firms with fewer ratings. These forms could yield attenuation bias that reduces the estimated relationships between work-life balance and reporting leadership. However, these are less of a concern because we are not principally interested in a precise estimate of the effect of the unit increase in Glassdoor ratings, but rather its correlation and similar bias for men and women. The second, potentially greater issue is the selection of employers

rated on Glassdoor and whether the employer listed on the LinkedIn user's profile is sufficiently unambiguous to allow for matching. Fortunately, the employer's headcount presents an intuitive and tractable instrument for a Heckman selection model.

To implement the selection model, I begin by estimating a probit for the probability of having a matched work-life balance rating on Glassdoor based on the number of LinkedIn users at that employer. In the second stage, I estimate the raw and baseline models with the inverse Mills ratio. The models take the form:

$$\text{Prob}(s_i = 1 | loghead count_i) = \Phi(b_1 * headcount_i) \tag{3}$$

$$leading_i = \beta_1 female_{ijk} + \beta_2 wlb_k + \beta_3 female_{ijk} wlb_k + \theta_j + \gamma_k + \rho\sigma_u \lambda(b_1 * headcount_i) + \varepsilon_i \tag{4}$$

where s_i indicates worker i is at an employer with a work-life balance rating on Glassdoor, $headcount_i$ is the logarithm of the count of workers employed at worker i's firm as estimated from the number of users on LinkedIn, and wlb_k is the Glassdoor work-life balance rating at employer k.

Examining the first stage, large employers are more likely to have matchable Glassdoor work-life balance ratings. The coefficient on $headcount_i$ is 0.203 (s.e.=0.0001405) and the pseudo-R^2 is 0.2104. In the second stage of the raw model, $\rho = -0.131$ (s.e.=0.0162), and the Wald test of independence rejects that the unobserved determinants of being unrated on Glassdoor are uncorrelated with work-life balance ratings. It also implies that non-selection adjusted model slightly underestimates the effect of work-life balance on the probability women report leadership skills. The primary driver of the difference appears to be differences in reporting leadership skills across employers rated on Glassdoor: women tend to be at slightly larger firms than men, and workers whose employers are not on Glassdoor tend to be smaller and have fewer workers reporting leadership skills.[10]

Table 2 reports OLS and and the second stage of the selection model for the raw and baseline specifications. In all models, the work-life balance coefficient is positive and its interaction with $female_i$ is also positive, signifying that both men and women are more likely to report leadership skills at employers with higher work-life balance ratings. The coefficients on the these terms are also similar, suggesting that women are about twice as responsive to higher work-life balance ratings than men. Coefficients are generally very similar across models, except model (4), where coefficients are smaller.

The analysis also lends itself to the question: under the assumption of linearity, what work-life balance rating would equalize the share of women who report leadership skills? Across the four models, the predicted values of men and women are equalized at work-life balance ratings of 4.14,

[10]The average log-headcount at firms with and without Glassdoor ratings is respectively 8.16 vs 4.12, the share of workers reporting leadership skills is respectively 17.7% vs 13.2%, and the mean employer log-headcount is 5.01 for women and 4.84 for men.

Table 2: Heckman selection model for the relationship between self-reported leadership skills by Glassdoor work-life balance ratings

	OLS (1)	Heckman (2)	OLS (3)	Heckman (4)
Female	-0.115***	-0.122***	-0.115***	-0.0573***
	(0.0105)	(0.0115)	(0.0105)	(0.00648)
Work-life balance rating	0.0233***	0.0225***	0.0233***	0.0106***
	(0.00338)	(0.00349)	(0.00338)	(0.00209)
Female × Work-life balance rating	0.0278***	0.0297***	0.0278***	0.00896***
	(0.00307)	(0.00337)	(0.00307)	(0.00189)
Inverse Mills ratio		-0.0502***		-0.0479***
		(.00641)		(0.00228)
Constant	0.107***	0.167***	0.107***	0.207***
	(0.0120)	(0.0167)	(0.0120)	(0.00750)
Occupation FEs			Yes	Yes
Seniority FEs			Yes	Yes
Observations	2383980	2383980	2383980	2383979

Notes: Standard errors clustered on raw job title × company in parentheses. * $p < .1$, ** $p < 0.05$, *** $p < 0.01$.

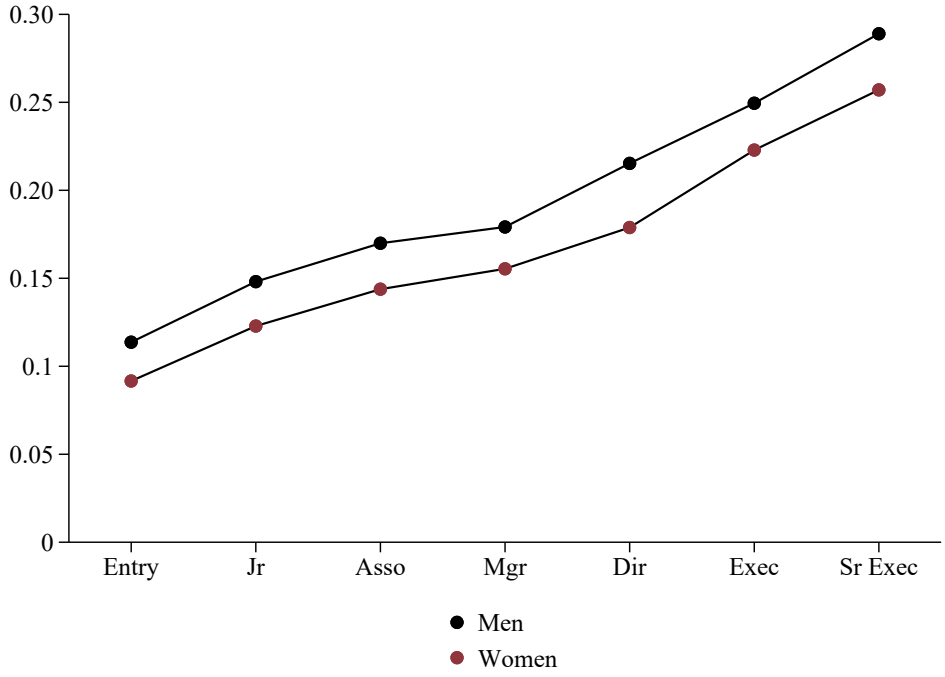
4.11, 4.14, and 6.40 out of a possible 5.0. Work-life balance on Glassdoor has a mean of 3.41 and a standard deviation of 0.442, and the 95th percentile of work-life balance is 4.07. These point estimates also line up with the analysis restricting the sample to firms in the top decile of Glassdoor work-life balance ratings, where the percentage point difference of the gender gap in leadership skills is only 0.007 (se: 0.004), versus 0.0305 (se 0.0002) overall.[11] Together, results suggest that it is plausible that many employers with the most favorable work-life balances fully close the gap in self-reported leadership skills.

5.3 Occupational characteristics

Next, I examine heterogeneity across occupations and seniority. Seniority is partly constructed using occupation, along with estimated age and job history, and both are included as controls in the baseline model. To examine their effects separately, all analyses in this section report raw means by gender, rather than conditional means estimated from the predictive margins of the baseline model.

[11] In the high work-life balance sample, the estimate for men is 0.20345 (se=0.0030011), and the estimate for women is 0.19628 (se: 0.0024871). Overall, it is 0.15781 (se 0.00014) for men and 0.12283 (se 0.00014) for women.

FIGURE 5: SHARE OF MEN AND WOMEN REPORTING LEADERSHIP SKILLS BY SENIORITY



NOTES: The figure reports the relative shares of men and women who list leadership skills at seven levels of seniority. Standard errors, clustered on company × job title, are less than 0.003.

Figure 5 reports the share of men and women reporting leadership skills at each of the seven levels of seniority. This gap is largely parallel: it grows in percentage point terms with seniority, but stays roughly constant in relative likelihood. I interpret this as evidence that women at all career stages are less likely to report leadership skills.

Next, I examine heterogeneity by occupation. To do so, I begin from the collapsed 150-category occupation created by the data provider from the role titles provided by users, and calculate the share of women reporting leadership skills as a fraction of the men. Among the thirty largest 150-category occupations, the five with the largest gap are medical representatives (52%), machine operators (56%), accountants (64%), case managers (65%), and corporate trainers (66%). The five in which women are relatively likely to report leadership include technicians (112%), student interns (102%), producers (99%), mechanical engineers (97%), and marketers (96%). Other notable occupations often studied in the literature are more middling, including software engineers (70%), cashiers (77%), sales associates (78%), scientists (86%), economists (89%), and legal specialists (90%). Sales and related occupations have among the largest gender gaps in self-reported leadership skills. Perhaps surprisingly, many technical fields have relative parity; infrastructure engineers, DevOps engineers, application engineers, and electrical engineers all have more women reporting leadership skills than

men, though women compose relatively small shares of the workers in these occupations. Results suggest there is considerable heterogeneity across occupations and potentially considerable selection effects in who enters them.

5.4 Female leadership within the worker's firm

Are junior women more likely to report leadership skills when the ranks of managers at their firm have more women? Again, this heterogeneity analysis touches on a large literature that is motivated, in part, by the possibility that initial efforts to bootstrap women into management will eventually be self-sustaining.

The literature thus far has yielded mixed conclusions. Studies looking at gender concordance and bias among managers suggest a greater share of women in management will disrupt the preponderance of male-male homophily in social networks, evaluation, and mentoring (Abendroth et al., 2017; Alan et al., 2020; Benson, Li and Shue, 2024; Cullen and Perez-Truglia, 2023; Holub and Drechsel-Grau, 2021). Results from Porter and Serra (2020) suggest that managers may serve as role models who raise women's occupational aspirations, though Azmat, Cuñat and Henry (2024) finds that exposure to female partners in law lowers the aspirations of junior women. Senior female leaders may also have spillover effects lower in the organization because they dispel evaluators' gender stereotypes (Beaman et al., 2009). Others have argued for the "queen bee syndrome," that female leaders view other women as a threat and seek to suppress them (Staines, Tavris and Jayaratne, 1974).

The data are well suited to shedding a high-level light on this question. With few exceptions, the literature in this field has focused on single firms, largely because most major public use data sets lack matchable data on managers. These studies typically examine heterogeneity in advancement within a single firm, conditional on assignment to male or female managers, and then discuss potential implications of whether more female leaders would prompt the faster advancement of junior women. In contrast, the LinkedIn data provide highly-precise estimates of share of the managerial ranks filled by a women among a near-representative set of firms. They also invite replicability and further analysis of heterogeneity across companies. The chief limitation of the data versus some existing studies is that we do not focus on any one mechanism or any one institutional setting.

The analysis requires calculating the share of a firm's management who is female. Therefore, I begin by resampling 10% of the profiles, this time by company.[12] Next, I estimate a linear probability model where the outcome is listing a leadership skill, and the predictors are from the baseline specification, plus terms for the share of managers in the firm who are female and its interaction with $female_{ijk}$. So that the female shares are meaningful, I restrict the sample to workers in firms with at least ten men, at least ten women, and at least fifty total workers. Managers are defined as

[12]For replicability, the 10% sample comes from an MD5 hash of the company's name.

Table 3: Share of nonmanagers who list leadership skills by the share of women among their company's managers

Lists leadership	(1)	(2)	(3)	(4)
Female	-0.0316***	-0.0262***	-0.0249***	-0.0249***
	(0.000602)	(0.00144)	(0.00144)	(0.00141)
Company female share of managers	0.223***	0.117***	0.0890***	0.0853***
	(0.00404)	(0.0150)	(0.0143)	(0.0149)
Female × Company female share of managers	0.00133	-0.0303**	-0.0245*	-0.0215**
	(0.00543)	(0.0107)	(0.0105)	(0.0106)
Company's log person count				0.00276**
				(0.00103)
Constant	0.120***	0.128***	0.130***	0.112***
	(0.000429)	(0.00184)	(0.00188)	(0.00586)
Occupation FEs		Yes	Yes	Yes
Seniority FEs			Yes	Yes
Observations	3737581	3737581	3737581	3737581
DV mean	.124	.124	.124	.124

Notes: The table presents results from a linear probability model where the outcome is listing a leadership skill. The sample is drawn from non-managers (workers with seniority ratings of three or less), working at firms with at least 10 women, 10 men, and 50 total workers. Company manager female share is the share of managers (workers with seniority ratings of four or more) who are female, using the procedure described in the data section. Standard errors are clustered by company.

rank 4 or higher in the seniority variable (see the discussion of γ_k). Company manager female share is then the estimated female share of managers with seniority of at least 4 within the company. I estimate the sample among non-managers, who are not included when calculating in the calculation of the independent variable. Table 3 presents results.[13]

The table exhibits several patterns. Column 1, which reports the gap without controls, shows that *both* junior men and junior women are more likely to report leadership skills at firms with more women in leadership roles. The interaction term, which is precisely estimated and nearly zero, signifies the effect is similar for men and women. Column 2, which controls for 1,500 occupational categories, finds again that men are more likely to report leadership skills, and the effect of having female managers has a greater effect on junior men than junior women. This pattern and the point estimates are similar after controlling for seniority and company size. Results are similar when

[13]The procedure involves capturing the mean value of $female_i$ among the managers at a company. Typically, we would bootstrap standard errors to reflect measurement error before regressing on the new variable. In this case, I use observed mean, under the premise that we are not sampling from workers' profiles, but rather taking the full population of profiles within the sampled company. We could conceive that the observed gender distribution of managers reflects the company's sampling based on an unobserved true probability that the company would have a female manager for any given position, but we set aside this complication for simplicity.

estimating the probability of reporting leadership skills for all workers in the firm, rather than just junior women (Appendix Table A4).

Put together, results warrant caution over the proposition that the presence of more female leaders in the firm will encourage more of their juniors to aspire to leadership roles themselves. Though this basic claim appears to be the case, it is more true for men than for women. This does not imply that having female leaders is harmful to women, as advancement to leadership roles is not zero-sum within organizations. Both men and women may simultaneously take initiative to lead additional projects within the same organization, or junior women exposed to more female managers may be more inclined to seek leadership roles outside the firm as well.

The results also require caution as they are likely estimated in the presence of endogeneity. For instance, suppose some firms make a stronger commitment to promote more women. This could affect both the share of women in leadership roles and also the share of women who report leadership skills. Nonetheless, this particular form of endogeneity would presumably bias the interaction effect positively, as firms with more female leaders would also have more women reporting leadership skills. This arguably makes it more surprising that, in firms with more female managers, men receive a bigger boost to their likelihood of reporting leadership skills than women.

My preferred interpretation is to think of this as a descriptive result rather than a causal result, albeit one that presents a cautionary data point for those who believe that efforts to place more women in leadership roles would be self-sustaining. Descriptively, firms with more women who occupy leadership roles have larger gaps in their lower-level subordinates who report leadership skills.

6 Discussion

This study documents a gap in the share of men and women who report leadership skills on their LinkedIn profiles, even among workers at the same company and holding the same title. This gap is important because recruiters use reported job skills as the basis for soliciting potential job candidates, a use that the platform makes clear to users. Moreover, LinkedIn uses the candidate's jobs as the basis for suggesting skills to add to their profile. Because women are less likely to report leadership skills controlling for jobs, women may be skipping over these skills when completing their profiles.

The study documents that the self-reported gender leadership gap also mirrors a broader set of aversions also documented in the literature, such as that women stereotypically avoid competition, negotiation, and agentic jobs, or may lack confidence or be more risk-averse. A reader could interpret this literature to signify that these traits are inherent qualities of women. However, the heterogeneity documented in these data rebut this proposition. If an aversion to leading or reporting leadership

were innate, we would presumably see similar self-reported leadership gaps across geographies and cultural characteristics. However, the self-reported leadership gap is not equally shared among environmental circumstances. Rather, the near-unreplicability of this gap in some states and its sharp decline at companies with more favorable work-life balance suggest that the decision to list leadership skills is also driven by environmental factors. Therefore, the analysis both corroborates what others have found, while also adding that social circumstance is very important, much in the line with those who argue that the markers of discrimination are systemic (Azmat, Cuñat and Henry, 2024; Bohren, Hull and Imas, 2022; Correll, 2004).

Other themes in the literature are less reflected in these data. For instance, the glass ceiling hypothesis, which holds that women reach a certain point and then fail to go higher, is not reflected by a parity in self-reported leadership skills as low levels followed by a discontinuous drop at any one seniority level. Rather, women report lower rates of leadership at all seniority levels, suggesting that the rarity of women at the top of organizations is cumulative. Others have hypothesized that more women in management may seed the advancement of lower-level women. However, firms with more women in management have a greater effect on the self-reported leadership of lower-level men than on women. These are large and complex literatures, and the large-scale supply-side approach taken by this paper departs markedly from the approaches that research in these areas have used in the past. The analysis of LinkedIn profiles provides a unique perspective for understanding the drivers of the gender leadership gap.

More broadly, online profiles used by jobseekers and recruiters pose a number of distinctive opportunities for researchers. Because online profiles are entirely products of a worker's choice, they allow researchers to "control" for demand characteristics and analyze one aspect of the matching process that is entirely in control of workers. Online profiles feature enormous variety that could help researchers contextualize narrower studies and examine heteroegeneity in established results.

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7 Appendix figures and tables

Table A1: Regression results controlling for log-days since the profile was updated

Lists leadership	(1)	(2)	(3)	(4)
Female probability	-0.0350	-0.0257	-0.0294	-0.0204
	(0.000208)	(0.000221)	(0.000275)	(0.000376)
Occupation FEs		Yes	Yes	
Seniority FEs		Yes		
Company FEs			Yes	
Exact title × Company FEs				Yes
Observations	12735787	12735787	9499415	5300382
DV mean	.141	.141	.167	.232

Notes: Standard errors clustered on company × job title in parentheses. The models are the same used to compute predictive margins in Table 1.

TABLE A2: REGRESSION RESULTS CONTROLLING FOR LOG-DAYS SINCE THE PROFILE WAS UPDATED

	(1)	(2)	(3)	(4)
Female probability	-0.0350***	-0.0257***	-0.0293***	-0.0203***
	(-97.72)	(-82.43)	(-73.17)	(-33.17)
Log-days since	0.00318***	0.00238***	-0.000264*	0.00205***
profile updated	(31.34)	(25.71)	(-2.32)	(12.62)
Constant	0.147***	0.145***	0.182***	0.235***
	(270.39)	(341.32)	(345.34)	(343.09)
Observations	12682224	12682224	9455990	5274629

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

NOTES: This table reproduces Table A1 with a control for the log of the days since the profile was updated at the time the profile was scraped, where the margin is reported at the mean of the log-days since the the profile was updated.

Table A3: Predictive margins for the share of men and women reporting leadership skills controlling for update recency

Model		Men	Women	Gap	Estimable sample
(1)	No controls	0.158	0.123	0.778	12682224
(2)	1,500 occupation FEs; 7 seniority FEs (baseline)	0.153	0.127	0.832	12682224
(3)	1,500 occupation FEs; 1,001,879 company FEs	0.181	0.152	0.838	9455990
(4)	1,154,528 exact job title × company FEs	0.242	0.222	0.916	5274629

Notes: This table reproduces Table 1 with a control for the log of the days since the profile was updated at the time the profile was scraped, where the margin is reported at the mean of the log-days since the the profile was updated.

TABLE A4: SHARE OF ALL WORKERS WHO LIST LEADERSHIP SKILLS BY THE SHARE OF WOMEN AMONG THEIR COMPANY'S MANAGERS

Lists leadership	(1)	(2)	(3)	(4)
Female	-0.0377	-0.0288	-0.0254	-0.0255
	(0.00165)	(0.00107)	(0.00108)	(0.00109)
Company manager female share	0.261	0.148	0.0421	0.0434
	(0.0250)	(0.0107)	(0.0110)	(0.0110)
Female × Company manager female share	-0.0279	-0.0493	-0.0377	-0.0344
	(0.0161)	(0.00950)	(0.00965)	(0.00965)
Company's log person count				0.00360
				(0.000372)
Constant	0.142	0.151	0.159	0.136
	(0.00255)	(0.00110)	(0.00126)	(0.00231)
Occupation FEs		Yes	Yes	Yes
Seniority FEs			Yes	Yes
Observations	4882214	4882213	4882213	4882213
DV mean	.149	.149	.149	.149

NOTES: This table reproduces Table 3 for all workers rather than nonmanagers.

TABLE A5: REGRESSION RESULTS FOR WORK-LIFE BALANCE

Lists leadership			
	(1)	(2)	(3)
Female	-0.115	-0.0589	-0.0546
	(0.00852)	(0.00561)	(0.00562)
Work-life balance	0.0233	0.0147	0.0109
	(0.00239)	(0.00140)	(0.00143)
Female × Work-life balance	0.0278	0.00844	0.00836
	(0.00249)	(0.00165)	(0.00164)
Constant	0.107	0.140	0.152
	(0.00820)	(0.00483)	(0.00490)
Occupation FEs		Yes	Yes
Seniority FEs			Yes
Observations	2383980	2383979	2383979
DV mean	.177	.177	.177

NOTES: This table reports linear probability model regression results for the probability a worker reports leadership skills on LinkedIn by their employer's work-life balance rating on Glassdoor. Standard errors are clustered on company × exact job title.

TABLE A6: STATE CHARACTERISTICS AND THE SELF-REPORTED LEADERSHIP GAP

	Men		Women		
State characteristic	Top-25	Bottom-25	Top-25	Bottom-25	correlation
Lower wage gap	0.147	0.156	0.115	0.114	0.441
Traditional households	0.157	0.146	0.116	0.113	-0.459
More children	0.155	0.149	0.117	0.113	-0.314
More religious	0.155	0.148	0.112	0.117	-0.693
More conservative	0.158	0.147	0.114	0.115	-0.617
Favors same sex marriage	0.147	0.156	0.117	0.113	0.682

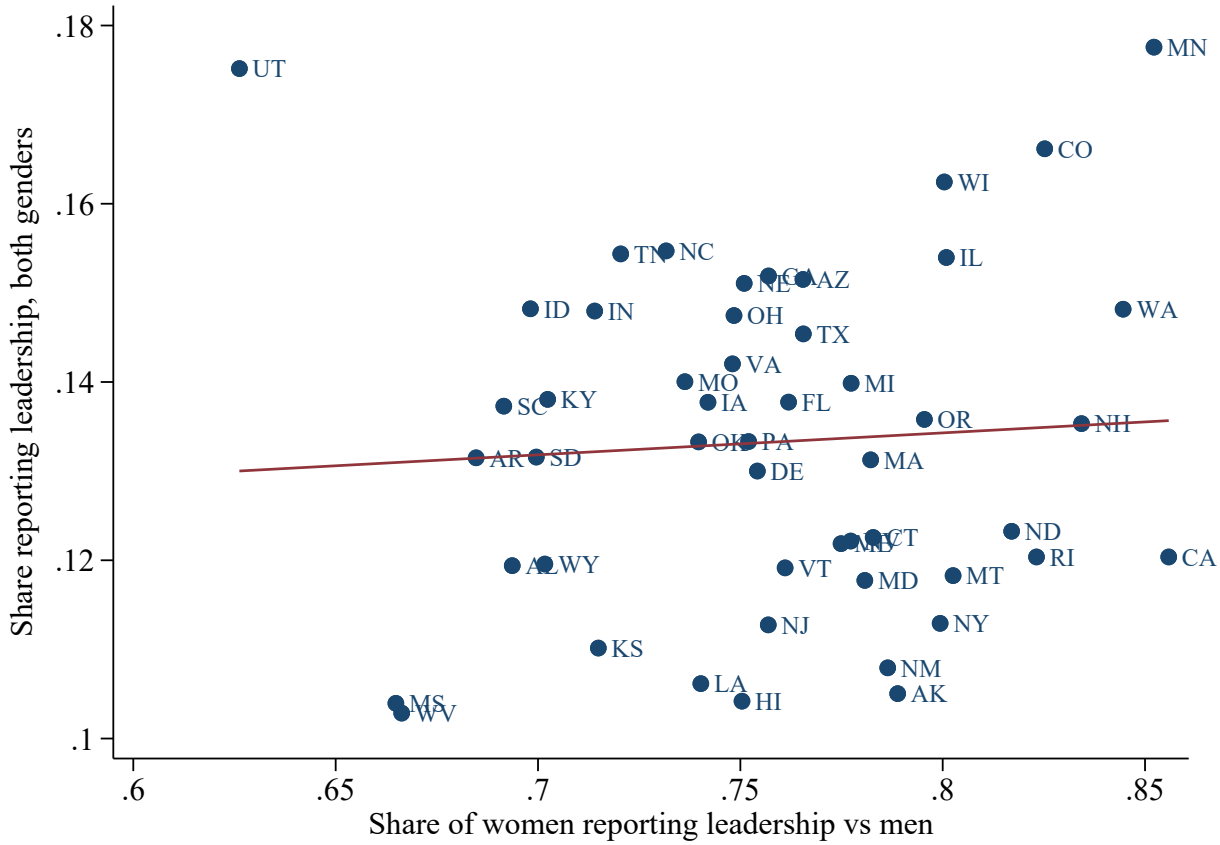
NOTES: This table reports the mean state's share of men and women who report leadership skills, by whether they are above or below the median state on the dimension in the row. Means are taken within state, the states are categorized as above- or below-median on the row dimension, and then the average is reported without reweighting by population. The correlation uses the continuous share, not the binarized variable.

TABLE A7: SELF-REPORTED LEADERSHIP GAP IN EUROPEAN COUNTRIES

Country	Share of men reporting leadership	Share of women reporting leadership	Ratio
Belarus	0.019	0.006	0.312
Monaco	0.073	0.032	0.435
Czech Republic	0.069	0.046	0.675
Poland	0.038	0.026	0.676
France	0.054	0.037	0.684
Denmark	0.068	0.048	0.702
Hungary	0.072	0.051	0.705
Romania	0.083	0.063	0.758
Spain	0.085	0.066	0.78
Austria	0.029	0.023	0.786
Greece	0.085	0.067	0.792
Ukraine	0.03	0.024	0.792
Malta	0.1	0.08	0.801
Belgium	0.053	0.042	0.802
Switzerland	0.054	0.043	0.803
Italy	0.068	0.055	0.818
Lithuania	0.074	0.061	0.82
Sweden	0.065	0.054	0.824
Netherlands	0.044	0.036	0.833
United Kingdom	0.106	0.088	0.834
Slovakia	0.071	0.06	0.848
Portugal	0.094	0.081	0.863
Slovenia	0.085	0.074	0.868
Germany	0.022	0.02	0.877
Croatia	0.081	0.071	0.88
Ireland	0.112	0.1	0.895
Norway	0.055	0.049	0.898
Finland	0.092	0.083	0.902
Latvia	0.062	0.057	0.905
Estonia	0.064	0.06	0.939
Montenegro	0.07	0.066	0.947
Moldova	0.035	0.036	1.012
Iceland	0.062	0.066	1.067

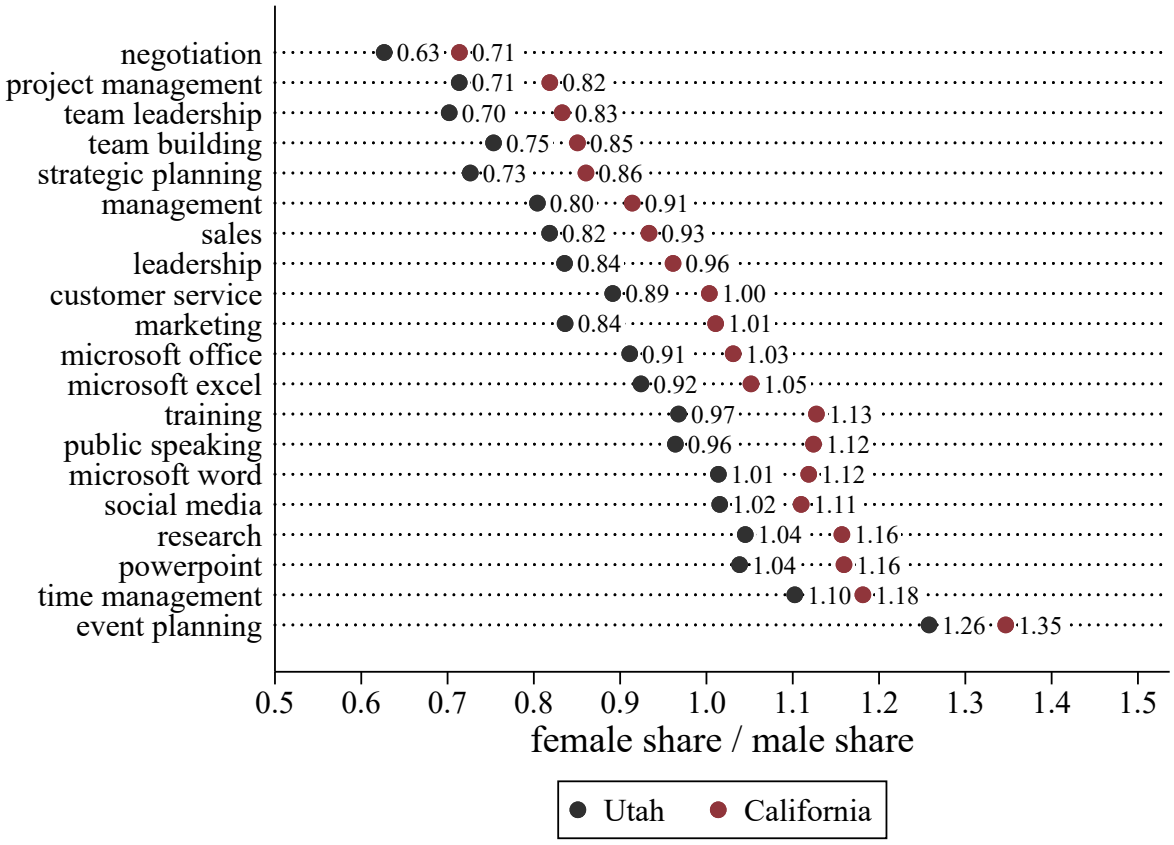
NOTES: The table reports baseline regression model predictive margins for the share of men and women reporting leadership skills, along with the ratio of women to men.

FIGURE A1: AVERAGE COMBINED SHARE OF REPORTING LEADERSHIP SKILLS, BY THE GENDER GAP ACROSS STATES



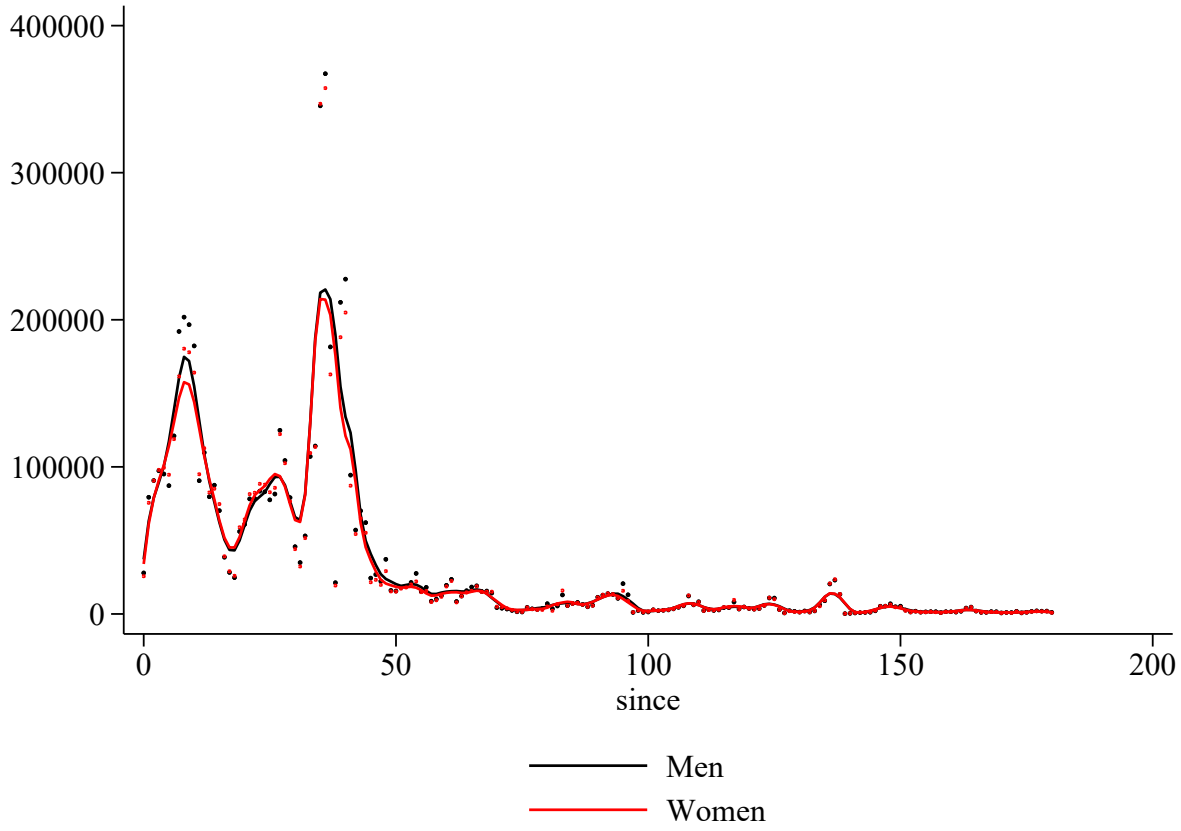
NOTES: This figure reports the average share of men and women (combined) on the y-axis who report leadership skills, by the share of women divided by the share of men who report leadership skills, for the fifty states. The line represents the OLS line across states, not weighted by population.

FIGURE A2: TOP-20 SKILLS IN CALIFORNIA AND UTAH



NOTES: This figure reports relative shares of men and women who list each of the top-20 most frequently-listed skills.

FIGURE A3: DAYS SINCE THE LINKEDIN USER UPDATED PROFESSIONAL PROFILE



NOTES: The scatterplot and lowess lines provide the number of days since the LinkedIn profile was last updated. The scatterplot peaks at October 2nd (36 days since an update) and neighboring dates. The first mode in the lowess curve corresponds to the end of August.