

# Female Leaders, Organizational Power, and Sex Segregation

By  
KEVIN STAINBACK  
and  
SOYOUNG KWON

A large body of research has examined the organizational factors that promote women's access to positions of workplace authority. Fewer studies explore how women's access to these positions influences gender inequality among subordinates. Utilizing a 2005 national sample of South Korean organizations, this article examines whether having women in managerial and supervisory roles is associated with lower levels of workplace sex segregation. In other words, do female leaders function as "agents of change," or are they merely "cogs in the machine"? The findings indicate that women's representation in managerial positions is associated with lower levels of sex segregation. Women's representation among supervisory positions, however, is associated with higher levels of sex segregation. The results, in general, suggest that women in higher levels of organizational power may be important catalysts for change, while women in supervisory positions may be a manifestation of institutionalized inequality. The authors conclude with implications for theory and future research.

*Keywords:* workplace inequality; employment segregation; sex; gender; management

Theories of workplace inequality often emphasize men's overrepresentation in positions of organizational power as a key factor

*Kevin Stainback is an assistant professor of sociology at Purdue University. His research examines gender and racial inequality in work organizations. His recent publications have appeared in the Annual Review of Sociology, the American Sociological Review, and Social Forces.*

*Soyoung Kwon is a graduate student in the Department of Sociology at Purdue University. Her research interests include social stratification and inequality, health, work and organizations, and quantitative research methods. She is currently working on her dissertation, which examines changing patterns of health disparities during China's market reform.*

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in the re-creation of gender inequality, because it is assumed that their decisions regarding the allocation of organizational resources (e.g., jobs, wages) will benefit men and disadvantage women (Bielby 2000; Reskin 2000). By implication, researchers have become increasingly interested in identifying the factors that promote women into positions of organizational power, because it is widely believed that increasing women's access to decision-making roles may be a crucial factor in alleviating gender inequalities among subordinates (e.g., Cotter et al. 1997; Ely 1995; Nelson and Bridges 1999).

Scholars have highlighted three discrimination processes by which organizational decision-makers generate inequality. Petersen and colleagues (e.g., Petersen and Graham 1995; Petersen and Saporita 2004) have labeled these as allocative discrimination (the sorting of men and women into jobs of different quality), within-job discrimination (women receiving fewer pecuniary benefits than men working in the same job and workplace), and valuative discrimination (work performed by women receiving less compensation than work performed by men net of necessary education and skill requirements). Because many theories of gender discrimination conceptualize men's overrepresentation in positions of organizational power as a fundamental cause of gender inequality at work (Kanter 1977; Reskin 1988; Tomaskovic-Devey 1993), logical questions that emerge are: What happens when women attain positions of organizational power and decision-making? Do women in positions of organizational power reduce gender-linked inequality?

Despite a substantial body of research that seeks to discover the factors that promote or deny women's access to organizational power (e.g., Cotter, Hermsen, and Vanneman 2001; Elliott and Smith 2004; Gorman and Kmec 2009; Hirsh 2009; Huffman and Cohen 2004; Kalev, Dobbin, and Kelly 2006; Maume 2004; Purcell, Macarthur, and Samblanet 2010; Reskin and McBrier 2000; Skaggs 2008; Stainback and Tomaskovic-Devey 2009), fewer studies have examined whether women's access to these positions serves to challenge gender inequality among subordinates or maintain the status quo. There is, however, a recent and rapidly expanding literature addressing the influence of women in positions of organizational power (e.g., business owners, corporate leaders, managers, supervisors) on various inequality outcomes, including the male-female earnings gap (Cardoso and Winter-Ebmer 2010; Cohen and Huffman 2007; Hultin and Szulkin 1999, 2003; Penner and Toro-Tulla 2010; Penner, Toro-Tulla, and Huffman 2010), access to authority positions (Cohen, Broschak, and Havemen 1998; Skaggs, Stainback, and Duncan n.d.), sex segregation (Huffman, Cohen, and Pearlman 2010), and hiring (Gorman 2005, 2006). Recent research has also explored the effects of female supervisors on subordinates' receipt of social support (Maume 2011) and reported experiences of sexual harassment and discrimination (Chamberlain et al. 2008; Stainback, Ratliff, and Roscigno 2011). Paradoxically, the results of this growing area of research provide mixed evidence as to whether women's access to organizational power helps, hinders, or has no effect on gender inequality among subordinates.

This article contributes to the growing body of research examining the effects of women in positions of authority on gender inequality among subordinates, using a unique organization-level dataset of South Korean workplaces. Although previous research examining this topic has explored various national contexts (e.g., Sweden, Portugal, and the United States), this is the first study to explore the effects of female managers and supervisors on gender inequality among subordinates in South Korea. This provides an important comparative case for previous studies examining U.S. and European contexts.

We borrow from Cohen and Huffman's (2007) conceptualization of female managers and supervisors as either "change agents" or "cogs in the machine" to test alternative views of the effects of women in management on sex segregation. Understanding the factors that may reduce sex segregation is critical given the well-known association between segregation and wages (Cohen and Huffman 2003; Cotter et al. 1995; Levanon, England, and Allison 2009), promotion opportunities (Hultin and Szulkin 2003; Maume 1999), and segmented authority roles (Cohen, Huffman, and Knauer 2009; Elliott and Smith 2001, 2004; Stainback and Tomaskovic-Devey 2009). In this article, we address two core research questions. First, does women's representation in positions with general workplace authority (managers/supervisors) influence sex segregation among nonmanagerial workforces? Second, does women's representation within hierarchical authority matter?

## Gender in Context: The Case of South Korea

Over the past few decades, South Korea has developed rapidly into a key player in the contemporary global economy. Although the Korean economy has fundamentally changed in recent years, women's and men's opportunities in that society continue to be shaped by strong patriarchal values steeped in tradition and Confucian ideology. As Kim (2005, 676) notes, "Women have been required to follow the Confucian virtues of subordination, endurance, and restriction from participation in social activities, and they are regarded as inferior to men in social status." Despite the strength of traditional Confucian ideology, the status of women in the labor market has gradually improved since the passage of laws designed to reduce gender inequality in the economic and political spheres of society, including the Equal Employment Opportunity Act (1987) and the Gender Discrimination Prevention and Relief Act (1999).

Women's labor force participation rate in South Korea reached 50.2 percent in 2005, which ranked it 26th among 177 countries. By comparison, women's labor force participation rate in the United States in 2005 was 59.6 percent, ranking it 12th (United Nations Development Program 2005). The female/male income ratio is only 40 percent in South Korea, compared to 63 percent in the United States (United Nations Development Program 2005). Indicators of women's access to valuable positions in the economy also suggest that South

Korea lags behind the United States in gender equality. Women are 8 percent of all legislators, senior officials, and managers in South Korea and 39 percent of all professional and technical workers. These percentages are noticeably lower than women's share in the United States, at 42 percent and 56 percent, respectively (United Nations Development Program 2005). Since much of the existing workplace gender inequality research examines countries that tend to exhibit greater gender equality (e.g., Sweden, the United States), exploring South Korea provides a unique opportunity to understand how gender dynamics operate in a less egalitarian national context than previously studied.

## Women's Access to Organizational Power and Gender Inequality among Subordinates

### *Female leaders as "agents of change"*

Because men are overrepresented in positions of organizational power, it is assumed that they will reproduce unequal opportunities between female and male subordinates. Theories of gender inequality have suggested that bias processes, such as in-group preference and stereotyping (Gorman 2005; Kanter 1977) as well as out-group exclusion (Roscigno 2007; Tomaskovic-Devey 1993), are the primary mechanisms reproducing male advantage in the workplace. As such, women's access to organizational power may be critical in reducing gender inequality.

Cohen and Huffman (2007, 682) note that if change is to be expected, women in leadership roles must have the "motivation and power" to help female subordinates. Previous research has suggested several interrelated reasons why women in positions of organizational power may benefit female subordinates, including (1) in-group preference in hiring, promotion, and wage-setting decisions (Gorman 2005, 2006); (2) increased access to career-enhancing social networks and mentoring opportunities (Brass 1985; Ibarra 1993; Konrad, Kramer, and Erkut 2008); and (3) declines in gender stereotyping with increases in women's representation in higher-level positions (Ely 1994; Konrad, Kramer, and Erkut 2008).

The work of Hultin and Szulkin (1999, 2003) provides empirical support consistent with the "agents of change" perspective. In their 1999 study, they examined a cross-sectional Swedish employee-employer matched dataset and found that, *ceteris paribus*, women's wages tend to be higher in workplaces with a greater number of women in leadership positions compared to workplaces with a greater number of men in these positions. They also demonstrated that these effects were stronger when decision-making was decentralized. Their follow-up study in 2003 examined an extraordinarily rich dataset of Swedish workplaces that included all workers within each establishment. This study provided even greater support for the effects of females in managerial and supervisory roles on reducing the male-female wage gap. Further analyses separating the effects of

percent female managers and percent female supervisors among blue-collar workers provided interesting results. Among blue-collar workers, they found that female representation in supervisory positions, but not managerial jobs, reduced the gender wage gap. They suggested that this effect is the result of homophily processes between female supervisors and female subordinates that increase social interaction and promote closer relationships.

Other studies also find empirical support for women's access to organizational power. Cardoso and Winter-Ebmer (2010) performed a longitudinal analysis using a unique employer-employee (all employees) matched dataset of male- and female-led firms in two industries (manufacturing and services) to examine the wages of female subordinates and the gender wage gap in female-led firms in Portugal. They found that female-led firms provide higher wages to women compared to male-led firms and that the gender wage gap is also lower in female-led firms.

A cross-sectional study conducted by Cohen and Huffman (2007), using occupation-industry cells to approximate jobs within local labor markets in the United States, found that women's representation in managerial jobs reduced the male-female earnings gap. The effect was particularly pronounced with increased female representation in higher-level managerial positions. Although their study did not use organization-level data, other research corroborates their general finding that having women in higher-level managerial positions erodes gender workplace inequality (Cohen, Broschak, and Haveman 1998; Skaggs, Stainback, and Duncan n.d.).

Studies that specifically examine the effects of female leadership on sex segregation tend to find a beneficial effect as well. For example, in a study of public-sector California state agencies, Baron, Mittman, and Newman (1991) found that women's presence in managerial positions reduced sex segregation over time. The most comprehensive study of female leadership and sex segregation to date was conducted by Huffman, Cohen, and Pearlman (2010). They estimate time series models utilizing confidential data collected annually by the U.S. Equal Employment Opportunity Commission (EEOC) from medium to large private-sector U.S. firms from 1975 to 2005. What is important is that they demonstrate that as women's representation in managerial jobs increases within these workplaces, sex segregation among nonmanagerial workers declines. Another set of studies examining the effects of female college administrators on sex segregation also finds support for the agents of change perspective in that these administrators promote sex integration (Kulis 1997; Pfeffer, Davis-Blake, and Julius 1995).

With respect to experiential inequalities, Stainback, Ratliff, and Roscigno (2011) found that having a female supervisor reduces women's reported experiences of workplace discrimination by 40 percent compared to women working for male supervisors, while having a female supervisor had no effect on men's reports of sex discrimination. Hence, female managers may function as "change agents" by reducing gender inequality and protecting female subordinates from workplace discrimination.

### *Female leaders as “cogs in the machine”*

In contrast to the “agents of change” expectation, other research suggests that women may have no influence on gender workplace inequality. The key assumption outlined by Cohen and Huffman (2007) with regard to why women in positions of organizational power should promote change is that they have both the “motivation and power” to help female subordinates. However, female leaders’ motivation to assist female subordinates may be leveled for fear of being seen as sympathetic to women or not being a team player. For example, Maume (2011, 289) suggests it could be the case that “supervisory women are either not powerful enough to affect the careers of their subordinates or they have been selected to their managerial positions *because* they identify with powerful men at the apex of firms, a selection process that comes at the expense of female subordinates.” In this sense, female leaders may seek to distance themselves from female subordinates and issues closely related to female subordinates such as work-family and equal employment opportunity. Rather than improve women’s opportunities in the workplace, female leaders may further institutionalize gender inequality among subordinates.

Recent research by Penner and colleagues finds support for the “cogs in the machine” perspective. Penner and Toro-Tulla (2010) examined the effects of female business owners on the gender wage gap using a 1992 sample of small businesses. Their findings indicate that the gender wage gap does not differ across female- and male-owned firms. In another study, Penner, Toro-Tulla, and Huffman (2010) examined data collected from a large grocery retailer and found that women in managerial jobs and store manager positions had no effect on the gender wage gap among nonmanagerial workers. Drawing from expectation states theory, they suggest that female managers’ ability to lessen gender inequality for female subordinates may be constrained by the larger cultural system of gender.

Finally, Maume’s (2011) recent study provides additional evidence that female leaders may operate as “cogs in the machine.” Analyzing a national survey of U.S. workers, he finds that men report receiving more work-related support from female supervisors than do women. Furthermore, his analysis also reveals that compared to women, men working for female supervisors also tend to report greater expectations for upward mobility in the workplace. These findings suggest that women may not automatically have the motivation to help female subordinates. In fact, the career-related support provided to men may further exacerbate gender inequality in the future.

### *Alternative explanations: Organizational policy, structure, and environment*

In addition to the potential effects of women in positions of organizational power on reducing gender inequality outlined in the “agents of change” and “cogs in the machine” perspectives, there are a host of organizational

characteristics that may also influence sex segregation suggested by previous theories and research (see Kaley, Dobbin, and Kelly 2006; Reskin and McBrier 2000; for reviews, see Reskin, McBrier, and Kmec 1999; Stainback, Tomaskovic-Devey, and Skaggs 2010). As such, we control for a host of organizational characteristics in our statistical estimates, including measures of various organizational policies, structures, and environments that may influence sex segregation.

## Methods

### *Data*

This study utilizes the 2005 Korean Workplace Panel Survey (KWPS), a nationally representative sample of establishments in the Republic of Korea collected by the Korea Labor Institute (KLI) in 2006.<sup>1</sup> The KWPS is a stratified sample of private- and public-sector establishments with thirty or more employees. Of the workplaces sampled, 3,916 were in the private sector and 400 in the public sector. The survey was completed in 1,905 workplaces from the sample. After excluding sample organizations that were ineligible (those with fewer than thirty employees in 2005), the response rate was 53.6 percent (50.1 percent in the private sector and 88.4 percent in the public sector). After excluding missing cases on the analytic variables and omitting establishments with either only one manager or one supervisor, the final sample size for our study was 1,596.

The survey data were collected through face-to-face interviews conducted with multiple organizational members, including human resource and industrial relations managers, using computer-assisted personal interviewing (CAPI). Survey questions asked about workplace demographics, organizational finances, and various policies and practices in place during the previous year (2005). To enhance reliability, the organizations were contacted in advance and mailed materials regarding the information that would be collected during the interview (e.g., financial data, demographic composition of workers).

### *Measurement*

*Dependent variable.* Sex segregation is measured with the index of dissimilarity ( $D$ ). Because we are interested in estimating the effect of female managers/supervisors on the sex segregation of nonmanagerial workers, the index is computed within workplaces across eight nonmanagerial occupational categories: professionals, technicians, clerks, service workers, sales workers, skilled agricultural and fishery workers, production workers, and laborers. The index of dissimilarity is calculated as follows:

$$\left( \frac{1}{2} \sum_{i=1 \text{ to } 8} |M_i - F_i| \right) \times 100,$$

where  $M_i$  and  $F_i$  are the proportion of men and women in the  $i$ th occupational category, respectively. These eight occupational gender distributions are then summed within each establishment. The index ranges from 0 (indicating complete integration) to 100 (total segregation). The index can be interpreted as the percentage of women or men that would have to change jobs to create a gender-integrated workforce. As such, negative regression coefficients indicate integration effects, while positive coefficients indicate segregation effects.

*Independent variables.* The key independent variables in this study are women's representation in positions of organizational power. The KWPS data contain a measure that distinguishes between women's and men's representation in managerial and nonmanagerial positions. Following the work of Hultin and Szulkin (1999, 2003), our first measure is the percentage of women in all positions of authority, irrespective of hierarchical level. Hence, the measure includes the percentage of women in all positions classified as managerial or supervisory.

The survey item also makes hierarchical distinctions within the managerial ranks. To examine whether women's positions in managerial hierarchies matter for gender inequality among subordinates, we make a further distinction between *managers* (including executives, general managers, deputy general managers, managers)—positions that generally entail routine decision-making responsibilities and are granted substantial organizational power—and *supervisors* (including deputy managers and plant officers who fill supervisory roles)—positions that hold substantially less organizational power. These two measures of hierarchical authority are calculated as the percentage of women in managerial and supervisory positions respectively. The measures are moderately correlated with each other ( $r = .545$ ).

We also estimate models with quadratic terms for percent female managers and percent female supervisors because previous research has shown a nonlinear association between percent female managers and sex segregation (Huffman, Cohen, and Pearlman 2010). Variable descriptions, means, and standard deviations are provided in Table 1.

*Control variables.* Previous research suggests that sex segregation is likely to be affected by organizational factors, including formal policies, structures, and environments (e.g., see Kalev, Dobbin, and Kelly 2006; Reskin and McBrier 2000; Tomaskovic-Devey et al. 2006). We control for a variety of these characteristics in our statistical estimates to reduce the likelihood of identifying spurious effects between our focal associations.

Some research has shown that formalization of the human resource function reduces gender-linked inequality (Elvira and Graham 2002; Konrad and Linnehan 1995; Reskin and McBrier 2000; but see Huffman and Velasco 1997; Kmec 2005). Although we do not have data on the policies and practices governing the allocation of jobs, the data do contain indicators of formalization and gender egalitarianism, including formal gender antidiscrimination policy, family-friendly

TABLE 1  
Variable Descriptions, Means, and Standard Deviations

Variable	Description	Mean	Standard Deviation
Sex segregation (nonmanagerial)	Index of dissimilarity ( <i>D</i> ) calculated for the eight nonmanagerial occupational categories observed in the data	47.65	138.82
Female leadership			
Percent female managers/supervisors	Percentage of managerial/supervisory categories, including executive, general managers, deputy general manager, managers, deputy managers, and plant officers	32.06	166.37
Percent female managers	The four highest managerial categories, including executive, general managers, deputy general manager, and managers	6.68	55.18
Percent female supervisors	Deputy managers and plant officers who fill supervisory roles	20.55	102.51
Organizational policy and structure			
EEO for gender discrimination	Gender discrimination policy (1 = yes; no = 0)	0.32	
Family-friendly policies	Number of family policy provisions	2.63	8.36
Human resource management (HRM) office	Formal office (1 = yes; no = 0)	0.37	
Total employment (ln)	Total number of employees	4.33	3.40
Organization age	2005–establishment founding year	15.61	54.86
Unionized workplace	Unionized (1 = yes; 0 = no)	0.17	1.68
Occupational heterogeneity (nonmanagers)	Heterogeneity index	42.08	92.61
Environmental pressures			
Competition	How intense is competition? <i>Not at all intense</i> (coded 1) to <i>very intense</i> (coded 5)	3.92	4.16
Downsizing	10 percent or more employment reduction in past year (1 = yes; 0 = no)	0.15	1.58
Public sector	Public sector (1 = yes; 0 = no)	0.01	

NOTE: Descriptive statistics are weighted. *N* = 1,596.

policies, a human resource management office, and organizational size. A binary variable is included indicating whether an organization has a formal *gender anti-discrimination policy* (coded 1 for yes, 0 for no). The family-friendly policies variable is a count of ten formal *family-friendly policies* (e.g., maternity leave, on-site childcare, lactation rooms). A binary variable is included for the presence of a *human resource management office*. *Organizational size* is the natural logarithm of the total employment.

We also include controls for organizational age and unionization. As Stinchcombe (1965) noted, the structures of organizations are imprinted with technological and cultural aspects of their environments at the time of founding. From this perspective, older organizations are likely to exhibit higher levels of sex segregation. *Organization age* is measured as the year in which the survey was conducted (2005) minus establishment founding year. *Age squared* is also included to account for potential nonlinear effects. *Unionization* is measured with a binary variable coded 1 for unionized workplaces and 0 otherwise.

An *occupational heterogeneity index* is incorporated to account for measurement error associated with our dependent variable. The index of dissimilarity ( $D$ ) is influenced by the distribution of workers across the eight nonmanagerial occupational categories. In organizations where people are more evenly distributed across these eight categories, observed segregation will tend to be higher than organizations in which employment is primarily in just a few categories. Hence, measurement error in our segregation index is dependent on the degree to which the eight occupational categories match divisions of labor within workplaces. The KWPS data will accurately measure *between* occupation segregation; however, they are likely to underestimate *within* occupation job segregation. The extent to which these occupational categories match actual divisions of labor will vary across workplaces, and therefore measurement error will also vary (e.g., see Stainback, Robinson, and Tomaskovic-Devey 2005; Tomaskovic-Devey et al. 2006). We adjust for this source of measurement error by controlling for observed workplace occupational heterogeneity using the Gibbs-Martin Heterogeneity index:

$$1 - \sum_{i=1to8} p_i^2,$$

where  $p_i$  is the proportion of total employment in each of the eight workplace occupations squared and summed.

Finally, we include measures of environmental pressures—market competition, downsizing, sector, and industry. Market competition is presumed to push organizations to operate in the most efficient manner possible. Therefore, organizations that continue to discriminate against women will be less competitive as a result of paying a wage premium for male workers and failing to hire the most productive female workers (Becker 1971). Previous research has shown that market pressures may encourage sex integration (McTague, Stainback, and

Tomaskovic-Devey 2009; Reskin and McBrier 2000). *Market competition* is measured with a survey item that asked, "How intense is competition in the Korean market for your workplace's main good/product or service?" The Likert item response categories ranged from *very intense* (coded 1) to *not at all intense* (coded 5). The item was reverse coded so that higher values indicate greater market competition.

Recent research has also suggested that organizations that experience downsizing may have lower sex segregation because in the process of becoming "lean and mean," they often eliminate feminized departments (Haveman, Broschak, and Cohen 2009; Kalev n.d.). *Downsizing* is incorporated into our statistical models with a binary variable coded 1 for workplaces that have experienced a 10 percent or more decrease in the size of its workforce within the past year.<sup>2</sup>

Institutional theory suggests that the public sector is more likely to conform to legal mandates issued by the state than private-sector firms because (1) they are directly interconnected to the federal government and (2) adherence to institutional rules is an indicator of performance for public-sector firms (e.g., DiMaggio and Powell 1983). As a result of the passage of federal laws making gender discrimination illegal in South Korea (the Equal Employment Opportunity Act 1987 and the Gender Discrimination Prevention and Relief Act 1999), we suspect that the public sector may have more quickly integrated its workforce than the private sector. *Public sector* is a binary variable coded 1 for public sector organizations and 0 otherwise.

Finally, because of the well-established relationship between industry and sex segregation (McTague, Stainback, and Tomaskovic-Devey 2009; Tomaskovic-Devey et al. 2006), we control for *industry* at the two-digit classification level with an industry fixed effect. The industry fixed effect coefficients absorb all between-industry variation.

## Results

Table 2 provides the results from three ordinary least squares regression models. Model 1 includes the percentage of women in all positions of organizational power and controls for organizational characteristics. Model 2 estimates the effects of female managers and female supervisors separately to determine whether women's position in the organizational power structure affects sex segregation among subordinate workers. Model 3 tests for the potential nonlinear effects of female leadership on sex segregation.

Model 1 estimates the effect of percent female managers/supervisors on sex segregation. The effect is not statistically significant ( $b = .025$ ), controlling for organizational characteristics. The notion that having women anywhere in the organizational power structure benefits all women does not receive empirical support in this model.

TABLE 2  
The Effects of Female Leadership on Sex Segregation

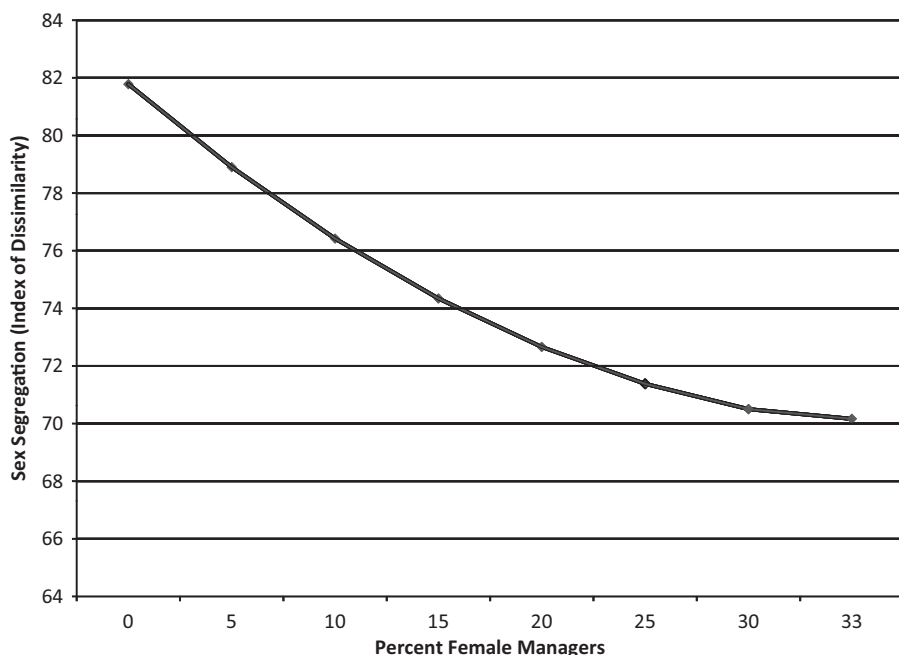
	Model 1	Model 2	Model 3
Female leadership			
Percent female managers/ supervisors	.025 (.020)		
Percent female managers		-.187*** (.068)	-.616**** (.138)
Percent female managers squared			.008*** (.002)
Percent female supervisors		.066° (.035)	-.281**** (.083)
Percent female supervisors squared			.005**** (.001)
Organizational policy and structure			
Gender discrimination policy	-2.844** (1.373)	-2.849** (1.369)	-3.045** (1.352)
Family-friendly policies	-.207 (.354)	-.216 (.354)	-.404 (.351)
Human resource management office	.368 (1.420)	.382 (1.418)	.275 (1.400)
Total employment (ln)	-1.259° (.712)	-1.324° (.703)	-1.176° (.694)
Organizational age	-.110 (.107)	-.113 (.107)	-.084 (.105)
Organizational age squared	.000 (.001)	.000 (.001)	.000 (.001)
Unionized workplace	3.620** (1.716)	3.504** (1.718)	2.847° (1.698)
Occupational heterogeneity	.505**** (.033)	.506**** (.034)	.504**** (.033)
Environmental pressures			
Competition	-1.282° (.690)	-1.330° (.688)	-1.190° (.680)
Downsizing	-3.363° (2.037)	-3.533° (2.034)	-3.550° (2.007)
Public sector	-4.612° (2.727)	-4.959° (2.726)	-4.950° (2.691)
Adjusted R <sup>2</sup>	.3275	.3305	.3492

NOTE: Unstandardized metric coefficients with standard errors in parentheses. Models contain fixed effects for industry.  $N = 1,596$ .

° $p < .10$ . °° $p < .05$ . °°° $p < .01$ . °°°° $p < .001$  (two-tailed test).

Model 2 separates the effects of female managers and female supervisors. What is interesting is that the coefficients exhibit opposite signs. The effect of women in managerial jobs is associated with lower levels of sex segregation ( $b = -.187$ ,  $p < .01$ ). As women's managerial representation increases, segregation declines. Although marginally significant ( $.05 < p < .10$ ), women in supervisory positions are associated with higher levels of sex segregation ( $b = .066$ ). Taken together, this suggests that women in higher-level decision-making roles have beneficial effects on workplace sex integration. However, the resegregating effects of percent female supervisors is likely to be related to the process of bottom-up ascription, where women supervisors often find themselves in low-level leadership roles supervising other women (Elliott and Smith 2001; Stainback and Tomaskovic-Devey 2009).

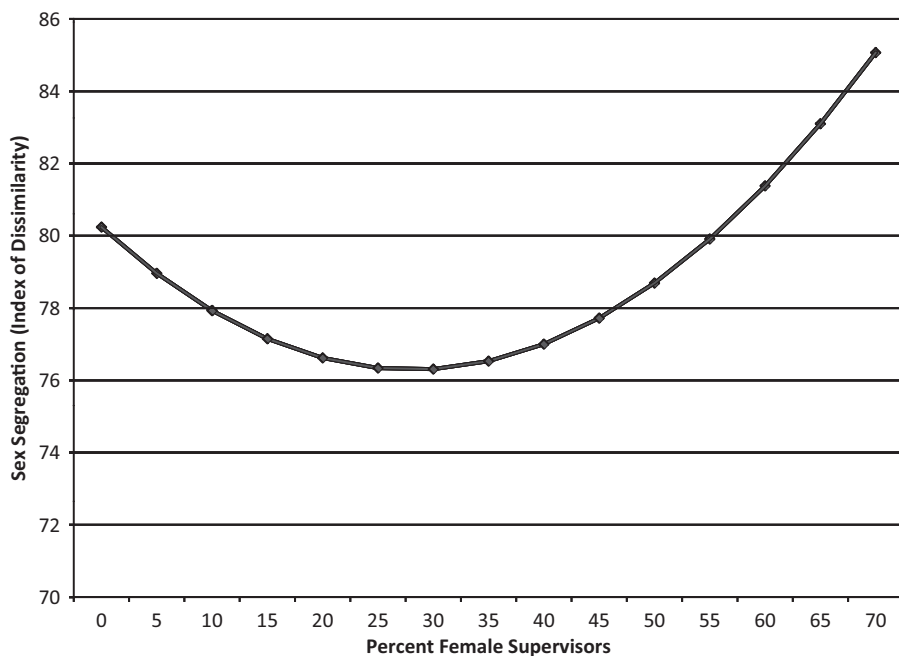
FIGURE 1  
 Predicted Level of Sex Segregation by Percent Female Managers



Model 3 provides estimates with the quadratic terms for percent female managers and percent female supervisors to test for nonlinearity. All four coefficients are statistically significant ( $p < .05$ ). The negative coefficient for percent female managers and positive coefficient for percent female managers squared indicate that female managers have the effect of reducing sex segregation among subordinates at a decreasing rate. The nature of the association is depicted in Figure 1.

Predicted segregation values are displayed in Figure 1 and represent the effects of percent female managers ( $x$ -axis) on sex segregation ( $y$ -axis) at the 5th and 95th percentile (0 percent managers and 33.3 percent managers, respectively), while holding all other variables at their sample means with the exception of the index of heterogeneity. To adjust for measurement error associated with the distribution of workers across the eight occupational categories, the index of heterogeneity is multiplied by its theoretical maximum (80.83). In general, the presence of female managers is associated with lower levels of sex segregation at lower levels of managerial representation, but the effect essentially levels off

FIGURE 2  
 Predicted Level of Sex Segregation by Percent Female Supervisors



once women occupy approximately 30 percent of the managerial jobs. This finding provides support for the “agents of change” perspective and is consistent with the findings of Huffman, Cohen, and Pearlman (2010).

The predicted relationship between female supervisors and sex segregation is depicted in Figure 2. The figure represents the effects of percent female supervisors at the 5th and 95th percentile. In model 2, estimating the linear effect of female supervisors, we found that female supervisors are associated with greater sex segregation. The nonlinear models, however, provide an interesting result. Female supervisors appear to have beneficial effects on alleviating sex segregation until they reach approximately 30 to 35 percent of supervisors. Once this threshold is reached, women’s presence in supervisory roles is associated with greater segregation. Although the “agents of change” perspective suggests that the presence of women in managerial and supervisory positions is likely to reduce gender inequality through top-down processes, this finding suggests a bottom-up process whereby women gain access to supervisory positions directing the work of female subordinates (Elliott and Smith 2001, 2004). In effect, sex-segregated employment generates sex-segregated supervisory roles.

Although organizational characteristics were included as control variables in our statistical estimates, a couple of significant findings are worth noting. On

average, sex segregation is lower in organizations with a formal antidiscrimination policy and in larger workplaces. Unionized workplaces tend to have higher levels of sex segregation compared to nonunionized workplaces. All three of the environmental pressure variables are marginally significant ( $p < .10$ ). The results indicate that organizations embedded in more competitive environments have lower levels of sex segregation. The findings also suggest that organizations that have experienced downsizing within the past year tend to be less segregated than firms that have not experienced downsizing. This finding is consistent with recent research that suggests that downsizing may lead to the elimination of feminized departments and jobs (Haveman, Broschak, and Cohen 2009; Kalev n.d.). Finally, consistent with institutional theory expectations, organizations in the public sector have less sex segregation on average compared to private-sector workplaces.

## Conclusion

Although some previous research suggests that increasing women's access to organizational power may curtail gender-linked inequality within workplaces (Cohen and Huffman 2007; Cotter et al. 1997; Hultin and Szulkin 1999), few studies to date have explored this topic with regard to sex segregation. Drawing from Cohen and Huffman's (2007) framework conceptualizing women in positions of organizational power as either "change agents" or "cogs in the machine," we examine the question, Do women in managerial and supervisory positions reduce sex segregation among subordinates?

Theoretically, the "agents of change" perspective suggests that women's representation in managerial jobs is likely to reduce gender inequality among subordinates by reducing bias processes responsible for recasting male advantage (in-group preference, stereotypes) and increasing women's access to career-enhancing social networks and mentoring opportunities with female managers and supervisors (Cohen and Huffman 2007; Hultin and Szulkin 1999, 2003). In contrast, the "cogs in the machine" perspective suggests that female managers and supervisors are unlikely to affect gender inequality among subordinates because they are severely constrained by the larger cultural system of gender (see Maume 2011; Penner and Toro-Tulla 2010; Penner, Toro-Tulla, and Huffman 2010). From this perspective, status beliefs about men's competence and abilities may lead both male and female decision-makers to contribute to gender inequality among subordinates. In addition, female managers and supervisors may also avoid appearing sympathetic to female subordinates in an effort to maintain career-enhancing ties to powerful men in the organization (Maume 2011).

Utilizing a representative dataset of South Korean organizations, our findings provide some support for the "agents of change" perspective. We find that organizations with a larger percentage of women in managerial jobs tend to have lower observed levels of sex segregation. This result is consistent with the recent

work of Huffman and colleagues (2010) and suggests the importance of integrating managerial hierarchies for reducing gender inequality among subordinates. The policy implications of this finding are important because they suggest that promoting women's access to higher-level managerial positions may be crucial for eradicating workplace gender inequality. Because women account for less than 7 percent of managers in South Korea, specific policies should be developed and implemented to increase women's access to these positions.

Our analyses of the effects of female supervisors on sex segregation provide mixed results. At lower levels of representation, female supervisors are associated with lower levels of sex segregation consistent with the "agents of change" expectation. However, once women occupy approximately 30 percent of supervisory positions, sex segregation begins to rise with increases in female representation among supervisors. This resegregation effect could be the result of supervisors' in-group preferences for same-sex subordinates; however, we believe the effect is more consistent with a bottom-up ascription explanation—women are most likely to find themselves in supervisory roles directing female workers (Elliott and Smith 2001, 2004). Of course, our cross-sectional data cannot adjudicate between these two explanations.

A limitation of this study is that it relies on cross-sectional data. Although our theoretical framework is dynamic, we can only observe static associations. As with all cross-sectional studies, statistical relationships between core theoretical variables can be established, but temporal order is dependent on theoretical expectations. Future studies utilizing panel data will be valuable for establishing causality.

Further research should more thoroughly interrogate the relationship between women's access to organizational power and inequality among subordinates, especially given inconsistent findings across studies. Researchers should seek to develop a better theoretical and empirical understanding of how hierarchy within authority structures matters and for which outcomes (e.g., segregation, wages, and career support). For example, Hultin and Szulkin's (2003) finding that female supervisors may be more important for reducing the gender wage gap than managers differs sharply from our results. We believe that these differences may be related to the different outcomes examined, although, admittedly, we cannot rule out potential differences in national context. While the wage gap and segregation are two important indicators of inequality, the process governing allocation may be quite different. For example, supervisors may influence the wage gap through the formal evaluation of subordinates. Allocation to jobs themselves, however, is unlikely to be the decision of supervisors. Hiring and promotion decisions are likely being made by managers. From this standpoint, the allocation of women and men into jobs is made largely by managers, not supervisors. Following this logic, it seems reasonable to expect that women at different levels of organizational power may have unique effects on different gender inequality outcomes. Future research should seek to (1) more precisely specify which organizational actors are making which decisions affecting gender inequalities

and (2) identify the organizational contexts that enhance female managers' ability to reduce gender inequality.

## Notes

1. More information about these data can be located on the Korea Labor Institute's website at [www.kli.re.kr/wps](http://www.kli.re.kr/wps).

2. We also estimated models with downsizing defined as a 15 percent decrease in employment. Our substantive findings did not change.

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