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by

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WORKING FOR FEMALE MANAGERS: GENDER HIERARCHY IN THE WORKPLACE

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Abstract

We study workers' reactions to changes in the gender composition of top management during a merger or acquisition, finding that an increase in the number of female top managers within their occupation makes male workers more likely to quit, and female workers less likely to quit. These effects vary across occupations. In particular, male workers' aversion to female managers is strongest in occupations where the average female share nears 50 percent. The effects also vary with age, becoming smaller among younger males, but increasing with education level. We find little evidence that these preferences are driven by pecuniary effects.

Keywords: Gender Preference, Quotas/Affirmative Action, Personnel

JEL: J7, J31, M5

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1. Introduction

Though women have made striking advances in higher education, labor market participation, and wages in recent decades, they remain severely underrepresented in top positions in corporations, governments, and academia.¹ For example, women held only 15.2% of all Fortune 500 board director positions in 2008, and 16.3% of seats in the US Congress in 2007. Moreover, the growth of these numbers has slowed significantly in the last several years,² raising concerns about both social equity and economic efficiency.³

One response has been growing political and social pressure to promote gender parity at top positions through diversity programs such as affirmative action and quotas at the workplace as well as in other spheres of society. For example, since 2008, Norwegian legislation has required a minimum of 40% of each gender in all listed companies. At least 22 countries have passed similar laws in the last decade⁴, and many corporations and non-profit organizations are explicitly pursuing gender diversity in top management. It remains unclear, however, whether these policies will break the glass ceiling and advance the careers of other women. As we will discuss in the next section, not only theory and public opinion, but also empirical work yield conflicting results, and few studies have addressed how these policies affect male workers.

The present study examines the Swedish employer-employee matched data that contain detailed information about workers' occupations and ranks, and analyzes how changes in the gender composition of a firm's management affect the well-being of the firm's male and female workers. Specifically, we infer male and female workers' preferences for an increase in the proportion of female managers. These preferences are revealed by workers' decisions to quit, or to remain, after a merger or acquisition (M&A) that changes the gender composition of the firm's management.

M&As constitute a possible natural experiment suited to this application since, though they can generate significant changes in the number of women in top positions, firms'

¹ See, for example, Kelly and Dobbin (1998), Costa (2000), and Connolly and Long (2007).

² Catalysis Survey (2009), "Women in U.S. Management", available from www.catalyst.org/file/192/qt_women_in_us_management.pdf. See also Blau and Kahn (2004) and England (2006).

³ While gender diversity is often viewed as a social equity issue, the economic efficiency of a group may also depend on the group's gender diversity. For example, gender diversity in a board can improve the board's monitoring performance. See Squires (2004), Adams and Ferreira (2009), and Dahlerup and Freidenvall (2010).

⁴ For the latest information, check <http://www.quotaproject.org>.

decisions to acquire or merge with others are typically *not* driven by gender composition of top managers. In the absence of compounding gender factors that could generate a spurious relationship, we can establish a possible causal link between the changes in the gender composition of management and the subsequent response of other female or male workers.⁵ Even though we cannot rule out the possibility that the changes in gender composition of top managers are correlated with unobserved structural changes during mergers and acquisition, our results are robust to various specifications including an M&A fixed effect model.

Moreover, our sample covers 443 acquisitions cases and 186,679 workers, in more than 50 occupation groups (e.g. marketing, production, research, financial service, etc.), over 20 years. This breadth allows us to study heterogeneity across occupations, worker ages, and education, and perhaps to shed light on the mixed results of the previous studies.

We find that when the number of top female managers within the same occupation increases, women become, on average, *less* likely to quit (same-gender attraction).⁶ But a much larger effect is that men become *more* likely to quit (opposite-gender aversion).⁷ These results are important for both political and managerial gender-policies, since they suggest that, though gender quotas and other diversity programs may indeed help other female workers' careers, they do so at the cost of negatively affecting male workers' careers, and this latter cost may outweigh the benefits.

Perhaps more importantly, we find large heterogeneity across occupations, especially due to the difference in the average share of female workers. In male-dominant occupations where the average female share is less than 10%, the increase in the number of female top managers seems to *reduce* the male workers' turnover rates. However, in occupations where the female share is between 10% and 50%, an additional female manager increases male workers' turnover rates significantly. In other words, males seem to welcome additional female managers in occupations where women are a weak minority group, but resist them when women are a strong minority. Interestingly, in female-dominant occupations where the average female share is above 50%, an additional female top manager has little effect on male turnover rates. We find similar patterns of non-monotonicity in the response of female

⁵ Outside lab experiments (e.g., Niederle and Vesterlund 2007), few studies have used natural experiments (e.g., Joy and Lang 2007). See Bagues and Esteve-Volart (2007) for an exception.

⁶ See, for example, Byrne (1971), Lazarsfeld and Merton (1954). For an overview, see Meyersson (1992).

⁷ The finding of same-gender attraction among women is in accordance with Kanter (1977a, b)'s predictions and Hultin and Szulkin (1999)'s empirical findings that more female managers are associated with a smaller gender wage-gap. But the much greater degree of opposite-gender aversion among men is more in line with the results of, e.g., Tolbert et al. (1995); Allmendinger and Hackman (1995), who find that proportional population growth can negatively impact the well-being of minority members.

workers to male top managers, but the effects on female workers' turnover rates are much smaller.⁸

This result from heterogeneity across occupations is important for several reasons. First, it may explain why the female share at top positions grew fast initially, but has slowed significantly in recent years.⁹ Initially, when women are a weak minority, male workers do not resist top female managers. As the female share increases, male resistance to additional top female managers increases, slowing the growth of the female share at top positions. Second, even though female workers show similar opposite-gender aversion to male top managers, it is much smaller and often insignificant compared with male workers' opposite-gender aversion. This asymmetry suggests that gender policies differ from the generalized model of majority/minority relationships, and require gender-specific consideration. Third, this heterogeneity may explain why previous studies have found mixed evidence, as they have typically focused on a single occupation or a single firm.

Aside from the male/female differential in gender preference and the variation among occupations with differing gender composition, another salient parameter of heterogeneity among workers' preferences is revealed by analyzing the effects of age on the decisions of male workers. If male workers' resistance to female managers is driven by traditional social values and customs, we can conjecture that it should be less pronounced among younger male workers because both female labor market participation and an egalitarian social culture have steadily grown over time. Our results are consistent with this conjecture. We find that, in contrast to old male workers' aversion to female top managers, young male workers show, on average, little aversion to female managers.

On the other hand, despite a common view that college-educated workers are more liberal and less prone to gender discrimination, we find that male workers' resistance to female top managers is the strongest among the college-educated male workers. Interestingly, male workers' attraction to male top managers is constant regardless of education level.

Overall, these patterns of heterogeneity suggest that two opposing forces are at work. On one hand, male workers' resistance to top female managers is fading over time, which

⁸ Allmendinger and Hackman (1995) find a similar non-monotonicity (called a *threshold effect*) between female share and group attitudes, and satisfaction and performance, as do Tolbert et al. (1995) with respect to turnover. However, neither study controls for the endogeneity of female share or distinguishes male and female responses. In contrast, Bagues and Esteve-Volart (2007) finds no significant heterogeneity with female share.

⁹ Catalyst 2007 Census of Women Corporate Officers and Top Earners of the Fortune 500, available from (as of 05-07-2009) <http://www.catalyst.org/publication/13/2007-catalyst-census-of-women-corporate-officers-and-top-earners-of-the-fortune-500>.

would promote gender parity at top positions in the future. On the other hand, male workers' attraction to male top managers hasn't changed over time or education level. Moreover, male workers' resistance to top female managers becomes strongest precisely when the female share approaches 50% and gender equality is achieved. Also, highly educated male workers show stronger resistance to top female managers than other males. These results suggest that initial achievements of gender parity in the last few decades and the growing level of education in the workforce do not necessarily guarantee that gender parity in the workplace will continue to improve at the same rate as before, especially at top managerial positions. These results support the general theme of Blau et al. (2006), which suggests that we may be at a crossroads from which both an optimistic and a pessimistic future of gender equity can be envisioned.

Finally, we find little evidence that an increase in the number of female managers negatively affects male workers' promotions and wage growth rates, at least in the short term. These results, taken together, suggest that male workers' resistance to female managers is driven by gender preferences, rather than by short-term pecuniary benefits from gender discrimination.

The rest of the paper is organized as follows: Section 2 provides a quick survey of related literature in economics and sociology. Section 3 describes our data and the construction of key variables, and section 4 infers workers' gender preferences by analyzing how changes in gender proportion among management affect male and female workers' turnover rates. Section 5 investigates changes in workers' preferences with age, and across occupations and education levels. Section 6 analyzes whether the changes in the numbers of male or female managers have a direct pecuniary effect on male or female workers' promotions and wage growth rates. We conclude in section 7.

2. Related Literature

The recent trend toward gender quotas at top ranks is at least partly based on the idea that having more female managers will break the glass ceiling and increase welfare for all female workers. However, the explanations of how such diversity programs could break the glass ceiling are diverse, and the predictions are ambiguous. They tend to follow Baron and Pfeffer's (1994) claim that quantitatively or qualitatively dominant social and demographic groups will seek to distinguish themselves by creating complex status-systems commanding higher rewards. Hultin and Szulking (1999), for example, find that an increase in female

managers reduces the gender wage-gap and conclude that

“ [it is] reasonable to assume that female managers in general are less motivated than their male counterparts to initiate and sustain institutionalized discriminatory practices against women.” (p.457)

Reskin and McBrier (2000) show that more formalized recruitment processes lead to more women being hired to managerial positions, while recruitment through informal networks favors men, indicating discrimination in the latter. These studies and several others (Byrne 1971, Brewer and Kramer 1985, Boldy, Wood, and Kashy 2001) emphasize *same-gender attraction*, predicting in particular that women will prefer to work for firms with more female executives. Dee (2005), for example, shows that the students’ performance increases when they are matched with the same gender (or race) teachers.

This idea is contested, though, by theories suggesting that female managers are less favorable to female workers because female managers may want to enhance their careers in male-dominant occupations or because they want to enhance their social status among females.¹⁰ For example, Bagues and Esteve-Volart (2007) and Broder (1993) find that female evaluators give relatively less favorable scores to female candidates than to male candidates.¹¹

Whether explicitly or not, such theories and predictions necessarily and crucially address the question of how the growth of a minority affects the welfare of its members in a situation of demographic competition. Some hold that demographic growth is always good for the members of a minority, while others suggest that a growing minority will tend to incur more discrimination from a majority that perceives itself as threatened. Among those suggesting that visibility tends to elicit discrimination, there is disagreement about whether growth makes a minority more visible or less visible in comparison with the dominant group. Work on gender demographics in the workplace, including same-gender attraction and opposite-gender aversion (of both men and women) is thus linked to the contested dynamics of the welfare of a growing minority.

Kanter’s (1977a) celebrated study, *Men and Women in Corporations*, is an

¹⁰ Such effects are also called the “queen bee syndrome” in social psychology.

¹¹ Giuliano et al. (2009) also finds that traditionally lower-status managers (young and black) are more favorable to higher-status employees (old and white). However, they don’t find a significant gender effect.

ethnographic analysis of work groups in a large corporation and makes an unequivocal case for the benefits of growth to a minority. It develops a *social contact* theory suggesting that networks are necessary to increase individual welfare, and that greater numbers would increase the female minority's ability to establish such networks. Kanter identifies a number of discriminatory social processes and behaviors as characteristic of dominant groups, and proposes that interactions between members of different social groups help undermine the stereotypes that support these processes.¹² For examples, Wolman and Frank (1975) and Izraeli (1983) find that social isolation and influence power by women improves as the share of females increases.

These results, though, are contradicted by others, including a study finding a decrease in the welfare of all members of a symphony orchestra when the female minority grew from 10% to 30% (Allmendinger and Hackman 1995), and reduced support for females by males when the proportion of women in a state agency department increased (South et al. 1987). Other studies have shown that growth of a minority exacerbates disparities in income (see, e.g., Frisbie and Neidert 1976, Wharton and Baron 1987, Tsui et al. 1992). These empirical results are in line with theories that suggest, contrary to Kanter, that an increase in the proportional size of a minority tends to increase the level of intergroup hostility and conflict.

Blalock (1967), for example, posited a curvilinear relationship between minority group size and negative social outcomes based on such an assumption (see also Blalock 1957, Bonacich 1972). Such a relationship implies that, once a minority group expands to some threshold level the negative consequences of increases in proportions should be reversed. In other words, minority status is most disadvantageous when the population is at its most "visible", i.e., big enough to be perceived as a threat, but small enough to remain a pronounced minority. A longitudinal study by Pfeffer and Davis-Blake (1987) examined the impact of changes in gender composition on the salaries of administrators at more than 800 colleges and universities and found a monotonic decline in the salaries of both male and female administrators as the proportion of women increased to the 30% to 40% range. Beyond that tipping point, however, further increases in the proportion of women made little or no difference in salaries.

Empirical evidence based on representative data is essential to understanding the

¹² See also Cook (1979), Pettigrew (1986), and Tolbert et al. (1995) for more discussion.

welfare effects of a growing minority of women, and this understanding is indispensable for policy decisions. However, the existing evidence is typically limited to small, localized sample or case studies, and the evidence remains mixed as illustrated above. These samples and cases have included recruiting at an American university (Graves and Powell 1995), reviewing of NSF proposals (Broder 1993), and judiciary hiring committees in Spain (Bagues and Esteve-Volart 2007). This last is an exception,¹³ but many of the previous studies suffer from potential endogeneity problems, as the gender composition of evaluators is not necessarily exogenous.

Moreover, many of these cases focus on the reviewers' behavior in a simple evaluation setting, and none analyzes the careers of workers in large and complex corporations, where the preferences driving behavior may be more complex. For example, a female manager may provide more challenging tasks to female workers, but also provide a more supportive relationship, enhancing their careers (see Dansereau et al. 1975). Larger-scale work is needed in order to understand the effects of workplace gender hierarchy on female workers' welfare and to understand potential heterogeneity within a population.

3. Data and Measurement

3.1 Data

Our analysis is based on employer–employee matched data covering almost the entire population of white-collar workers in the private sector of Sweden from 1970 to 1990, excluding financial sectors and CEOs. These data were collected to facilitate centralized wage negotiations between the Swedish Employers' Confederation (SAF) and PTK, the main cartel for the private-sector white-collar union; these negotiations determined most workers' wages from 1966 through the system's dissolution in the late 1980s. After that, wages were determined by industry- and plant-level bargaining (Calmfors and Forslund 1990), while local plant unions continued to represent workers. Employers decided autonomously on hiring and promotion, but firing workers was strictly regulated by law and monitored by the labor union.¹⁴ These data were gathered and monitored jointly by both the SAF and the PTK (the two opponents in the negotiations), yielding occupation classifications of high quality

¹³ In Bagues and Esteve-Volart (2007), the committee members are randomly assigned. Thus, the gender composition is also random.

¹⁴ For more details on the data and institution, see Kwon and Meyerson Milgrom (2007).

with minimal potential for error. For each worker, the data contain annual information on wage, age, education, gender, geographic region, work-time status, firm ID, plant ID, industry ID, occupation code, and rank. Because all the IDs are unique, we can track each individual worker within and across firms and occupations throughout his or her career.

The unique feature of this Swedish data is the four-digit BNT code, where the first three digits (occupation code) describe types of tasks and the fourth (rank code) describes the degree of skill¹⁵ needed to fulfill the tasks. The data cover 51 three-digit occupation-groups such as construction, personnel work, and marketing (for more details, see appendices A and B), and each job within an occupation is ranked from 1 (lowest) to 7 (highest).¹⁶ Crucially, these ranks are designed to be comparable across occupations and firms, allowing us to analyze workers' promotion patterns even when they change firms.

One of the goals of the Swedish negotiations was to pay the same wages for the same tasks, resulting in wage compression within each occupation. In practice, however, significant wage variations existed within occupations. For example, the highest-paid workers in a given rank often received larger wages than the lowest-paid workers in the rank above, and the wage variation increases with rank. Such patterns are consistent with those observed in US firms (see Baker et al. 1994).

3.2 The Gender Gap

The gender wage gap in Sweden, as in many other countries, is small once we control for workers' occupation and rank. But female workers tend to start their careers at lower ranks and get promoted more slowly than male workers, so the female share at the top ranks is very small.¹⁷

Figure 1 shows that women represent about 30% of white-collar workers, and that their share has been slowly increasing.

[Figure 1 here]

However, Figure 2 shows that women are severely under-represented at higher ranks. The female share averages only 1.15% at the highest rank (rank 7), compared with 78% at the

¹⁵ Rank reflects the number of subordinate employees and type of skill needed for decisions at that level.

¹⁶ To make the ranks comparable across occupations, not all occupations span the entire seven ranks: Some start higher and some lack the top ranks. For more details, see Appendix B.

¹⁷ See Meyersson Milgrom and Petersen (2006) for more details.

lowest (rank 1).

[Figure 2 here]

Furthermore, Figure 3 shows that women's shares at higher ranks have not increased significantly during the period 1970-1990.

[Figure 3 here]

3.3 Acquisitions

We focus on those firms in the data involved in mergers and acquisitions, using M&As as an exogenous shock to the gender composition in top managerial ranks. Since the data do not include firms' financial information, we identify mergers and acquisitions based on the changes in workers' firm IDs. If more than 50% of workers change firm ID¹⁸ from A to B and the old firm ID, A, disappears from the data, then we say "B has acquired A." There are only a few clearly identifiable merger cases where more than 50% of workers from two firms A and B move to a new firm C, while A and B disappear. Therefore, we omit these few cases, but continue to refer to "mergers and acquisitions," or M&As, because legally some of these acquisitions can represent mergers.¹⁹ We also restrict our attention to firms with more than ten white-collar workers.²⁰

This sample contains 443 acquisitions cases and 186,679 workers. Table 1 shows the summary statistics of selected variables. Firm size is measured by the number of white-collar workers,²¹ and shows that acquiring firms are, on average, much larger than acquired firms. The average ratio of acquired to acquirer firm size is 0.61, but there are large variations. The average wage of the acquiring firms (monthly total compensation in 1970 Kroner) is slightly larger than that of acquired firm, but the difference can be mostly explained by the acquiring firms having more high-ranking positions.

¹⁸ Even when we require more than 90% of workers to change firm ID, there is very little change in our results.

¹⁹ Some firms are involved in more than one M&A during our sample period. Excluding M&As where the same firm is involved in more than one M&A within 6 years does not change our qualitative results.

²⁰ Focusing on firms with more than 100 white-collar workers or removing this restriction does not change the qualitative results of the paper.

²¹ Alternatively, we can measure firm size by the total wage payments, but none of our results change.

[Table 1 here]

Status measures the relative ranking of each worker's wage within his or her firm, where 0 is the lowest and 1 is the highest. Note that the average status of women is very similar between acquiring and acquired firms, as are most other characteristics of female workers, including rank, age, and ratio of part-time workers. This is important to note because our analyses assume that acquisition decisions are independent of both firms' gender aspects, such as female share and status.

Table 2 shows that after controlling for firm size, primary industry, and primary occupation of each firm,²² the correlations between acquiring and acquired firms in gender share and status are quite small. For example, the correlation in overall female share is 20%, while the correlation in average female status (i.e., relative ranking of wages) is only 5.8%. The correlation in female share at top ranks is relatively large, mostly because the share is zero for most firms.

[Table 2 here]

Overall, female share and women's relative ranks do not seem to affect acquiring firms' choices. Moreover, our main analyses will control for average female shares within each firm and each occupation. Finally, gender composition of management should not influence M&A decisions, since it seems unlikely that a firm would undergo a merger in order to adjust the number of women at top positions, when it could simply hire new female managers.

Although compounding gender effects are less problematic for M&As, M&As are quite heterogeneous. Firms may acquire very similar firms in another geographic market, acquire their competitors in the same market, or acquire very different firms for complementarity or for business line expansions. In order to control for different types of acquisitions, we construct and control for distance measures between two merging firms (see Appendix C for more details in the construction of distance measures and the classification of M&As). Alternatively, we also control for M&A fixed effects.

²² We first regress female share on firm size, firm size squared, primary industry and occupation, then measure the correlation of residuals between acquiring and acquired firms.

3.4 Gender Composition at Top Managerial Positions

In order to analyze the effects of changes in the number of women at top managerial positions, we distinguish two groups of top managers. The first, *top managers within occupation*, includes those at the highest rank within their occupation, at either of the original firms.²³ For example, if firms A and B are merging and the highest ranks in their marketing departments are 4 and 6 respectively, then the top managers within occupation for marketing workers at both firms are those at rank 6. Our M&A sample includes 2,352 female and 9,802 male top managers within occupation.

The second group, *top managers within firm*, includes those at the highest rank in either of the two merging firms, regardless of occupation. Our sample, however, contains only 14 female top managers within firm, compared with 2,672 male ones. The number of female top managers within firm thus changes little, even in M&As. Moreover, CEOs and boards of directors are missing from our data. We therefore control for the number of female top managers within firm but will focus on changes in the number of female top managers *within occupation*.²⁴

This paper focuses on how these changes affect female and male workers' turnover rates after an acquisition. But for those who quit during an acquisition, those most sensitive to the changes, we do not observe their top managers after the acquisition. Moreover, actual changes in the number of top managers can be correlated with other unexpected structural changes during an acquisition.

Therefore, we use *expected* (or predicted) changes, rather than actual changes, in the number of male or female top managers. More specifically, we combine the two firms' data right *before* an acquisition and treat them as a single firm. In this way we can measure the expected number of female (and male) top managers for each worker, both within occupation and within firm. The difference between this number and the actual pre-merger number of female top managers yields the expected change in the number of top female managers (and similarly for males).²⁵

²³ Alternatively, we could define the top managerial position as ranks 6 and 7. However, not all firms have rank 6 or 7 in each occupation, let alone female managers at ranks 6 and 7.

²⁴ Also, we have analyzed the effect of the changes in the *share* of female top managers controlling for the total number of top managers. However, possibly because both the number of female top managers and the total number of top managers are small, the changes in the share of female top managers are too noisy. Still, the qualitative results do not change.

²⁵ For more details on these measures, see Kwon and Meyersson Milgrom (2008).

[Table 3 here]

Table 3 shows an example of the computation of expected post-merger measures. In this example, the top rank between the two firms is rank 5. Before the acquisition, the acquiring firm has one woman at the top rank, but the acquired firm has none. If we merge the data between the two firms, then workers in the acquired firm also have one female at the top rank (worker 3), so the expected change in the number of female top managers within firm is one for workers 4 and 5. Other within-firm measures are computed in a similar way, as are within-occupation measures.

Table 4 shows the summary statistics for the expected changes in the number and the share of female top managers, within occupation and within firm, for both male and female workers.

[Table 4 here]

The average male worker has only 0.07 female top managers within his occupation, while the average female worker has 2.9 female top managers within hers. These results arise from gender segregation in occupations. That is, female workers are concentrated in a few occupations that also have female top managers. More importantly, however, the standard deviations for the number of female top managers within occupation, and for its expected changes, are relatively large. These variations are essential for the identification of our parameters.²⁶

3.5 Turnover

We infer workers' preferences from how the changes in the number of female top managers affect their voluntary turnover decisions, allowing us to study workers' behavior without relying on potentially problematic survey responses.²⁷

A drawback of our approach is that workers can be fired during acquisitions, and that it is difficult to distinguish empirically between voluntary and involuntary turnover. However, it is generally difficult for Swedish firms to fire workers without consent from the labor union. Thus, we expect the number of involuntary turnovers to be small. Moreover, because we can

²⁶ Because many of the expected changes in the number of female top managers are either zero or one, we have also used a dummy variable for whether the expected changes are positive or not. The qualitative results do not change.

²⁷ See, e.g., Bertrand and Mullainathan (2001) for potential problems of using survey responses.

observe workers' wages after turnovers, we can identify involuntary turnovers in several ways as discussed in section 4.3.

The average turnover rate is 12.4% for acquiring firms and 15.4% for acquired firms, while the average turnover rate for all firms in our data (including those not involved in acquisitions) is 14%. In other words, acquiring firms have lower turnover rates than the average firm, but acquired firms have higher rates, suggesting that workers in acquired firms may get systematically fired during acquisitions. Table 5 confirms this pattern using turnover regressions run on a 20% random sample of the full data including both M&A and *non*-M&A samples.

[Table 5 here]

Table 5 also shows that there overall turnover patterns between male and female workers are very similar. Columns [1] and [2] show that female workers are slightly less likely to quit than male workers, but in columns [3] – [6] there exists no significant difference between the coefficients for male and female workers, with the sole exception that part-time female workers are less likely to quit than part-time male workers. These results suggest, importantly, that the gender difference in turnover responses to female top managers (which will be analyzed in the next sections) is not driven by an underlying gender difference in turnover behavior.

For those who change firms, we also check how their wages have changed. We expect workers who have been fired to have lower wages in another firm than those who quit voluntarily. In Table 6, we regress the change in real wages on various individual and firm characteristics for only those who change firms.

[Table 6 here]

As suspected, workers who left acquired firms have much lower than average wage increase, while those from acquiring firms have approximately the average wage increase. Therefore, while most quits from acquiring firms are voluntary, many quits from acquired firms appear to be involuntary.

4. Gender Hierarchy and Turnover

We first infer male and female workers' gender preferences by analyzing how expected changes in the gender composition at top ranks affect other workers' decisions to stay or quit after M&As.

Table 7 estimates the effects of these expected changes on workers' turnover decisions within three years after acquisitions, controlling for various individual and firm characteristics just before the acquisition.

In columns [1] – [4], we only control for pre-merger number of male and female top managers within occupation and/or within firm. Then, in columns [5] and [6], we control for an extensive set of pre-merger firm and worker characteristics including “acquired” dummy, age, age squared, part-time dummy, firm size, firm size squared, real wage, firm size change, occupation size change, and ratio of workers who change regional code during the acquisition. We also control for dummy variables for rank (6), education (3), occupation (68), industry (34), county (25), and year (19), where the numbers in the parentheses show the number of dummy variables in each category.²⁸

In addition, we control for pre-merger average female shares within firm and within occupation, and their changes after mergers so that we can isolate the effect of the changes in gender composition at top management levels.

[Table 7 here]

Note that the effect of the expected changes in the number of female top managers within occupation are remarkably robust regardless of whether we control for other firm and individual characteristics or not. For example, an expected increase in the number of female top managers within occupation increases male workers' turnover rate by 2.1% - 3.6% and decreases female workers' turnover rates by 0.4% - 0.5% depending on the specifications. This robustness is consistent with our claim that the changes in the number of female managers during M&A are largely exogenous. The effect of the expected changes in the number of male top managers within occupation is also qualitatively robust to the

²⁸ Workers at the top ranks within firm or within occupation are excluded from the analyses. However, including them does not change the qualitative results.

specifications, though the statistical significance changes with the specifications. For the rest of this section, we will discuss the results in column [5] and [6].

4.1 Opposite-Gender Aversion

An expected increase in the number of female managers has the largest effect on male workers. Columns [5] and [6] in Table 7 show that an additional female manager increases male turnover rates by 2.5 percentage points (in absolute size), which is equivalent to 8.5% of the average three-year turnover rate ($= 2.5/29.4$). This result suggests that having more female top managers within an occupation has a significant negative effect on male workers' utility, or that male workers resist working for female top managers in the same occupation.

By comparison, the opposite-gender aversion of female workers is relatively small: a statistically insignificant 0.3% increase in female workers' turnover rates for each additional male top manager within their occupation (from column [6] in Table 7). This may be because female workers take male management for granted as a social norm, and we show later that in female-dominated occupations, female workers respond more negatively to increases in the number of male top managers. Another explanation is that female workers may also have fewer job alternatives, and thus remain in the firm even when their utility is lowered. For example, Tables 5 and 6 in the previous section show that female workers have lower wage growth from turnover and lower turnover rates than males.

Within firm, expected increases in the number of male or female top managers within firm increase, respectively, both male and female workers' turnover rates. However, it turns out that there are only fourteen female top managers within firm in the entire M&A sample. Therefore, the change in the number of female managers within firm is likely to be picking up the M&A-specific effects of those few mergers with top female managers within firm. Moreover, from columns [5] and [6], the effects on male and female workers are statistically the same, and the difference-in-difference (between male and female and between before and after M&A) analysis below shows that the expected increase in number of male or female managers *within firm* has no differential effect on workers' turnover rates. Our analysis thus focuses primarily on expected changes in the number of male and female top managers *within occupation*.

4.2 Same-Gender Attraction

If female top managers increase female workers' well-being, for example by favoring them or providing role models, an expected increase in the number of female top managers should reduce female workers' turnover rates. Column [6] in Table 7 shows that an additional female top manager within occupation reduces female workers' turnover rates by 0.5 percentage point. Likewise, from column [5], an additional male top manager within occupation reduces male workers' turnover rates by 0.5 percentage point. That is, both male and female workers exhibit the same degree of same-gender attraction for top managers within occupation.

Note that these results differ from those of some recent studies. For example, Broder (1993) and Bagues and Esteve-Volart (2007) find that female evaluators are relatively more favorable to men than to women, which would have led to same-gender aversion, and increased turnover rates, among female workers. These previous studies, however, are based on a simple evaluation setting in a single occupation, while our study is based on more representative data in large corporations. Also, even if female managers favor male workers, they can still provide a role model and motivation for female workers, resulting in a positive net effect on female workers' utility.

Though the preferences of both male and female workers for top managers display same-gender attraction and opposite-gender aversion, opposite-gender aversion among males is by far the most significant. Gender quotas are typically aimed at improving the welfare of female workers, and their effects on male workers are not explicitly considered. However, our results suggest that an additional top female manager would have a relatively small effect on female workers' utility, but significant negative effects on male workers' utility. If the costs of all these effects are not weighed in the gender-policy decision process, and firms lose key male personnel without substantially benefiting other female workers, everyone may lose out.

Male and female workers' heterogeneous preferences across occupations add much to the story of the preferences and the mechanism behind these turnover patterns, but before moving on we check the robustness of these findings.

4.3 Robustness

■ *Voluntary Turnover*

Our inferences of workers' preferences are based on the assumption that turnover is voluntary. Though firing is relatively rare in Sweden, some workers are likely to get terminated involuntarily during M&As, especially from the acquired firms. However, these structural changes should affect both male and female workers, and thus not necessarily drive the observed differences in their responses. Still, we perform robustness checks designed to focus on voluntary turnover only.

First, as discussed in the previous section, turnover from acquired firms is likely to be involuntary. Thus we repeat our analyses on the workers in acquiring firms only. Columns [1] and [2] in Table 8 show that the qualitative results do not change. In particular, male workers' aversion to female top managers within occupation increases, compared with column [5] in Table 7.

[Table 8 here]

Second, a decrease in a worker's real wage after turnover indicates that it was mostly likely involuntary, as does a worker's temporary or permanent disappearance from the data.²⁹ Columns [3] and [4] in Table 8 focus only on the turnover with real wage increase, but the qualitative results do not change.

Third, even an increase in real wage - if the increase is not as large as that of the workers who remain in the firm - can indicate involuntary turnover. Columns [5] and [6] in Table 8 focus on turnover with real wage growth larger than the average rate in the previous firm. Again, the qualitative results do not change.

Though it is generally difficult to distinguish between voluntary and involuntary turnover, they do not seem to drive the gender differences we observe.

■ *Types of M&A*

We focus on M&As because they are not driven by gender considerations. But they are heterogeneous in various dimensions. In Table 9 we control for different types of M&As, according to the classification in Table 1A in Appendix C.

²⁹ Some workers may have moved to the public sector or the blue-collar sector. However, the number of these cases is small, and the results do not change even if we count them as voluntary turnovers.

[Table 9 here]

Columns [1] and [2] in Table 9 show the effects that different types of M&A have on workers' turnover rates. For example, the "growth" type of M&A increases workers' turnover rates, but a "horizontal merger" decreases them.³⁰

Columns [3] and [4] control for all eight distance-measures between acquiring and acquired firms (see Figure 1A in Appendix C). Finally, columns [5] and [6] control for M&A fixed-effects using a linear probability model.

In all cases, the effects of the expected changes in the number of male and female top managers within occupation do not change, though the effect on female workers become statistically insignificant. Therefore, while the significance of male workers' gender preference is very robust, the statistical significance of female workers' gender preference, that is, attraction to female managers and aversion to male managers, seems to depend on the specifications and requires some caution in interpretation.

■ *Difference-in-Difference*

Estimating the model separately for male and female workers highlights the differences in their revealed preferences. Rigorously speaking, though, the coefficients for male and female workers cannot be directly compared, since our estimates of the marginal effect (dP/dx) are evaluated at different points for the two. Moreover, M&A-specific shocks may bias the coefficients of both. Thus, in Table 10, we estimate an explicit difference-in-difference model, controlling for the interaction terms between the changes in the number of male/female top managers and a female dummy variable.³¹

[Table 10 here]

Column [1] of Table 10 shows, as expected, that female workers are less likely than male workers to quit when the expected number of female top managers within occupation increases, but they are more likely than male workers to quit when the expected number of

³⁰ This difference is not the primary focus of this paper, and will be analyzed in greater detail in a separate paper.

³¹ We also control for the interactions between the female dummy and all the pre-merger measures, including numbers of male and female top managers, firm size, etc.

male top managers within occupation increases. Column [3] controls for M&A fixed-effects using a linear probability model, and shows that these results are robust.

Note also that as discussed above, changes in the number of male or female top managers *within firm* have no statistically significant effect.

4.4 Discussion

Both men and women seem to exhibit same-gender attraction and opposite-gender aversion, but to very different degrees. Women show a slight attraction to female managers and a nearly insignificant opposition to male managers. Men, however, show a significant attraction to male managers, and the strongest of all the effects is men's aversion/resistance to female managers.

From the theoretical perspective, the motives behind workers' preferences can be either pecuniary (the expectation of slower wage growth and promotions) or non-pecuniary (driven only by gender preference). Various mechanisms could drive these motives. For example, similarity attraction (Byrne 1971) may lead male workers to expect that male managers will favor them in wage negotiations and promotion decisions (Becker 1957), as well as mentorship and access to professional networks (Noe 1988, Athey et al. 2000). Or traditional stereotypes may lead male workers to believe that the feminization of management will have a negative economic or social impact on the firm and thus their jobs (Goldin 2002, Ridgeway 2006). Conversely, female managers may benefit women, even without actively favoring them, by providing role models and correcting negative traditional stereotypes (Jackson 2006, Beaman et al. 2009).

From the policy perspective, our findings suggest that gender-quota policies may sometimes have the opposite of their desired effect, reducing rather than increasing the well-being of workers in the female minority. Though increasing the proportion of female managers does fulfill women's same-gender attraction, it has a much larger effect on bringing out men's opposite-gender aversion, potentially inciting male workers to behavior that ultimately causes everyone to lose out. Male quits can begin a vicious circle reducing wages for all workers in an occupation with a growing female share, and thus exacerbating gender inequality (see, e.g., Reskin 1988). And the growth of a quantitatively weak female minority into a larger, more visible one can provoke discriminatory action on the part of the majority, reducing the well-being of members of the minority (see, e.g., Blalock 1967). All this recommends caution in the use of gender-quotas to improve the lot of female minorities in

the workplace, since an increase in the proportion of a minority can potentially exacerbate discrimination against its members without proportionally (or even significantly) increasing their ability to benefit one another.

5. Heterogeneity

In this section, we investigate on whether male workers' aversion to female managers change with age, occupation, and education. This potential heterogeneity can give us a further clue to the source of male workers' aversion to female managers, and the dynamics of gender hierarchy in an organization.

5.1 Age Effect

The past half century has witnessed a dramatic reduction in gender inequality in economic, political, and cultural dimensions, and these changes interact with individuals' preferences and belief systems. Then, we should expect to see an *age effect*³² where older male workers should be more resistant to female managers.

It is more difficult to predict age effects for female workers. If gender equality implies gender neutrality, then younger female workers would show less same-gender attraction. But if gender equality implies an increased status of women, younger women and those in more recent years would show more same-gender attraction.

We test these conjectures in Table 11, estimating workers' turnover behavior separately for workers under forty and those forty or older.³³

[Table 11 here]

An expected increase in the number of female top managers within occupation significantly increases older male workers' turnover rates (0.034), but its effect on younger male workers' turnover rates is statistically insignificant (0.016). In other words, older male workers show significant resistance to female managers, but younger males do not seem to mind them. However, it is interesting to note that men's same-gender attraction does not seem to change with age.

³² To be precise, the age effect reflects both (birth year) cohort effect and life-cycle (or aging) effect.

³³ The qualitative results do not change even when the cut-off age is 35 or 45.

Interestingly, older female workers' behavior shows greater same-gender attraction than that of younger female workers, and the latter also show little opposite-gender aversion. This suggests that the younger generation of female workers is more gender-neutral, rather than more pro-female, than the older generation.³⁴

5.2 Heterogeneity across Occupations

Occupations are very heterogeneous in gender composition. In production management (BNT codes 100, 110, 120, 140, and 160), for example, the average share of female workers is less than 3%. However, in personnel work (BNT codes 600, 620, and 640) and office services (BNT codes 970 and 985), the average share of female workers is larger than 60% (see Appendix B for more details). This section looks for how the average share of female workers within an occupation affects workers' responses to an additional male or female top manager within that occupation.

Male workers in male-dominated occupations, for example, may be particularly resistant to female top managers because of negative traditional stereotypes about female leadership. Alternatively, though, these male workers may favor a female top manager as a *token* or a symbol of their social responsibility for gender equality or diversity (Kanter 1977a, b). Or they may prefer gender *diversity* at top managerial positions because it improves team performance (e.g. Carter et al. 2003, Adams and Ferreira 2009), or because they simply prefer diversity. In general, in a social system expected to favor the gender *majority*, male workers can welcome an additional female manager when the female minority share is small, but resist more when it is larger, and show the greatest opposite-gender aversion when male and female shares are equal (Blalock 1967).

Figure 4 illustrates the predictions of each of these various theories of male workers' responses to an additional female top manager.

[Figure 4 here]

In order to compare these predictions with the evidence, we classify occupations into three groups: (i) those where the share of female workers is less than 10%, (ii) those where the share of female workers is between 10% and 50%, and (iii) those where the share of female

³⁴ In a similar study, Bagues and Esteve-Volart (2007) finds no changes over time, possibly because their sample is limited to a single occupation (judicial hiring committees).

workers is larger than 50%.³⁵ Women represent a weak minority in the first, a strong minority in the second, and a majority in the third. We estimate the model separately for each group.³⁶

[Table 12 here]

Recall that male workers, on average, show aversion to an additional female top manager within occupation. But dividing occupations by female share reveals a more complex picture. In occupations where women are a weak minority (that is, less than 10%), male workers seem to welcome female management. Consistent with Kanter's notion of tokenism,³⁷ an additional female top manager reduces their turnover rate though the effect is statistically insignificant (column [1] in Table 12).

Based on the estimates in Table 12, we illustrate the opposite gender aversion of each gender in Figure 5.

[Figure 5 here]

As column [3] in Table 12 and Figure 5 show, the greatest resistance to female top managers is from male workers in occupations where women are a strong minority, which is consistent with the majority mechanism discussed above.

Compared with Figure 4, Figure 5 supports the theories of tokenism and majority decision: Male workers welcome additional female top managers in occupations with very small female shares, but resist them most when male and female shares are similar.

Also recall that female workers' aversion to male top managers is insignificant on average. However, column [4] in Table 12 shows that in occupations where women are a strong minority, female workers' aversion to male top managers become significant, which supports the majority mechanism as well.

Note, however, that we cannot rule out the possibility that these three groups of occupations differ not just in female shares but in other unobservable characteristics that may

³⁵ Female shares within occupations are computed for each year. Even if we use the average female share throughout our sample period, the results do not change.

³⁶ Ideally, we would like to use the time variations of female share within occupations. However, there does not exist enough variation of female share over time in the data.

³⁷ Strictly speaking, Kanter's tokenism often represents the increased isolation and scrutiny for female managers in male dominant occupations. A potential outcome of tokenism is that female managers may become more favorable to male workers. (see, e.g., Noe 1988).

affect male or female turnover rates. Ideally, we would like to use the time variations of female share within occupations. However, there are not enough variations of female share within occupation over time in the data.

With this caveat in mind, the variation of male workers' resistance to top female managers across different occupations gives us important clues in understanding how changes in the gender composition of the modern workplace affect the behavior and the well-being of individual workers, both male and female. For one, it may explain why the growth of the female share at top managerial positions in the United States has slowed down recently. For example, Figure 6 shows that the women's share in the board or in corporate officer positions in Fortune 500 firms grew steadily in 1990s, but slowed significantly as the women's share passed over 10%, and has decreased since 2005.

[Figure 6 here]

The history of the female share in U.S. corporate governance matches our findings: The female share grew briskly in the 1990s when it was less than 10%, slowing in 2000 when it passed over 12%, and eventually reversing direction as women became a stronger, more visible minority.

These findings should be important to policy makers. They suggest, first, that male resistance may prevent the achievement of gender parity at top managerial positions, in the absence of a gender quota policy. But they also suggest that such policies may negatively impact male workers, without proportionally benefiting female workers in general. The cost of the effect of gender quotas on male workers' careers must be taken into account in the policy decision process, and weighed against a clear assessment of their benefit to women.

These findings also shed light on why there exists much conflicting evidence. Because most previous studies have focused on small or localized samples, depending on the time period, age, female share, and occupation of the sample group, they may be picking up different parts in the overall patterns of heterogeneity we have documented above.

For example, Broder (1993) analyzes a traditionally male dominant job, and finds that female evaluators are relatively more favorable to male candidates. This finding is consistent with our results that in male dominant occupations, male workers seem to welcome female managers. In contrast, Giuliano et al. (2009) analyzes a female-dominant single firm, and finds that female managers have no significantly differential effect on the career outcome

of male and female employees. The finding is also consistent with our results that in female-dominant occupations, male workers do not much resist female managers.³⁸

5.3 Heterogeneity across Education Level

The average level of workers' education has been growing over time. For example, the share of college graduates in our sample has more than doubled, from 7% in 1970 to 16% in 1987. If a higher level of education promotes a preference for equity and justice, especially gender equality, a continuing trend of increasing education levels should reduce male workers' resistance to female top managers, and would also explain the patterns of time effects analyzed in section 5.

On the other hand, if a higher level of education reinforces traditional social values, especially those of the majority (male) group, a continuing trend of increasing education levels may discourage gender parity.

In order to analyze the effect of education level, we separately estimate our turnover models for three different groups of workers according to the levels of their final education; compulsory (nine years), upper-secondary (two to three years), and post-secondary.

[Table 13 here]

Table 13 shows that when the number of female top managers within the same occupation increases, male workers' turnover probability increases by 0.7%, 7.9%, and 18.9% for workers with the level of compulsory, upper-secondary, and post-secondary education, respectively. That is, male workers' resistance to top female managers increases with education level.³⁹

Table 14 also shows that when the number of male top managers within the same occupation increases, male workers' turnover rates decreases by 0.5-0.6 percentage points, regardless of their education level. That is, male workers' attraction to top male managers is constant regardless of the level of their education.

³⁸ Our results are also consistent with Dillingham et al. (1994), which analyzes voting in a male dominant professional society, and finds that while male voters are indifferent between male and female candidates, but female voters strongly prefer female candidate. However, our results are in contrast with Bagues and Esteve-Volart (2007) which finds no variations with female share or over time, possibly because the analysis is limited to a small professional group, that is, judiciary workers.

³⁹ Males with higher level of education may resist female top managers more because they may compete for the top managerial positions. Recall, however, that we control for workers' rank in all our estimations. Moreover, dropping rank dummy variables does not change the qualitative results.

The education effects on female workers' turnover rates are relatively smaller or statistically insignificant, possibly because the share of college-graduate female workers is still very small, 9% in 1987, or 2% in 1970.

Therefore, despite a view that higher education, especially college education, would encourage preference of equity, especially in gender, it appears that college education, at least in Sweden during our sample period, has reinforced preferences for male-dominant social values.

6. Pecuniary Motives

Of all workers' gender preferences, the most salient is male workers' aversion to female top managers. This section explores the motives behind this aversion, asking in particular whether expected increases in the number of female top managers within occupation leads to slower short-term wage growth or promotion for male workers. To whatever extent men's opposite-gender aversion is not tied to such pecuniary motives, we can suspect that it is motivated by non-pecuniary payoffs such as status and similarity attraction.

A decrease in non-pecuniary payoffs, however, can also reduce long-term pecuniary payoffs by reducing incentives for human capital accumulation, and the event-study nature of our analysis also prevents the use of wide event-windows. We thus focus on men's wage-growth and promotion rates within three years after an M&A only. The results of this section must be considered suggestive, not conclusive, since they cannot capture long-term effects on pecuniary payoffs, and are also subject to a potential selection bias because we can only observe the wage growth and promotion rates of those who remain after M&As. In Table 14, with these caveats in mind, we estimate the effect of an additional female manager on male workers' promotions and wage growth rates within three years after an M&A.

[Table 14 here]

Columns [1] and [2] estimate the effect on the number of promotions within three years after an M&A, where promotion is defined as either an increase in a worker's rank within occupation, or a change in occupation with a real-wage increase of more than 10%.

Note that expected changes in the number of female managers within occupation have little or no effect on the number of male workers' promotions. Therefore, promotion motives do not seem to explain why an increase in the number of female managers within

occupation increases male workers' turnover rates.

On the other hand, an increase in the number of female managers does increase female workers' promotion rates. Therefore, promotion motives may explain why female workers' turnover rates decrease when the number of female managers within occupation increases.

Columns [3] and [4] estimate effects on the average wage-growth rate within three years after an M&A, and obtain the same result. Again, an expected increase in the number of male or female managers within occupation has little effect on workers' wage growth rates.

Though these results are only suggestive, we find no evidence that the observed patterns in male workers' turnover behavior are driven by short-term pecuniary motives. Non-pecuniary motives seem to play a leading role in male workers' aversion to female top managers.

It is worth emphasizing, however, that an increase in female managers within occupation raises female worker's promotion rates. Given that there are only seven ranks, this effect ($= 0.005$) is economically significant. This result suggests that contrary to some of early studies (e.g. Bagues and Esteve-Volart 2007 and Broder 1993), the gender quota policy can provide economic benefits to female workers

7. Conclusion

In the wake of the gender revolution of the past half-century, the steady progress toward gender equality shows some signs of stalling, as not much has happened at the top echelons within the elite spheres (see Costa 2000); highly educated female workers end up staying at home⁴⁰; and male workers are slow to move into female-typed jobs.⁴¹ There are both optimistic and pessimistic views on the prognosis for gender equality, and this paper presents empirical evidence supporting both.

On one positive side, we find that male workers' aversion to female top managers has declined among the younger generation. Young male workers do not seem to show opposite-gender aversion at all, on average.

But on the negative side, we also find that male workers' attraction to male top managers hasn't changed over time, and also that male workers' resistance to top female

⁴⁰ Louise Story, "Many Women at Elite Colleges Set Career Path to Motherhood," New York Times, September 20, 2005.

⁴¹ See, for example, England (2006) and Blau et al. (2006).

managers becomes strongest precisely when the female share approaches 50%, and gender equality is achieved. Moreover, despite growing egalitarianism in higher education, highly educated male workers, including younger ones, show stronger resistance to top female managers than other males do.

At this crossroads in the gender revolution, government policy may have an important positive role in supporting the progress toward gender equality. But policies like gender quotas must be designed with a clear understanding of their effects on female workers, which depends on many factors, including the female share in a given occupation or firm. Quotas must be instituted with cognizance of how they impact male workers. Only if these costs and benefits are clearly understood can government policy work effectively to promote gender equality in the workplace.

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Appendix A Three-Digit Occupation Codes

<u>BNT</u> <u>Family</u>	<u>BNT</u> <u>Code</u>	Levels		<u>Female(%)</u>
0			Administrative Work	
	020	7	General analytical work	18.1
	025	6	Secretarial work, typing and translation	99.3
	060	6	Administrative efficiency improvement and development	18.4
	070	6	Applied data processing, systems analysis and programming	16.6
	075	7	Applied data processing operation	24.1
	076	4	Key punching	98.1
1			Production Management	
	100	4	Administration of local plants and branches	0
	110	5	Management of production, transportation and maintenance work	0.3
	120	5	Work supervision within production, repairs, transportation and maintenance work	3.4
	140	5	Work supervision within building and construction	0.2
	160	4	Administration, production and work supervision within forestry, log floating and timber scaling	0.06
2			Research and Development	
	200	6	Mathematical work and calculation methodology	1.8
	210	7	Laboratory work	22.5
3			Construction and Design	
	310	7	Mechanical and electrical design engineering	7.3
	320	6	Construction and construction programming	8.8
	330	6	Architectural work	30.9
	350	7	Design, drawing and decoration	38.8
	380	4	Photography	28.2
4			Technical Methodology, Planning, Control, Service and Industrial Preventive Health Care	
	400	6	Production engineering	1.8
	410	7	Production planning	11.2
	415	6	Traffic and transportation planning	5.4
	440	7	Quality control	4.5
	470	6	Technical service	1.5
	480	5	Industrial, preventive health care, fire protection, security, industrial civil defense	4.4
5			Communications, Library and Archival Work	
	550	5	Information work	43.7
	560	5	Editorial work – publishing	10.3
	570	4	Editorial work – technical information	12.1
	590	6	Library, archives and documentation	78.7
6			Personnel Work	
	600	7	Personnel service	50.1

	620	6	The planning of education, training and teaching	26.4
	640	4	Medical care within industries	91.6
7			General Services	
	775	3	Restaurant work	76.0
8			Business and Trade	
	800	7	Marketing and sales	17.2
	815	4	Sales within stores and department stores	19.4
	825	4	Travel agency work	67.5
	830	4	Sales at exhibitions, spare part depots etc.	42.8
	835	3	Customer service	31.4
	840	5	Tender calculation	4.1
	850	5	Order processing	36.0
	860	5	Advertising	21.4
	870	7	Buying	24.2
	880	6	Management of inventory and sales	17.0
	890	6	Shipping and freight services	43.6
9			Financial Work and Office Services	
	900	7	Financial administration	56.4
	920	6	Management of housing and real estate	29.1
	940	6	Auditing	31.5
	970	4	Telephone work	99.7
	985	6	Office services	42.7

Appendix B Sample Description of Four-Digit Occupation Codes

Occupation Family 1: Occupation # 120- Manufacturing, Repair, Maintenance, and Transportation
11% of 1988 sample

There is no rank 1 in this occupation.

Rank 2 (4% of occupation # 120 employees) - Assistant for unit; ensures instructions are followed; monitors processes

Rank 3 (46%) - In charge of a unit of 15-35 people

Rank 4 (45%) - In charge of 30-90 people; does investigations of disruptions and injuries

Rank 5 (4%) - In charge of 90-180 people; manages more complicated tasks

Rank 6 (0.3%) - Manages 180 or more people

There is no rank 7 in this occupation.

Occupation Family 2: Occupation #310- Construction

10% of the 1988 sample

Rank 1 (0.1%) - Cleans sketches; writes descriptions

Rank 2 (1%) - Does more advanced sketches

Rank 3 (12%) - Does simple calculations regarding dimensions, materials, etc.

Rank 4 (45%) - Chooses components; does more detailed sketches and descriptions; estimates costs

Rank 5 (32%) - Designs mechanical products and technical products; does investigations; has 3 or more subordinates at lower ranks

Rank 6 (8%) - Executes complex calculations; checks materials; leads construction work; has 3 or more subordinates at rank 5

Rank 7 (1%) - Same as rank 6 plus has 2-5 rank 6 subordinates

Occupation Family 3: Occupation #800- Marketing and Sales

19% of 1988 sample

Rank 1 (0.2%) - Telesales; expedites invoices; files

Rank 2 (6%) - Puts together orders; distributes price and product information

Rank 3 (29%) - Seeks new clients for 1- 3 products; can sign orders; does market surveys

Rank 4 (38%) - Sells more and more complex products; negotiates bigger orders; manages 3 or more subordinates

Rank 5 (20%) - Manages budgets; develops products; manages 3 or more rank 4 workers

Rank 6 (7%) - Organizes, plans, and evaluates salesforce; does more advanced budgeting; manages 3 or more rank 5 workers

Rank 7 (1%) - Same as rank 6 plus 2-5 rank 6 subordinates

Occupation Family 4: Occupation #900- Financial Administration

5% of 1988 sample

Rank 1 (1%) - Office work; bookkeeping; invoices; bank verification

Rank 2 (7%) - Manages petty cash; calculates salaries

Rank 3 (18%) - More advanced accounting; 4-10 subordinates

Rank 4 (31%) - Places liquid assets; manages lenders; evaluates credit of buyers; manages 3 or more rank 3 employees

Rank 5 (28%) - Financial planning; analyzes markets; manages portfolios; currency transfers; manages 3 or more rank 4 employees

Rank 6 (12%) - Manages credits; plan routines within the organization; forward-looking budgeting; manages 3 or more rank 5 employees

Rank 7 (2%) - Same as rank 6 plus 2-5 rank 6 subordinates

Appendix C Classification of M&A

We classify different types of M&As based on the distance between the two merging firms in various aspects. The distance is measured by 1 – uncentered correlation, as proposed by Jaffe (1986). For example, to measure the distance in occupation structure, we construct a vector of occupation shares for an acquired firm, $f_i=(s_{1i}, s_{2i}, \dots, s_{54i})$ where s_{ki} is occupation k 's share in firm i (in terms of number of workers)⁴². Then, we construct the same vector for its acquiring firm j , f_j . Then, the distance in occupation structure is measured as $1 - \frac{f_i \cdot f_j}{(\|f_i\| \|f_j\|)}$. This distance measure is zero if the composition of occupation is the same between the two firms, and is one if two firms do not share any occupation.

[Figure 1A here]

Figure 1A shows the histogram of each distance measure for 436 acquisitions in our sample. The histogram for the distance in occupation structure shows large variations. In other words, some firms are very close in terms of occupation structure, some firms are semi-close, and some firms are completely different in occupation structure. On the other hand, if we look at the distance in industry structure, and county location, firms are either close or far away. Firms are always similar in most other dimensions.⁴³ Therefore, we classify acquisitions as shown in Table 1A.

[Table 1A here]

For example, if the acquired firm is similar in occupation and industry structures, and in the same region, we call it a horizontal merger. Also, as they are similar, we expect that workers and business functions of two firms are substitutable. This classification is admittedly arbitrary. However, this classification can give us some sense of whether our results depend on different types of acquisition. Alternatively, we can also control for M&A fixed effects.

⁴² We used 54 different occupations, 44 different industries, 24 different counties, 9 different education codes, 6 different age groups (11-20, 21-30, etc.), 7 rank codes, 2 gender codes, and 2 part time codes.

⁴³ The variation in the rank distance can be mostly explained by the difference in size.

Table 1 Summary Statistics

	Acquirer			Acquired		
	Total	Male	Female	Total	Male	Female
firm size	362.627	273.283	90.533	51.463	37.168	14.457
female ratio	0.302			0.282		
wage	1532.499	1717.705	1054.538	1493.726	1661.137	1015.019
status	0.510	0.623	0.238	0.521	0.633	0.232
rank	3.322	3.715	2.380	3.279	3.630	2.349
age	40.955	42.247	37.446	40.964	42.442	36.753
part time	0.103	0.021	0.280	0.102	0.019	0.293

Note: Wage is a monthly total payment measured in 1970 Kronor. Status is measured as each worker's relative ranking of wages within a firm where zero is the lowest and one is the highest.

Table 2 Correlations between Acquiring and Acquired Firms

	Female Share			Female Status	
	Overall	At Top Rank	At Top Rank within Occup.	Within Firm	Within Occup.
corr(acquiring, acquired)	0.200	-0.325	0.131	0.058	0.064

Note: The correlations are after controlling for firm size, firm size squared, primary industry dummy, and primary occupation dummy.

Table 3 Computation of Expected Post-Merger Measures: An Example

firm	worker	gender	rank	wage	Pre-Merger		Expected Post-Merger	
					Number of Female at Top Rank	Relative Ranking within Gender	Number of Female at Top Rank	Relative Ranking within Gender
Acquiring	1	male	4	1500	1	1/1	1	2/2
	2	female	4	1600	1	1/2	1	2/3
	3	female	5	1800	1	2/2	1	3/3
Acquired	4	male	3	1200	0	1/1	1	1/2
	5	female	4	1300	0	1/1	1	1/3

Table 4 Changes in Female Hierarchy

	Male		Female	
	Pre-Merger	Expected Change	Pre-Merger	Expected Change
# Female at Top Rank within the same Occupation	0.071 (0.765)	0.012 (0.205)	2.910 (6.732)	0.372 (1.839)
Share of Female at Top Rank within Occupation (%)	1.056 (7.662)	0.083 (2.930)	32.775 (44.374)	0.851 (10.034)
# Female at Top Rank within Firm	0.028 (0.189)	0.011 (0.123)	0.067 (0.317)	0.013 (0.132)
Share of Female at Top Rank within Firm (%)	0.269 (2.259)	0.087 (1.695)	0.637 (3.522)	0.045 (2.566)
number of observation	142,176		44,503	

Note: Standard deviations are in parentheses.

Table 5 Turnover Pattern: Probit Analysis
(dependent variable = 1 if quit)

	All		Male		Female	
	[1]	[2]	[3]	[4]	[5]	[6]
age	-0.027 (0.000)***	-0.027 (0.000)***	-0.027 (0.001)***	-0.027 (0.001)***	-0.024 (0.000)***	-0.023 (0.000)***
age squared	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)***
part time	0.031 (0.001)***	0.033 (0.001)***	0.103 (0.004)***	0.104 (0.004)***	0.021 (0.002)***	0.020 (0.002)***
firm size (in thousands)	-0.024 (0.007)***	-0.023 (0.007)***	-0.024 (0.007)***	-0.023 (0.007)***	-0.024 (0.009)***	-0.022 (0.008)***
firm size squared	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)**
acquirer	-0.031 (0.006)***	-0.030 (0.006)***	-0.032 (0.006)***	-0.031 (0.006)***	-0.024 (0.008)***	-0.025 (0.008)***
acquired	0.869 (0.002)***	0.870 (0.002)***	0.875 (0.003)***	0.876 (0.002)***	0.856 (0.003)***	0.857 (0.002)***
female	-0.009 (0.001)***	-0.012 (0.001)***				
occupation	NO	YES	NO	YES	NO	YES
rank	NO	YES	NO	YES	NO	YES
Observations	1281454	1281454	901742	901742	379712	379705

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect dP/dx . 20% random sample of full data (including those not involved in acquisitions) is used. Each regression includes dummy variables for education, rank, occupation, industry, county, and year.

Table 6 Wage Changes after Quit
(dependent variable = $\log(\text{wage_new}) - \log(\text{wage_old})$)

	All	Male	Female
	[1]	[2]	[3]
age	-13.988 (1.321)***	-23.312 (2.055)***	-16.755 (1.739)***
age squared	0.019 (0.017)	0.099 (0.025)***	0.136 (0.023)***
part	300.552 (10.195)***	301.648 (27.510)***	280.949 (9.782)***
firm size	0.015 (0.010)	0.020 (0.011)*	-0.003 (0.008)
firm size squared	-0.000 (0.000)*	-0.000 (0.000)**	-0.000 (0.000)
acquirer	-0.749 (14.559)	-2.462 (18.287)	-10.609 (25.635)
acquired	-55.019 (10.159)***	-51.938 (12.081)***	-42.908 (13.149)***
female	-223.104 (7.652)***		
Observations	92803	65356	27447
R-squared	0.13	0.14	0.12

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Among 20% random sample of full data, only those who change firms, *including* those not involved in acquisitions, are used. Each regression includes education, rank, occupation, industry, county, and year dummies.

Table 7 Number of Female at Top Rank and Turnover: Probit Analysis
(dependent variable =1 if quit within three years after acquisitions)

	Male	Female	Male	Female	Male	Female
	[1]	[2]	[3]	[4]	[5]	[6]
$\Delta(\# \text{ female top managers within occupation})$	0.036 (0.011)***	-0.004 (0.002)*	0.021 (0.009)**	-0.004 (0.002)*	0.025 (0.012)**	-0.005 (0.003)*
$\Delta(\# \text{ male top managers within occupation})$	-0.001 (0.001)	0.016 (0.004)***	-0.001 (0.001)	0.012 (0.004)***	-0.005 (0.001)***	0.003 (0.003)
$\Delta(\# \text{ female top managers within firm})$			0.121 (0.025)***	0.116 (0.035)***	0.061 (0.030)**	0.056 (0.041)
$\Delta(\# \text{ male top managers within firm})$			-0.002 (0.000)***	0.000 (0.001)	0.003 (0.000)***	0.003 (0.001)***
pre-merger # female top managers within occupation	-0.001 (0.003)	0.001 (0.001)	-0.006 (0.003)**	0.003 (0.001)***	-0.005 (0.004)	0.002 (0.001)*
pre-merger # male top managers within occupation	-0.000 (0.000)***	-0.002 (0.001)	-0.000 (0.000)	-0.002 (0.002)	-0.001 (0.000)***	-0.001 (0.001)
pre-merger # female top managers within firm			0.099 (0.022)***	0.075 (0.032)**	-0.027 (0.018)	-0.066 (0.019)***
pre-merger # male top managers within firm			-0.002 (0.000)***	-0.001 (0.000)***	0.001 (0.000)	0.000 (0.000)
Acquired (=1 if acquired)					-0.005 (0.013)	-0.045 (0.019)**
age					-0.069 (0.002)***	-0.044 (0.002)***
age squared					0.001 (0.000)***	0.001 (0.000)***
part time dummy					0.223 (0.015)***	0.030 (0.010)***
firm size (in thousands)					-0.058 (0.010)***	-0.054 (0.013)***
firm size squared					0.003 (0.001)**	0.003 (0.001)**
Observations	142114	44173	142114	44173	142108	44165
Predicted Probability (at mean)	0.316	0.377	0.316	0.376	0.294	0.367
pseudo R-square	0.001	0.001	0.029	0.009	0.154	0.133

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect dP/dx . Columns [5] and [6] also control for real wage, firm size change, occupation size change, average female shares within firm and within occupation, changes in average female share within firm and within occupation, ratio of workers who moved regional code, rank, occupation, industry, county, and year dummies.

Table 8 Voluntary Turnover: Probit Analysis
(dependent variable =1 if quit within three years after acquisitions)

Voluntary Turnovers	Acquirer Only		Real Wage Increase		Wage Growth Rate Increase	
	Male	Female	Male	Female	Male	Female
	[1]	[2]	[3]	[4]	[5]	[6]
$\Delta(\# \text{ female top managers within occupation})$	0.055 (0.019)***	-0.008 (0.005)	0.023 (0.011)**	-0.004 (0.002)*	0.046 (0.014)***	-0.005 (0.003)*
$\Delta(\# \text{ male top managers within occupation})$	-0.014 (0.003)***	0.002 (0.011)	-0.006 (0.002)***	0.007 (0.003)**	-0.007 (0.002)***	0.006 (0.003)*
pre-merger # <i>female</i> top managers within occupation	-0.008 (0.004)**	0.002 (0.001)**	-0.003 (0.004)	0.002 (0.001)**	-0.005 (0.003)	0.002 (0.001)**
pre-merger # <i>male</i> top managers within occupation	-0.000 (0.000)***	-0.001 (0.001)	-0.000 (0.000)***	-0.001 (0.001)	-0.000 (0.000)***	-0.001 (0.001)
Number of Observations	130558	40559	122939	34797	117724	33119

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect dP/dx . Involuntary turnovers are omitted. The other specifications are the same as those in columns [5] and [6] in Table 7.

Table 9 Controlling for M&A Types
(dependent variable =1 if quit within three years after acquisitions)

	Probit				OLS	
	M&A Type		Distance Measures		M&A Fixed Effect	
	Male	Female	Male	Female	Male	Female
	[1]	[2]	[3]	[4]	[5]	[6]
$\Delta(\# \text{ female top managers within the same occupation})$	0.029 (0.013)**	-0.004 (0.003)	0.029 (0.012)**	-0.004 (0.003)	0.024 (0.006)***	-0.002 (0.001)
$\Delta(\# \text{ male top managers within the same occupation})$	-0.005 (0.001)***	0.004 (0.004)	-0.004 (0.001)***	0.005 (0.003)	-0.001 (0.000)***	0.003 (0.002)
pre-merger # <i>female</i> top managers within the same occupation	-0.005 (0.004)	0.002 (0.001)*	-0.004 (0.004)	0.003 (0.001)***	-0.001 (0.002)	-0.002 (0.000)***
pre-merger # <i>male</i> top managers within the same occupation	-0.001 (0.000)***	-0.001 (0.001)	-0.000 (0.000)*	-0.001 (0.001)	-0.000 (0.000)***	-0.001 (0.000)*
Acquired (=1 if acquired)	-0.005 (0.013)	-0.043 (0.019)**	0.007 (0.014)	-0.031 (0.018)*	0.028 (0.006)***	0.010 (0.013)
M&A Type = Conglomerate						
M&A Type =Growth	0.026 (0.014)*	0.018 (0.019)				
M&A Type = Horizontal	-0.092 (0.016)***	-0.096 (0.024)***				
M&A Type = Vertical	0.002 (0.014)	0.031 (0.020)				
Distance Measures	NO	NO	YES	YES	NO	NO
M&A Fixed Effects	NO	NO	NO	NO	YES	YES
Observations	142108	44165	142108	44165	142114	44173
pseudo R-square	0.157	0.136	0.167	0.142	0.10	0.08

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect dP/dx . See Table 1A for the definitions of M&A types. The other specifications are the same as those in columns [5] and [6] in Table 7.

Table 10 Difference in Difference
(dependent variable =1 if quit within three years after acquisitions)

	Probit	OLS	
	[1]	[2]	[3]
Δ (# female top managers within occupation)	0.021 (0.014)	0.021 (0.013)	0.020 (0.007)***
Δ (# <i>female</i> top managers within occupation) * female	-0.025 (0.014)*	-0.026 (0.013)*	-0.022 (0.007)***
Δ (# male top managers within occupation)	-0.005 (0.001)***	-0.004 (0.001)***	-0.001 (0.000)*
Δ (# <i>male</i> top managers within occupation) * female	0.008 (0.004)**	0.009 (0.004)**	0.004 (0.002)**
Δ (# female top managers within firm)	0.043 (0.031)	0.043 (0.030)	0.000 (0.000)
Δ (# <i>female</i> top managers within firm) * female	0.003 (0.040)	0.006 (0.041)	-0.007 (0.018)
Δ (# male top managers within firm)	0.003 (0.000)***	0.003 (0.000)***	0.000 (0.000)
Δ (# <i>male</i> top managers within firm) * female	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)*
M&A Types	YES	YES	NO
M&A Fixed Effects	NO	NO	YES
Observations	174154	174165	174165

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect dP/dx . See Table 1A for the definitions of M&A types. Pre-merger # of male (female) top managers within occupation (firm) is also interacted with female dummy. The rest of the control variables are the same as those in Table 7.

Table 11 Age Effect
(dependent variable =1 if quit within three years after acquisitions)

	Male		Female	
	Old [1]	Young [2]	Old [3]	Young [4]
Δ (# <i>female</i> top managers within the same occupation)	0.034 (0.015)**	0.016 (0.016)	-0.012 (0.005)**	-0.004 (0.003)
Δ (# <i>male</i> top managers within the same occupation)	-0.005 (0.001)***	-0.005 (0.001)***	0.005 (0.004)	0.003 (0.004)
Observations	78566	63520	18443	25679

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Old workers are defined as those with age 40 or above. Young workers are those with age under 40. Reporting marginal effect, dP/dx . The other specifications are the same as those in columns [5] and [6] in Table 7.

Table 12 Heterogeneity: Share of Female Workers
(dependent variable =1 if quit within three years after acquisitions)

Female Share within Occupation	female share<0.1		0.1<female share<0.5		female share>0.5	
	Male [1]	Female [2]	Male [3]	Female [4]	Male [5]	Female [6]
Δ (# <i>female</i> top managers within the same occupation)	-0.193 (0.126)	-0.168 (0.176)	0.197 (0.118)*	-0.073 (0.110)	0.026 (0.016)	-0.004 (0.003)
Δ (# <i>male</i> top managers within the same occupation)	-0.004 (0.001)***	0.003 (0.011)	0.012 (0.005)***	0.026 (0.008)***	-0.007 (0.006)	-0.001 (0.004)
pre-merger # <i>female</i> top managers within occupation	-0.029 (0.014)**	0.010 (0.008)	-0.004 (0.015)	0.019 (0.014)	-0.011 (0.006)*	0.001 (0.001)
pre-merger # <i>male</i> top managers within occupation	-0.000 (0.000)**	-0.001 (0.001)	-0.002 (0.002)	-0.000 (0.004)	0.003 (0.002)	-0.000 (0.001)
Observations	86524	2385	43536	11657	12027	30091

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect, dP/dx . The other specifications are the same as those in columns [5] and [6] in Table 7. Columns [1] and [2] are estimated for workers in occupations with female share less than 10%, and so on. The coefficients for opposite gender aversion are illustrated in Figure 5.

Table 13 Heterogeneity: Education Level
(dependent variable =1 if quit within three years after acquisitions)

Education	Compulsory (9 years)		Upper Secondary (2-3 years)		Post-Secondary	
	Male	Female	Male	Female	Male	Female
$\Delta(\# \text{ female top managers within the same occupation})$	0.007 (0.015)	-0.009 (0.004)**	0.079 (0.032)**	-0.001 (0.003)	0.189 (0.097)*	-0.015 (0.009)
$\Delta(\# \text{ male top managers within the same occupation})$	-0.005 (0.001)***	0.002 (0.004)	-0.006 (0.002)***	0.002 (0.006)	-0.005 (0.003)*	0.021 (0.015)
Observations	59922	30076	60978	11393	21162	2609

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: Reporting marginal effect, dP/dx . The other specifications are the same as those in columns [5] and [6] in Table 7.

Table 14 Promotion and Wage Growth After M&A: OLS

Dependent Variable	# of Promotions		Wage Growth Rate	
	Male [1]	Female [2]	Male [3]	Female [4]
$\Delta(\# \text{ female top managers within the same occupation})$	0.009 (0.010)	0.005 (0.002)**	-0.001 (0.003)	-0.001 (0.001)
$\Delta(\# \text{ male top managers within the same occupation})$	0.001 (0.001)	0.006 (0.004)	0.000 (0.000)	0.001 (0.001)
Observations	97151	27508	97151	27508

Standard errors are adjusted for clustering within an occupation and a firm, and in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: In columns [1] and [2], the dependent variable is the number of promotions within three years after M&A. In columns [3] and [4], the dependent variable is the average wage growth rates within three years after M&A. Reporting marginal effect dP/dx . The other specifications are the same as those in columns [5] and [6] in Table 7.

Table 1A Classification of Acquisition

Occupation	Industry	Region	Description	Classification
Similar	Similar	Similar	Acquisition of Competitor	Horizontal Merger
Similar	Similar	Different	Regional Expansion	Growth Merger
Different	Similar	Similar	Functional Extension	Vertical Merger
Different	Similar	Different		
Similar	Different	Similar	Product Line Extension	Growth Merger
Similar	Different	Different	Product/Region Expansion	Growth Merger
Different	Different	Similar	Business Line Expansion	Conglomerate Merger
Different	Different	Different		

Occupation: *similar* if occupation distance measure is less than 0.2, *different* otherwise.

Industry: *similar* if industry distance measure is less than 0.5, *different* otherwise.

Region: *similar* if regional distance measure is less than 0.5, *different* otherwise.

Figure 1 Percentage of Female among White-collar Workers



Figure 2 Average Number of Males and Females in Each Rank (in a given year)

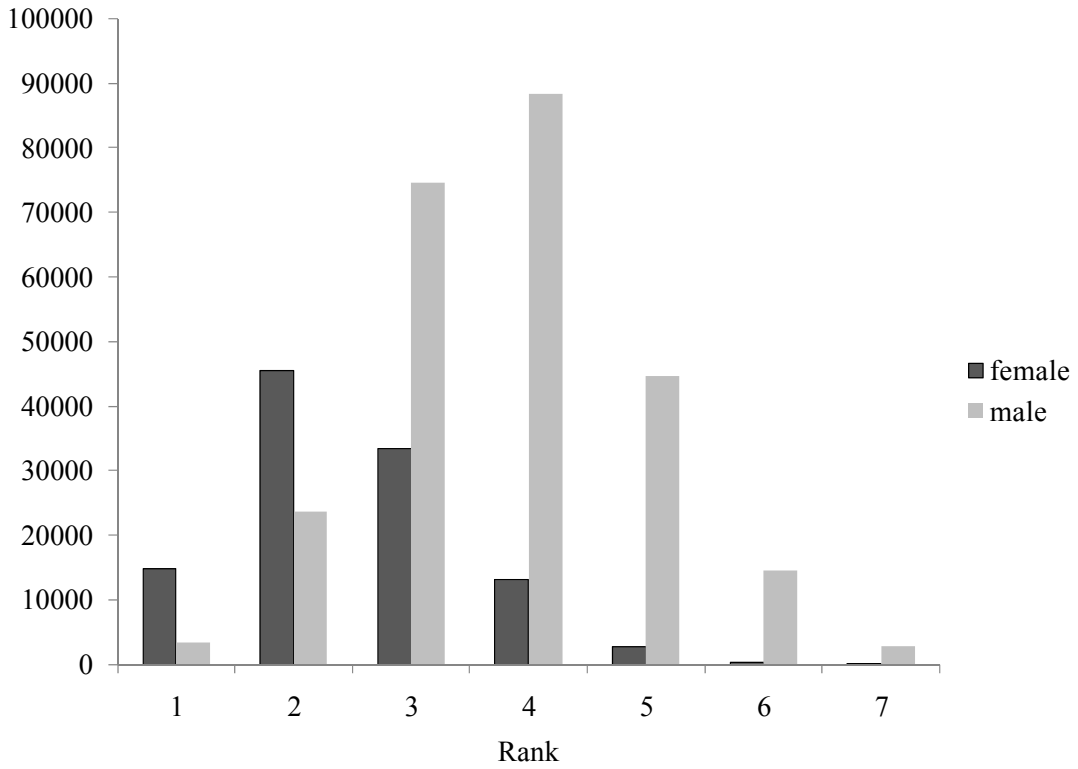


Figure 3 Share of Female in Each Rank over Years

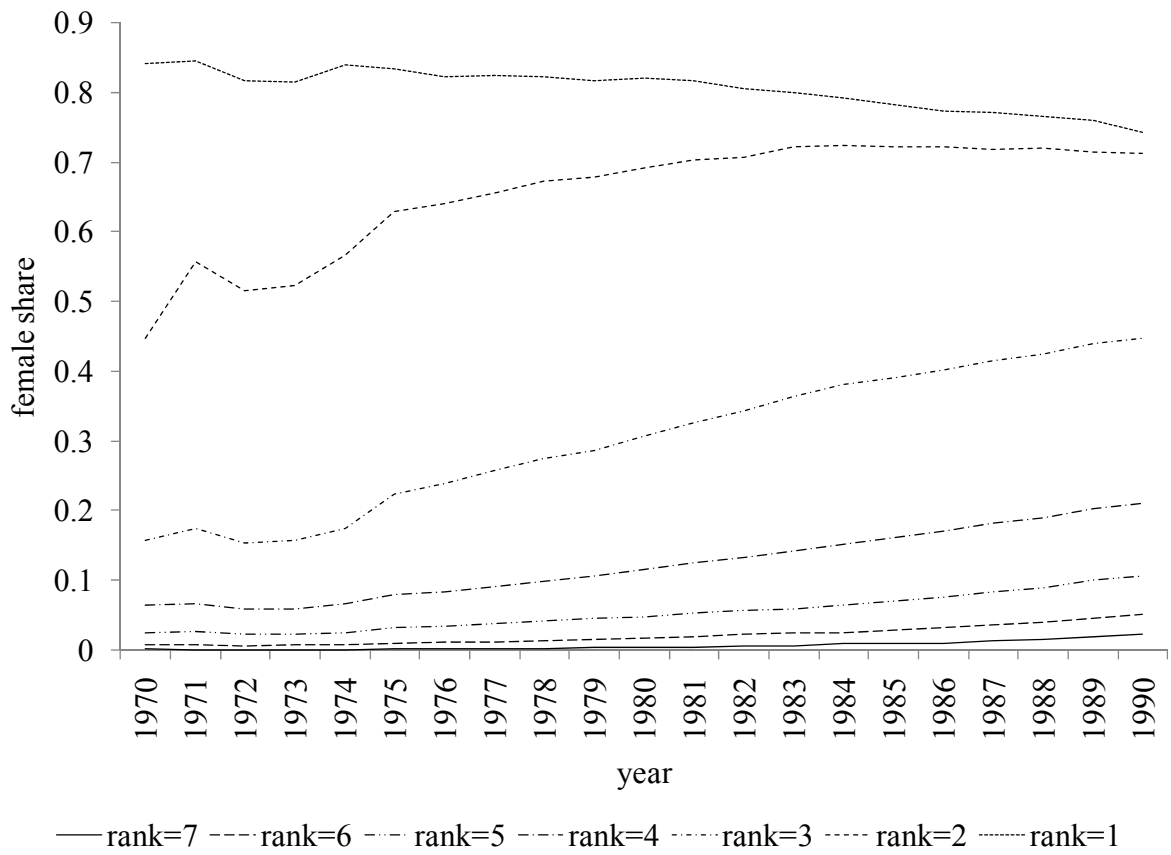
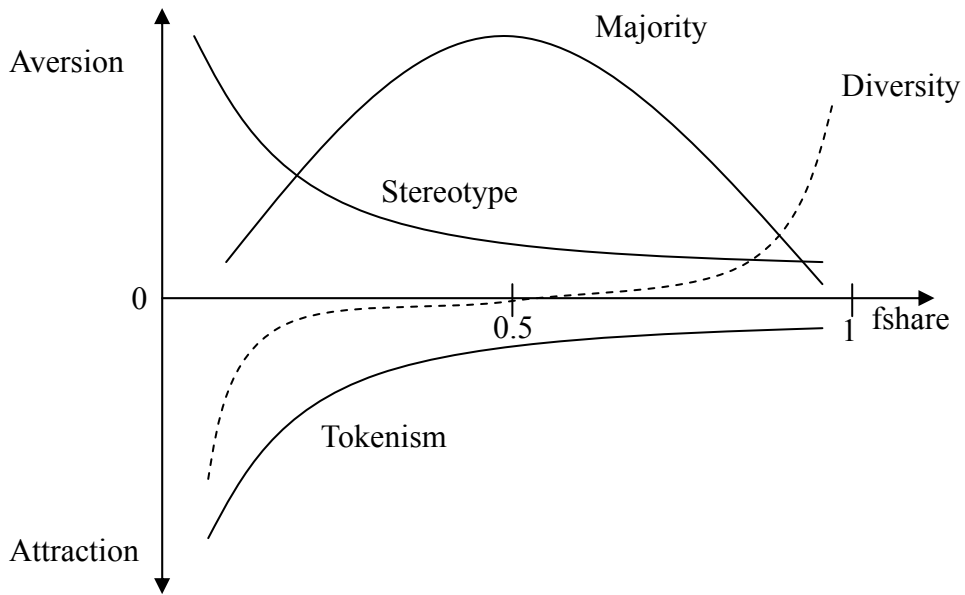
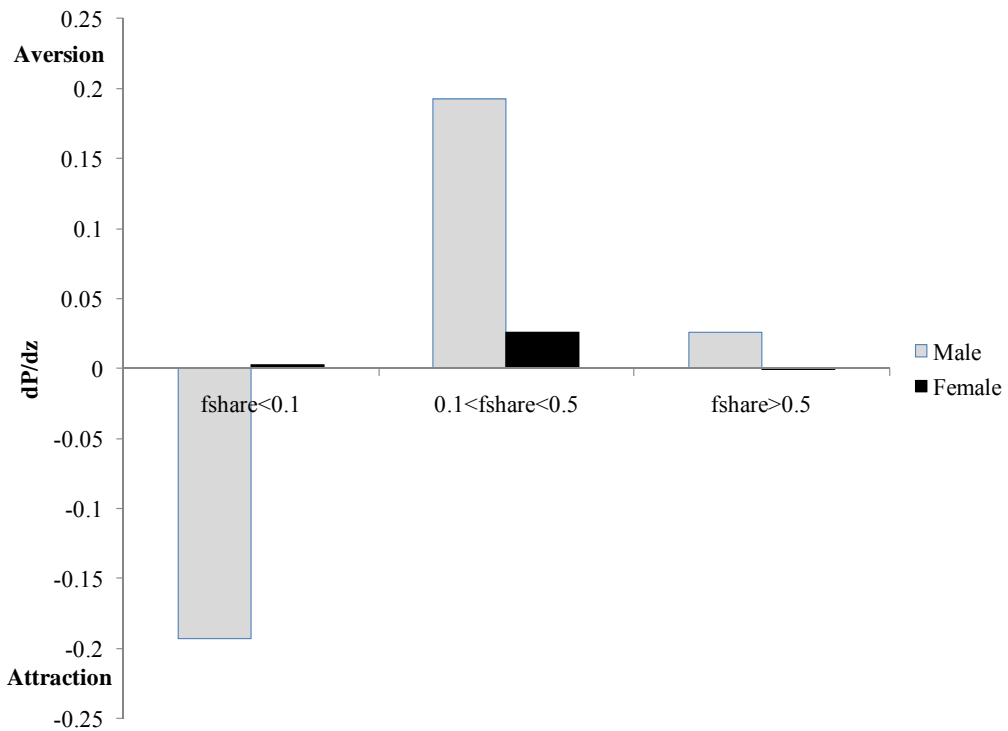


Figure 4 Male Workers' Response to Female Top Managers: Theory



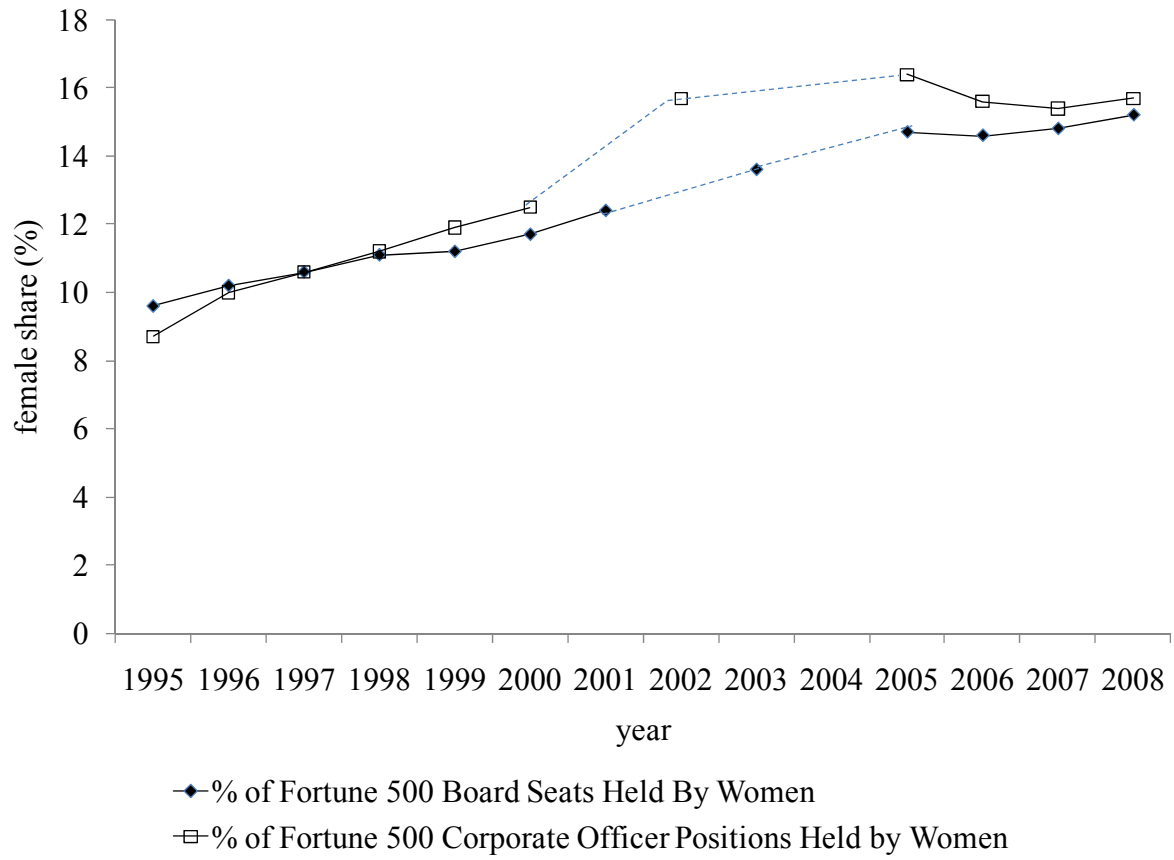
Note: fshare = female share within an occupation.

Figure 5 Opposite Gender Aversion: Evidence



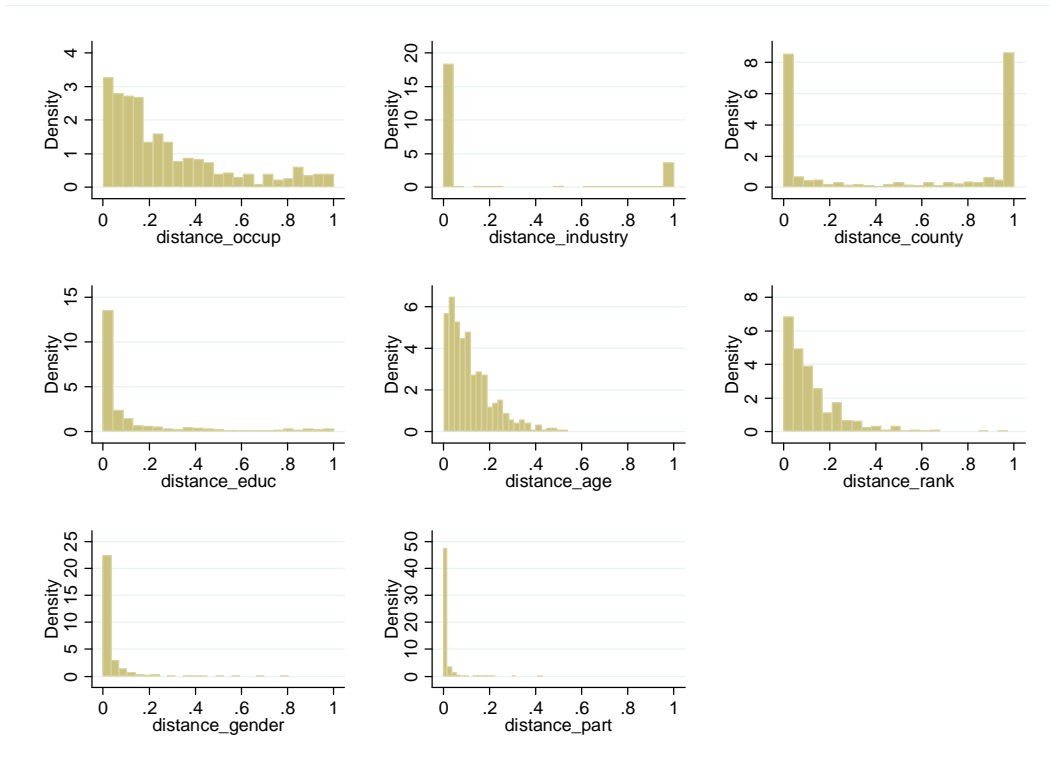
Note: P = probability of turnover; z = (# female top managers within occupation); fshare = female share within an occupation. The figure is based on the estimates in Table 12.

Figure 6 Share of Women in Top Fortune 500



Source: Catalyst (2009) "Women in U.S. Management",
(http://www.catalyst.org/file/192/qt_women_in_us_management.pdf)

Figure 1A Distance between Acquirer and Acquired



Distance in each dimension is measured as 1 - uncentered correlation. For example, to construct a distance measure in occupation structure, for an acquired firm i , we construct a vector $f_i = (s_{1i}, s_{2i}, \dots, s_{54i})$ where s_{ki} is occupation k 's share in firm i (in terms of number of workers). Then, we construct the same vector for its acquiring firm j , f_j . Then, the distance in occupation structure is measured as

$1 - \frac{f_i \cdot f_j}{\|f_i\| \|f_j\|}$. This distance measure is zero if the composition of occupation is the same between the two firms, and is one if two firms do not share any occupation.