Layoff Decisions at Women-Owned Businesses in the United States*

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Abstract

This paper finds that women-owned private firms were less likely than firms owned by men to lay off workers during the recent recession. Women-owned firms were about 25 percent less likely to reduce their workforces than firms owned by men, even after controlling for industry, size, and profitability. Women-owned firms also paid a larger share of their revenues in payroll and were less likely to outsource business functions or to hire contingent or leased workers. Public companies with majority female boards also undertook fewer layoffs. These patterns suggest labor hoarding may be an aspect of a female business leadership style.

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"Women's empathy enables them to look at business issues through a wide angle lens."

–Susan T. Spencer, Entrepreneur (meat processing) and former NFL General Manager

There is growing evidence from economics and finance suggesting that individuals bring their own personal styles to managing their firms (see, e.g., Marianne Bertrand and Antoinette Shoar 2003), yet if and how women manage firms differently than men remains unclear. Although a large qualitative literature documents gender differences in the self-reported attitudes and leadership styles of business executives (e.g., Judy B. Rosener 1990), the few empirical studies in economics that look at gender in management focus on firms' bottom line – profits or value – without much analysis of *what* within firms women may be doing differently.

The question of how female business leadership might affect business outcomes is of increasing interest as women's representation grows. This trend will likely continue as more women obtain business training and as countries adopt policies aimed at expanding women's representation among business leaders. Norway adopted mandatory gender quotas for corporate board members in 2006, and was followed by Spain, the Netherlands, France, Iceland, and others. Vice President of the European Commission Viviane Reding supports an EU-wide quota if private companies fail to voluntarily increase female representation on their boards.[2]

This paper examines whether men and women differ in one economically and socially important business decision—whether to lay off workers when demand decreases. A business's retention of redundant workers during a downturn—"labor hoarding"—can preserve employee morale and reduce hiring and training costs after demand recovers. It may also stimulate the economy if rank-and-file workers have a higher marginal propensity to consume than owners of

[2] Knight, Mathew. 2011. "EU Warns Businesses: Put Women on Boards, or We Will." *CNN*, Feb. 11.

capital. The question of what firm characteristics contribute to layoff decisions is increasingly salient for economists and policymakers seeking to understand differential patterns in how the recent global economic downturn has affected unemployment rates in different sectors and regions. Recent research has uncovered sizable international differences in layoff rates during the recent recession (Michael C. Burda and Jennifer Hunt, forthcoming) and cross-firm differences in layoff rates related to family ownership (David Sraer and David Thesmar 2007). Sraer and Thesmar explain that family-owned firms are better able to maintain long-term implicit contracts with workers than companies with diffuse ownership and often short-term investors.

This study considers an additional factor that may also affect the relationships between firms and employees – the sex of the owners. Our analysis builds on previous survey evidence of gender differences in business leadership (Renée Adams and Patricia Funk 2011). For example, Ariel Rubinstein (2006) found, in a survey of business newspaper readers, that women would be less likely than men to lay off workers when presented with a hypothetical decrease in demand. Social psychology studies of female leadership also find that, more than men, women leaders tend to take into account the rights of others (Alice H. Eagly and Linda L. Carli 2007). This paper uses observational data on U.S. companies to test for gender differences in layoff policy.

I. Layoffs at Women-Owned Businesses

We focus first on privately held firms, whose owners' preferences and priorities determine the firms' overall goals and strategic priorities. We analyze data on employment and limited financial information for a panel of privately held U.S. firms from Bureau Van Dyjk's Orbis database for the years 2005 through 2009. The data include 2,059 firms identified as majority women-owned and controlled and 47,757 others. Bureau Van Dyjk is a data aggregator, and much of the underlying information is from Dun and Bradstreet (D&B). Data on private

firms are rare; D&B's data have been used by researchers to study employment outcomes, but the data are not without limitations. The information on female ownership is defined at the time of the download and does not vary over time. Employment data are sometimes missing for firms with workers.[3] Rounding and imputation likely also lead our estimates to underreport the frequency with which establishments change their levels of employment over short horizons (see David Neumark et al. 2007 for further details), but these biases are unlikely to be correlated with the owner's gender, especially after matching on, and controlling for, firm size.[4]

Our main research question is: Are the women-controlled firms more or less likely to lay off workers than firms controlled by men? We use year-to-year changes in annual employment to identify net declines in total employment of greater than 3 percent.[5] The results, reported in Table 1, use a linear probability model and adjust standard errors for clustering at the firm level. Raw differences are reported in column 1. In an average year, workers at female-owned firms were 5.4 percentage points (48 percent) less likely to be laid off.

The lower layoff rate at female-owned firms may be the result of those firms operating in different industries, or under different economic circumstances, than firms controlled by men. We explore these explanations and report the results in the remaining columns. We add year fixed effects to the analysis reported in column 2. Industry effects reduce the size of the estimate to 4.1 percentage points (col. 3).[6] Even within an industry, it is possible that women own smaller

[3] For companies with missing employment information for a given year but with identical employment levels in the preceding and following years, we assume there were no layoffs in either year.

[4] We also confirmed that our conclusions hold when examining differences over the whole time period rather than annual changes.

[5] Because we observe net changes in total firm employment rather than layoff events directly, it is possible that we miss some layoffs if employment growth in one part of a company offset layoffs in a different part in the same year.

[6] We use high-level industry categories (corresponding to single-digit NAICS codes) to ensure adequate counts of women-owned businesses within categories. Layoffs were especially common in this period among financial firms (23 percent annual layoff rate), which are less likely to be owned by women. Even

firms or firms that are more or less profitable, and these factors may affect layoff propensities. Controlling for total employment has little effect on the estimate (col. 4). Adding an indicator for negative profits in the prior year (and a separate indicator for missing profit information) reduces the layoff differential to 2.4 percentage points (col. 5).

We also considered the role of survivorship bias in our results. Conditional on reporting employment in one year, women-owned firms are about 1 percent more likely to have missing employment information in the next year (the women-owned coefficient from a regression model similar to Table 1, column 5, is -0.011, s.e. 0.006). But this difference cannot explain the layoff differential. When we re-estimate the layoff model counting all missing employment observations as layoffs, women-owned firms still have a significantly lower layoff rate (1.8 percentage points, s.e. 0.006).

Table 2, Panel A, reports analysis of different thresholds for the net decline in total employment. The third column uses a 3 percent cutoff, repeating the analysis from column 5 of Table 1. The other columns report the coefficient on "female-owned" in specifications using different cutoffs: any net decline in employment, and larger than 1 percent, 5 percent, and 10 percent. The coefficient is negative and significant for all of these measures, except the last.

These full-sample comparisons include many more male-owned than female-owned firms, and some of the male-owned firms may provide poor counterfactuals. To improve these comparisons, we restrict the comparison sample to firms that are most similar: for each female-owned firm, we include only the five closest male-owned firm matches based on industry, location, age, and employment in 2007 – just before the official start of the recession. The estimates are similar in magnitude and significance to those from the full sample, confirming the

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when estimating the model using only this industry subgroup, the women-owned estimate remains negative and significant (-0.17, s.e. of 0.03).

importance of gender differences in layoff rates, even for large layoffs.

II. Employment Costs and Contracting at Women-Owned Businesses

If female business owners lay off workers less frequently, they may manage their workforces differently in other ways as well. We investigate employment costs and contracts at female-owned businesses using recently released statistics from the 2007 Survey of Business Owners. Collected by the U.S. Census Bureau as part of the quinquennial Economic Census, these data are more reliable than those from D&B.[7]

Because the microdata have yet to be released, we analyzed data that are aggregated into reporting bins. Data on payroll and sales are averaged into more than 8,700 gender-state-industry-size bins, allowing us to control for state, industry, and firm-size fixed effects in the analysis. The data on employment contracts, however, are available averaged only at the industry level (into 20 industry classifications) or at the firm-size level (into 8 size categories).

We find that female-owned firms devote a larger share of their revenues to payroll expenses (col. 1), and are less likely to hire workers on a contingent basis (col. 2 and 3) or leased basis[8] (col. 4 and 5) or to outsource work to another country (col. 6 and 7). These results are not always statistically significant, but they suggest a consistent pattern of more stable, in-house employment at women-owned firms in 2007. Census microdata, when they are released, could be used to confirm these patterns.

III. Layoffs at Public Companies

The presence of different employment policies among private firms owned by women raises the question of whether female leaders of large corporations use similar management

[7] Nevertheless, because the data lack information on year-to-year employment changes, we cannot use them to validate the results from the previous section directly.

[8] Under employment leasing, a firm contracts with a leasing company to manage its human resources. The workers are officially employees of the leasing company, which has the right to fire or re-assigned them to another client.

strategies. We examine female leadership of large, publicly traded companies using demographic information on the composition of their boards of directors. Because directors represent the interests of shareholders, they are the closest analogue to female ownership for public companies. Even today, there are few women in the top echelons of corporate leadership in the United States (Matsa and Miller 2010a), and public companies with majority-female boards are unusual (less than 1 percent of observations over the 1997–2010 sample period). Nevertheless, they may provide insight into how female leadership relates to layoff decisions.

We combine firm-year information on female representation among corporate directors from the Investor Responsibility Research Center's and RiskMetrics's directors datasets with data on employment and financials from Compustat to create a panel from 1997 through 2010 for 16,730 firm-year observations. Column 1 reports the raw associations, and subsequent columns report the results from models that add, in turn, fixed effects for year and industry, and controls for log-employment and negative profits in the previous year. The layoff differential among female-directed public companies is large and negative, consistent with the cross-sectional variation in layoff rates for private companies reported in Table 1. The estimate is similar in magnitude and significance in a model with firm fixed effects, where identification is from within-firm changes in board membership (col. 6). Although these estimates are based on variation among a limited set of companies, they suggest that female leadership can lead to fewer layoffs in the corporate sector as well.

IV. Discussion

The findings of this study are broadly consistent with our recent examination of the impact of Norway's quota, implemented in 2006, requiring that the boards of directors of public limited companies be composed of at least 40 percent female members (Matsa and Miller

2011b). After that quota was adopted, affected firms retained rank-and-file workers when other firms were laying them off. The Norway analysis has the advantage of exploiting a natural experiment, which improves internal validity, but the results may not generalize beyond the quota setting—either because the quota led to an unusual group of women being placed in corporate leadership positions or because so many directors changed at once. The analysis in this paper finds that similar relations between female business leadership and layoff rates hold in the United States at both public and private firms. The private firm analysis in this paper may also be cleaner in that there is no agency problem between directors and owners at these firms.

If women indeed lead their firms to undertake fewer workforce reductions, what is the underlying cause? It is possible that this pattern reflects a greater concern on the part of women leaders for the well-being of workers, even at the expense of short-term profits. Women may also rightly or wrongly question the long-run profitability of layoffs, which can lower morale and lead to greater hiring and training costs when the economy recovers. Experiments find that women are generally more altruistic (James Andreoni and Lise Vesterlund 2001) and long-term oriented (Irwin Silverman 2003) than men, and survey evidence documents corresponding sex differences in corporate directors' preferences and values (Adams and Funk 2009). Whatever the motivation, labor hoarding appears to be a distinctive aspect of female leadership style.

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Table 1: Layoffs at Women-Owned Businesses, 2006-2009

	(1)	(2)	(3)	(4)	(5)
Female-owned	-0.054***	-0.055***	-0.041***	-0.040***	-0.024***
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
Observations	112,186	112,186	112,186	112,186	112,186
R-squared	0.001	0.002	0.047	0.047	0.063
Year fixed effects		X	X	X	X
Industry fixed effects			X	X	X
Control for lagged log-employment				X	X
Control for lagged negative profit					X

Notes: Dependent variable is an indicator for a year-to-year decrease in employment of greater than 3 percent. This variable's mean among male-owned firms is 0.11. Standard errors, adjusted for within-firm correlation, are reported in parentheses. *** $p<0.001$

Table 2: Differential Propensity for Layoffs of Different Sizes, 2006-2009

	>0	>1%	>3%	>5%	>10%
Male-owned rate	0.135	0.132	0.112	0.093	0.057
Panel A: Full sample					
Female-owned	-0.032***	-0.031***	-0.024***	-0.018***	-0.004
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
Observations	112,186	112,186	112,186	112,186	112,186
R-squared	0.099	0.092	0.062	0.038	0.011
Panel B: Matched sample					
Female-owned	-0.043***	-0.042***	-0.031***	-0.025***	-0.014***
	[0.006]	[0.006]	[0.006]	[0.005]	[0.005]
Observations	18,806	18,806	18,806	18,806	18,806
R-squared	0.064	0.06	0.045	0.03	0.008

Notes: Specification is the same as in Table 1, Column 5, but for different layoff thresholds. Regressions in panel A are estimated on the full sample of firm-year observations; regressions in panel B are estimated on a matched sample of the 5 closest male-owned firms (based on industry, location, age, and size in 2007). *** $p<0.001$

Table 3: Employment Costs and Contracts at Women-Owned Businesses, 2007

	Payroll / Sales	Hired temporary employees		Leased employees		Outsourced business outside U.S.?	
Female-owned	0.012***	-1.579**	-0.959	-0.236*	-0.276*	-0.310	-0.353***
	(0.002)	(0.485)	(0.537)	(0.110)	(0.081)	(0.152)	(0.047)
Level of aggregation	State-Industry-Size	Industry	Size	Industry	Size	Industry	Size
Observations	8784	38	16	40	16	40	16
Mean for male-owned	0.191	7.5	7.5	1.3	1.3	1.2	1.2
Industry fixed effects	X	X		X		X	
Size category fixed effects	X		X		X		X
State fixed effects	X						

Notes: Heteroscedasticity-consistent standard errors are reported in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 4: Layoffs at Public Companies Directed by Women, 1997-2010

	(1)	(2)	(3)	(4)	(5)	(6)
Majority female directors	-0.281***	-0.261***	-0.246***	-0.261***	-0.236***	-0.223***
	[0.005]	[0.018]	[0.026]	[0.030]	[0.026]	[0.069]
Observations	16,730	16,730	16,730	16,240	16,240	16,240
R-squared	0.000	0.041	0.045	0.047	0.083	0.097
Year fixed effects		X	X	X	X	X
Industry fixed effects			X	X	X	X
Control for lagged log-employment				X	X	X
Control for lagged negative profit					X	X
Firm fixed effects						X

Notes: Dependent variable is an indicator for a year-to-year decrease in employment of greater than 3 percent. This variable's mean among majority-male firms is 0.28. Standard errors, adjusted for within-firm correlation, are reported in parentheses. *** $p<0.001$