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Female leadership and gender equity: Evidence from plant closure ☆

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ABSTRACT

We use unique worker-plant matched panel data to measure differences in wage changes experienced by workers displaced from closing plants. We observe larger losses among women than men, comparing workers who move from the same closing plant to the same new firm. However, we find a significantly smaller gap in hiring firms with female leadership. The results are strongest among women who are displaced from male-led plants and from less competitive industries. Our results suggest an important externality to having women in leadership positions: They cultivate more female-friendly cultures inside their firms.

1. Introduction

Different firms, even those operating in the same lines of business, can have different sets of shared values and guiding principles. Just as individual managers play an important role in shaping the financial policies of their firms (Bertrand and Schoar, 2003), they can exert influence over the workplace culture, including wage-setting practices. Because wages, in turn, determine employee incentives, compensation policy could be an important mechanism

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through which managers affect firm value. A large literature in labor economics establishes the existence of gender disparity in wages. In the cross section, women receive 22% lower wages than men, controlling for differences in individual and occupational characteristics (Altonji and Blank, 1999). They are also less represented in upper levels of the corporate hierarchy. Women hold only 6% of US corporate chief executive officer (CEO) and top executive positions (Matsa and Miller, 2011b). We ask whether women in managerial positions create more female-friendly cultures, improving the outcomes of other women in their firms.

We use newly available worker-firm matched panel data from the US Bureau of the Census's Longitudinal Employer-Household Dynamics (LEHD) program to link gender pay disparity inside the firm with managerial style. We find that firms with more women in leadership roles have smaller pay gaps between men and women (controlling for worker characteristics) and also offer more equal pay to newly hired employees.

A challenge for our analysis is the endogeneity of the allocation of jobs across gender. Because women on average have shorter expected work lives and higher job turnover rates (Gronau, 1988), they could invest less in training and other forms of firm-specific human capital than men. As a result, they could choose to work in firms in which such capital carries less of a premium. Women could also bear a disproportionate share of family responsibilities, choosing to work in firms with more flexible hours or which minimize commute times. They could be more likely to reject outside opportunities with higher wages if they are more often the secondary earner in their families and cannot move to accept a new position. In addition, men and women could differ in risk aversion (Sapienza, Zingales, and Maestripieri, 2009) or in their attitudes toward competition or negotiation (Bowles, Babcock, and Lai, 2007; Niederle and Vesterlund, 2007), causing women to shy away from risky or highly competitive industries such as investment banking. Finally, women could make different job choices from men in response to discrimination in the labor market. If these differences in job choices are related to the sorting of women into leadership positions, then it is difficult to assess whether female leadership causes a reduction in pay disparity between men and women.

We take several steps to address these identification concerns. First, we use involuntary displacement due to plant closure as a way to address the endogeneity of job changes. If men and women voluntarily change jobs at different rates or time their job changes differently, then wage changes around the full set of job changes (or new hires) would be difficult to interpret. By measuring wage changes following job loss due to plant closure, we isolate a set of forced job changes. We use the Census Bureau's Longitudinal Business Database (LBD) to identify closures of US plants between 1993 and 2001. We link a subset of these plants to detailed worker-level information on demographics and quarterly wages from the LEHD data. The result is a novel panel data set of 461,449 workers in 9,244 closing plants covering 23 states. Because LEHD wage data extend to the first quarter of 2004, we are able to track workers displaced from closing plants for at least two full years following the closure. Our approach also removes differences between men and women in unobserved, time-invariant skills (or preferences), which could lead to differences in wage levels. Because such differences could also affect wage changes, we control for the pre-closure wage to capture these effects.

Next, we correct for differences in the job choices of men and women by estimating a pair fixed effects model that compares men and women from the same closing plant who move to the same new firm-unit in the year following closure. Thus, we estimate the difference-in-differences between men and women subjected to the same shock (i.e., the same involuntary job change). However, differences between men and women could remain even within each job change group. To address this concern, we compare the group means by gender across a host of observable characteristics such as age, race, education, and tenure. We find few economically meaningful differences. Unsurprisingly, we observe a significant within-group difference in ex ante wage levels between men and women. This difference is driven by the general gap in wages across genders. To show this, we compute the within-gender wage percentile for each worker by subtracting the mean wage for his or her gender and then normalizing by that mean wage. We do not find a significant difference between men and women in these percentiles within closing plant, hiring firm groups. Nevertheless, to correct for the effect of differences in ex ante wages, we perform a robustness check interacting fixed effects for each closing plant, new employer pair with fixed effects for categories of the ex ante wage. This specification identifies the effect of gender using only men and women who are sufficiently close together in the wage distribution, providing a less parametric correction for ex ante wage differences and ensuring, for example, that our identification does not rest on comparisons between bosses who make the same job change as their secretaries.

To conduct our main test, we use pay rank within the firm to identify the top management of each firm that hires displaced workers. We then classify hiring firms based on the percentage of women on the top management team, both in the hiring unit and the overall firm. We estimate the difference in wage changes for men and women displaced from the same closing plant who move to the same new firm and then compute the difference-in-differences across workers who move to new firms that are led by female managers and those who move to firms led by male managers. We again consider a robustness check that estimates the impact of female leadership on gender wage differences comparing only workers from the same closing plant moving to the same hiring firm who are also part of the same ex ante wage category. Because our goal is to identify the impact of management on the gender wage gap, a concern is that managers are not randomly assigned to firms. Women could hold top positions in female-friendly firms or industries. Moreover, trends toward greater gender equality and changes in firm cultures over time could lead to spurious correlation between declining gender wage gaps and female