Determinants of the Gender Gap in the Proportion of Managers among White-Collar Regular Workers in Japan

Kazuo Yamaguchi
University of Chicago

This article analyzes the determinants of gender differences in the proportion of managers among white-collar regular workers by using linked data on employers and employees in Japanese firms. First, the article shows that the reasons for "having few or no female managers" given in response to employer surveys conducted by the Ministry of Health, Labor and Welfare, such as a "high rate of job quitting among women," cannot be considered genuinely major causes, even though they are among the minor ones. This is in view of the fact that the proportion of managers among female college graduates is far lower than that among male high school graduates, for any given number of years of employment for the current employer. The fundamental problem lies in "pre-modern" human-resource management whereby gender, as an ascribed status, is given greater weight than educational achievement in determining who will become managers. The article also shows that only about 20% of the gender difference in the proportion of managers is explained by the difference in human capital characteristics between men and women; that in order to become managers, long working hours seem to be required more for women than for men; that the proportion of managers increases for men and decreases for women, depending on the age of their last child, in a way that suggests a reinforcement of traditional gender roles by employers; and that firms with centers dedicated to promoting work-life balance among employees have smaller gender gaps in the proportion of managers.

I. Introduction: Basic Recognition about the Present Situation in Japan

The objective of this article is to explain why there are few female managers in Japan, based on the analysis of empirical data. It is well known that the proportion of women among managers in Japan is much lower than that in Western countries, and the speed of improvement in this regard has also been very slow. According to the 2012 Revised Edition of "Resources on Gender Equality of Employment (GEE)," published by the Ministry of Health, Labor and Welfare in Japan, the proportion of women among managers exceeds 30% in most European countries and 40% in the United States, but is only about 10% in Japan and South Korea. According to a survey by the Ministry of Health, Labor and Welfare in 2013, the proportion of women among section heads (*kacho*) and above is 7.4% in firms with 555–999 employees and 5.8% in firms with 1,000 or more employees. Even the proportion of women among managers or administrators in the public sector, which is usually high in Western countries, was only 3% in Japan in 2013.

To this author, some previous government reports that have identified the "causes" of women's under-representation in management seem to generate a serious bias in understanding the present situation, and this issue will therefore be discussed first. Such reports

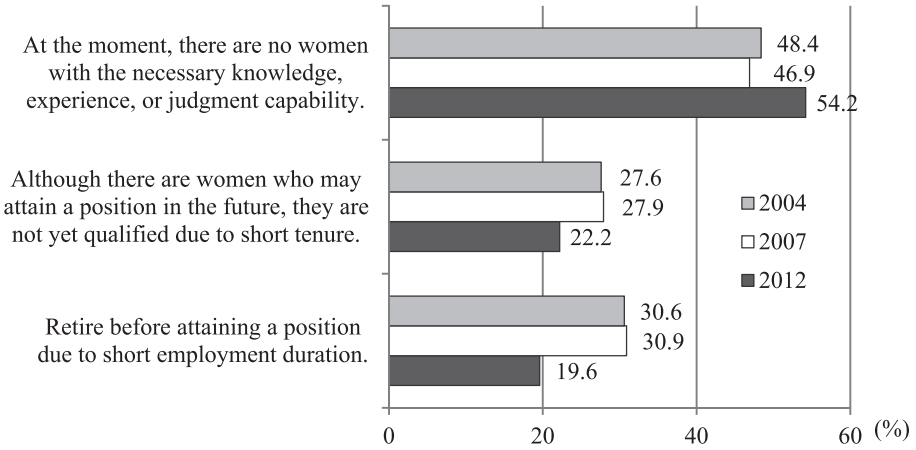

Figure 1. Employers' Reasons for Having Few Female Managers/Administrators

are shown in Figure 1, which selects three major "causes" from the above-mentioned GEE resources produced by the Ministry of Health, Labor and Welfare. This is the result of questionnaire surveys for responses from personnel officers of firms where the proportion of women in management or administration is less than 10%. The surveys permit respondents to choose multiple reasons for having few or no women in management. According to the surveys, the reason most frequently mentioned was "At the moment, there are no women who have the necessary knowledge, experience or judgment capability," which was selected by 54% of the sample firms in 2012. Although the ranking order of the second and third mostly frequently mentioned reasons changed between 2007 and 2012, those reasons were "Although there are women who may attain management positions in the future, they are not yet qualified due to their short tenure" and "Women retire before attaining management positions due to their short duration of employment." About 20–30% of firms gave these reasons. Both reasons identify women's lack of sufficient employment duration as the reason why there are few female managers or administrators.

These three major reasons given by personnel officers thus attribute the reason why there are few women in management or administration to women themselves. No firms mentioned any discriminatory practice against women, including indirect discrimination, as a major cause. In particular, the most frequently mentioned reason, i.e. that there are "no women who have the necessary knowledge, experience or judgement capability," indicates firms' lack of human resource investment in women—unless it can be explained as a result of gender inequality in educational attainment. Although this article analyzes how much of the gender gap in the proportion of managers can be explained by gender differences in educational attainment, the extent of this is in fact small.

Moreover, the second and third reasons suggesting that women lack sufficient employment duration to become managers or administrators contradict empirical results. Figure 2 gives the results for white-collar regular employees from the 2009 International

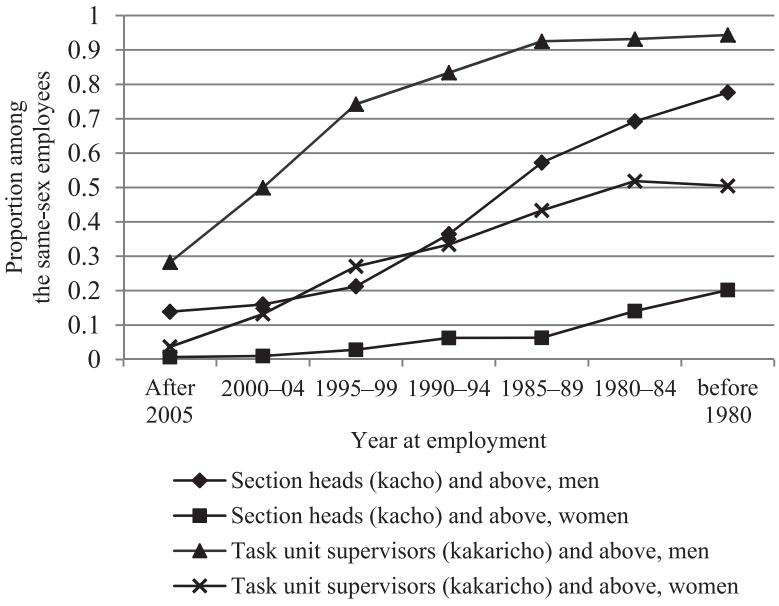

Figure 2. Gender Gap in Management/Supervision by Employment Duration

Comparative Survey on Work-Life Balance conducted by the Research Institute of Economy, Trade and Industry (RIETI), whose data are mainly analyzed in this article. Figure 2 is based on data including a sample of 6,480 men and 3,023 women aged 23–59 employed in one of 1,677 sample firms with 100 or more employees. The figure shows the proportion of section heads (*kacho*) and above and the proportion of task unit supervisors (*kakaricho*) and above by gender and year of first employment.

Figure 2 shows that the proportion of women among female regular employees attaining the level of section heads and above is less than 10% for the first 25 years of employment, and reaches 14% of those who were first employed in the years 1980–84 (corresponding to 26–30 years of employment). On the other hand, 14% of male regular employees employed in 2005 or later (corresponding to 5 or fewer years of employment) have already reached the level of section heads and above. Hence, the proportion of section heads and above that women attain after 26–30 years of employment is attained by men within 5 years. Similarly, the proportion attained by women in their lifetime (20%) can be reached by men after 11–15 years of employment. In addition, the proportion of section heads and above among men steadily increases thereafter to 36% of those with 16–20 years of employment and 57% of those with 21–25 years of employment. The situation is about the same for the proportion of task unit supervisors and above. Here, the proportion that women can attain in their lifetime of employment (50%) can be reached by men after 6–10 years of employment, i.e. by those employed in the years 2000–2004.

The figure therefore demonstrates that the second and third reasons given by firms' personnel officers, i.e. that women cannot attain managerial or administrative positions due

to their lack of employment duration, is a one-sided view because they ignore the considerable disparity in the rate of promotion to managerial or supervisory positions between men and women of equal employment duration. Rather than the major reasons given by firms' personnel officers, it seems to this author that the fundamental cause lies in Japanese firms' practice of placing the majority of women in an internal career track, such as the clerical career (*ippan shoku*) track, which leads to far fewer opportunities for promotion to managers or supervisors. In order to investigate this issue, this article analyzes how much of the gender gap in the proportion of managers and supervisors can be explained as a result of gender gaps in educational attainment, age and employment duration, and how much remains unexplained.

Firms, however, are not homogenous, and therefore, another objective of this article is to analyze the influence of employer differences. In other words, the article analyzes what characteristics of firms generate differences in the gender gap in the proportion of managers and supervisors among regular employees of equal educational attainment, age and employment duration.

II. Analytical Strategy and Main Hypotheses

This article analyzes the determinants of the gender gap in the proportion of managers and supervisors among regular employees of the same sex. Let Y be the dummy variable that has the value of 1 for a manager and a value of 0 otherwise, and let X be the gender dummy variable with a value of 1 for a woman and 0 for a man. On that basis, this article analyzes the determinants of the following gender gap:

$$\overline{Y}_{X=1} - \overline{Y}_{X=0} = \frac{\text{Number of Female Managers}}{\text{Number of Female Regular Employees}} - \frac{\text{Number of Male Managers}}{\text{Number of Male Regular Employees}}. \quad (1)$$

Although one limitation in the analysis of this gender gap is that it does not reflect the low proportion of female managers arising from the fact that there are fewer female regular employees than male regular employees, it has the advantage of being able to take into account differences in individual human-capital characteristics between men and women. Moreover, the author concluded in a previous study (Yamaguchi 2008) that the largest portion of the gender wage gap arises from the gender wage gap among regular employees, rather than from the gender difference in the proportion of regular employees. Generally, the rate of promotion to a managerial position can be considered as a latent individual attribute, namely the hazard rate of promotion. To analyze this hazard rate, we need a longitudinal survey to cover many years of observations for regular employees from the time when they were first employed. In addition, since the gender difference in the rate of promotion is affected by the characteristics of firms, the longitudinal survey has to collect information from

their employers as well. However, longitudinal survey data with such multilevel measurements do not yet exist in Japan. As a substitute for analyzing the individual hazard rate of promotion to a managerial position, therefore, the author decided to analyze the determinants of the gender gap in equation (1). There are two limitations to such an analysis, however. First, in the analysis based on the hazard rate, we can eliminate reverse causation by taking a time lag between the measurement of explanatory variables and its predicted outcome, but we cannot do that when analyzing the gender gap in equation (1). A problem of reverse causation arises when we use variables that may reflect the consequences of being a manager as explanatory variables. For the present analysis, it was decided not to use variables from the employee survey other than those for which reverse causation hardly exists, such as educational attainment, age and year of employment, and two other variables that are employed for provisional analyses due to their theoretical importance, despite the possible presence of reverse causation. The reason why other variables from the employee survey were not employed as explanatory variables is that employees' characterizations of their firms' policies, workplaces and their supervisors are likely to reflect potential consequences of their promotion to managerial positions, and are thus likely to generate bias due to reverse causation. However, the survey data employed in the present study has an employer-survey component that includes responses to questions provided by firms' personnel officers. Unlike responses from employees, we can assume that personnel officers' characterizations of workplaces, personnel policies and work-life policies are not affected by whether an employee is a manager or not. In order to characterize subjects' workplaces, therefore, the author linked the employee survey data with the employer survey data, and used variables from the employer survey.

The second limitation in the present analysis (which also applies to the analysis of longitudinal survey data) is an issue of selection bias due to "unobserved heterogeneity." This article gives caveats about the interpretation of results where this issue is especially relevant.

As for hypotheses, the following two will be self-evident.

Hypothesis 1: Gender difference in educational attainment is a cause of the gender gap in the proportion of managers and supervisors.

Hypotheses 2: Gender difference in age and employment duration with the current employer is a cause of the gender gap in the proportion of managers and supervisors.

Here, we are concerned with the quantitative extent of the influence of those gender differences in human-capital variables. Since information about employment experiences in other firms can be obtained from the survey, their influence was examined in the preliminary analysis, but no significant effects were found.

One of the variables the author decided to include in the analysis due to its theoretical importance, despite the possibility of reverse causation, is the number of working hours per week. Regarding this variable, we cannot deny the possibility that becoming a manager or supervisor changes working hours. However, there is a theoretical reason why this variable

has been included in the analysis of determinants of the gender gap in the proportion of managers. In their longitudinal data analysis of employees' career experiences in a large Japanese firm, Kato, Kawaguchi, and Owan (2013) showed that the effects of working hours on the rate of promotion differ between men and women and that long working hours increase the rate of promotion only for women. This finding suggests that, as a signal of an employee's loyalty to the firm, Japanese firms use long working hours only for women, while taking them for granted in the case of men. Hence, the following two hypotheses shall be tested.

Hypothesis 3: Hours of work, and the gender difference in them, represent one of the correlates of the gender gap in the proportion of managers and supervisors.

Hypothesis 4: The relationship between long working hours and being a manager or supervisor is stronger for women than for men.

Hypothesis 4 indicates the presence of an interaction effect between gender and working hours on the proportion of managers and supervisors, but this hypothesis can imply two different things, depending on whether the effect shows causation or reverse causation. Causation, which means here that working hours increase the rate of becoming a manager or supervisor, will indicate that (as in the study by Kato, Kawaguchi, and Owan) long working hours lead to promotion for women more than for men. Reverse causation, which means here that becoming a manager or supervisor increases working hours, will indicate that women, more than men, must extend their working hours when they become managers or supervisors. The word "must" is used here because the author has shown in a previous study (Yamaguchi 2009) that managers are more likely than workers in any other occupation to work overtime involuntarily in Japan.

The second variable employed in the analysis, despite its possibility of reverse causation, is "marital and childrearing status," characterized by whether the subject has (1) a spouse and (2) a child, and the age of the last child if any child exists. Reverse causation here implies the effect of becoming a manager on those characteristics. Marriage opportunities may increase especially for men when they receive a promotion and pay raise, and this could result in a greater proportion of managers among married than among single men. For those who are married, however, we may regard reverse causation (such as having either the first or another child because of promotion) as much less likely. On the other hand, under customary Japanese employment practices, employers may assume the traditional division of household labor and consider men to place priority on their role at work, thereby assigning men with children to jobs with higher responsibility. This will give greater opportunities for promotion. Conversely, employers may assume women to place priority on their role in the family, and thereby exclude women with children from jobs that would lead to greater opportunities for promotion. These customary practices of Japanese firms may therefore yield a larger gender gap in the proportion of managers among employees with children. Hence, the following two hypotheses will be tested.

Hypothesis 5: With age and other individual attributes controlled, the proportion of

managers and supervisors is higher among married men with children than among married men without children.

Hypothesis 6: With age and other individual attributes controlled, the proportion of managers and supervisors is lower among married women with children than among married women without children.

Regarding Hypothesis 6, it is possible that female employees themselves, rather than their employers, prefer the traditional division of household labor. As a result, women with children may not desire promotion to managerial positions, and this may lead to a smaller proportion of managers. In other words, uncontrolled women's preferences may be a confounder of the relationship between the proportion of managers and whether or not they have a child among married women. Regarding Hypothesis 5, however, it is unlikely that a married male employee who seeks promotion simply because he has become a father will be promoted for that reason alone, and therefore, any possible confounding effect of the uncontrolled preferences of men will be negligible.

Regarding employer effects on the gender gap in the proportion of managers, one of the author's previous studies (Yamaguchi 2012) showed two important policies as major characteristics of employers' work-life balance policies that are positively correlated with firms' labor productivity. These two policies are: (1) whether the employer "encourages employees to fulfill their potential regardless of gender," and (2) whether the employer "has an active work-life balance policy involving the establishment of a department or a center dedicated to promoting employees' work-life balance." We can hypothesize that a presence of these employer policies will generate a higher rate of promotion of women to managerial positions, and will thereby decrease the gender gap in the proportion of managers. Hence, the following hypotheses will be examined.

Hypothesis 7: With individual attributes controlled, the presence of an employer's personnel policy to "encourage employees to fulfill their potential regardless of gender" reduces the gender gap in the proportion of managers and supervisors.

Hypothesis 8: With individual attributes controlled, the presence of an employer's active work-life policy involving the establishment of a department or center for promoting work-life balance among employees reduces the gender gap in the proportion of managers and supervisors.

The employer survey whose responses are analyzed here actually included other survey items related to firms' personnel management policies and work-life balance policies. The author has examined those other policies regarding their possible effects on the gender gap in the proportion of managers and supervisors, and will report on the results. In the preliminary study, attention was also paid to whether the greater proportion of managers and supervisors for men than for women arises in part from a potential tendency that men are more likely to be employed by firms with a greater proportion of managerial positions. However, such a tendency was not statistically significant.

III. Method of Statistical Analysis

1. Decomposition Analysis of the Gender Gap in the Proportion of Managers

The analysis decomposes the gender gap in the proportion of managers into "explained" and "unexplained" components. Instead of using the Blinder-Oaxaca method (Blinder 1973; Oaxaca 1973; hereinafter "the BO method") frequently employed in econometric analysis, this article uses the DFL method (DiNardo, Fortin, and Lemieux 1996) and the related standardization method by using the propensity score weighting without specifying the outcome regression model. Unlike the BO method, which employs regression equations for the outcome, the DFL method has the advantage of applicability to decomposing differences in the proportion.

In order to decompose the gender gap in the proportion of managers into "explained" and "unexplained" components, the DFL method realizes, in the data, a counterfactual situation whereby men and women have the same distribution of explanatory variables, except for random errors. The analysis below, in particular, is designed to realize the counterfactual situation where women come to have the same distribution of explanatory variables $\mathbf{Z}$ as that observed for men. It therefore employs the following propensity-score weights.

$$\omega(\mathbf{z}) \equiv \frac{f(\mathbf{z}\,|\,x=0)}{f(\mathbf{z}\,|\,x=1)} = \frac{p(x=0\,|\,\mathbf{z})f(\mathbf{z})/\,p(x=0)}{p(x=1\,|\,\mathbf{z})f(\mathbf{z})/\,p(x=1)} = \frac{p(x=1)p(x=0\,|\,\mathbf{z})}{p(x=0)p(x=1\,|\,\mathbf{z})} \qquad (2)$$

In equation 2, the dummy variable X indicates a distinction between men (x = 0) and women (x = 0), $f(\mathbf{z}\,|\,x)$ is the conditional probability of explanatory variables $\mathbf{Z}$, and weights convert the distribution of $\mathbf{Z}$ for women, $f(\mathbf{z}\,|\,x=1)$, to that of men, $f(\mathbf{z}\,|\,x=0)$. Equation (2) indicates that the weights can be obtained if we can estimate the conditional probability of x, $p(x\,|\,\mathbf{z})$, accurately. This article employs logistic regression to estimate $p(x\,|\,\mathbf{z})$, ensuring that the propensity-score estimates satisfy statistical independence between X and $\mathbf{Z}$ in the weighted sample.

2. Analysis of the Gender Gap in the Proportion of Managers Unexplained by Gender Differences in Explanatory Variables

The "unexplained" component in the above-described analysis implies that there are interaction effects of gender and explanatory variables on the proportion of managers. Since the regression model is necessary to analyze this "unexplained" component, the following logistic regression model is employed. However, since we cannot quantitatively compare covariate effects on the difference in the probability analyzed by the DFL method and covariate effects on the logit in the logistic regression analysis, we will be concerned only with whether the interaction effects between gender and covariates on the proportion of managers are significant or not.

$$\log(P/(1-P)) = \alpha_0 + \beta_0 X + \boldsymbol{\beta}_1^{'}\mathbf{Z} + \boldsymbol{\beta}_2^{'}\mathbf{Z}X + \boldsymbol{\beta}_3^{'}\mathbf{V} + \boldsymbol{\beta}_4^{'}\mathbf{V}X \qquad (3)$$

Here, P indicates the probability of being a manager, X is the dummy variable for gender, $\mathbf{Z}$ are explanatory variables employed to estimate the propensity score, and $\mathbf{V}$ are other covariates. Our major concerns here are the significance of the interaction effects of X with $\mathbf{Z}$ and $\mathbf{V}$ (coefficients $\boldsymbol{\beta}_2$ and $\boldsymbol{\beta}_4$) to see whether the effects of $\mathbf{Z}$ and $\mathbf{V}$ on the proportion of managers differ between men and women.

IV. Analytical Results

1. Data Employed for Analysis

The data set employed below is the same as that used for Figure 2, and is the Japan component of data from the 2009 International Comparative Survey on Work-Life Balance conducted by the Research Institute of Economy, Trade and Industry. The data are linked between the employer survey and employee surveys. The employee survey collected data from white-collar regular employees. This data set, analyzed below, includes 6,480 sample men and 3,023 sample women aged 23–59, who are employed by one of 1,677 sample firms with 100 or more employees. The analysis is restricted to ages 23–59 in order to exclude age ranges including a large proportion of students or retirees, thus reducing the problem of sample selection bias.

2. The Influence of Gender Differences in Educational Attainment, Age and Employment Duration on the Gender Gap in the Proportion of Managers

First, the effects of gender differences in the joint distribution of educational attainment and age on the gender gap in the proportion of managers and supervisors were analyzed. Generally, the gender difference in the joint distribution of educational attainment and age among regular employees arises from the following three mechanisms.

(1) Compared with male regular employees, female regular employees have a higher rate of job quitting, and since the rate of reemployment as a regular employee is low for both men and women, the average age of regular employees becomes younger for women than for men.

(2) On average, educational attainment is lower for women than for men.

(3) Due mainly to the fact that gender inequality in educational attainment before employment is greater among older cohorts than younger cohorts, gender inequality in educational attainment among regular employees is greater among older people.

The reason for the qualifier “mainly” in (3) is that highly educated women had a greater rate of job quitting and a lower rate of reemployment among older cohorts, and this also affected the outcome. Figure 3 is related to statement (3) above, and shows the proportion of college graduates by gender in the sample. It shows not only that the proportion is smaller for women than for men in each age group, but also that the gender gap in the proportion increases with age.

Although mechanisms (1) and (2) are both factors that generate a gender gap in the

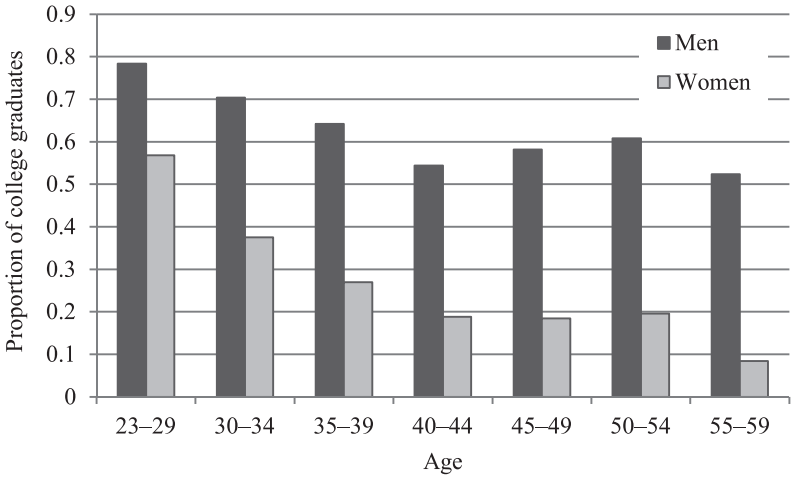

Figure 3. Gender Gap in the Proportion of College Graduates
(Men's average=0.63, women's average＝0.35)

proportion of managers, the effect of neither can be assessed independently of the effect of factor (3). The reason why the effects of factors (2) and (3) are inseparable is because the average effect of factor (3) is the effect of factor (2). Hence, we consider the effects of factors (2) and (3) jointly. The counterfactual situation that eliminates factors (2) and (3) implies that the conditional probability distribution of educational attainment by age, i.e. *P* (educational attainment | age), becomes the same for women as for men.

The presence of mechanism (3) also implies that the influence of the gender difference in age cannot be assessed independently of educational attainment. Suppose we consider a counterfactual situation whereby the age distribution of female regular employees becomes the same as that for men. Since male regular employees actually have a higher average age, and age is positively correlated with the proportion of managers, the proportion of managers among women under the counterfactual situation increases to the extent that their average age increases. But as the average age increases, the average educational attainment among women decreases due to factor (3), and the proportion of managers among women decreases to the extent that their average educational attainment decreases. As a result, the positive effect of an age increase is partially offset by the negative effect of a decrease in educational attainment associated with the age increase among women. However, after the conditional distribution of educational attainment, *P* (educational attainment | age), is made equal between men and women, the further equalization of age distribution between men and women no longer generates the offsetting effect of lowering educational attainment. Hence, below, the effect of equalizing age distribution will be estimated both with and without involving the offsetting effect of lowering educational attainment.

The results of Models 1 and 2 in Table 1 show, for each category of "section heads (*kacho*) and above" (hereafter "managers and above") and "task unit supervisors (*kakaricho*)

Table 1. Decomposition of the Gender Gap in the Proportion of Managers/Supervisors by the DFL Method and Standardization

	Gender gap in the proportion of managers/supervisors (women's proportion minus men's proportion)							
	Section heads (*kacho*) or above P_W=0.0377, P_M=0.3568				Task Unit Supervisors (*kakaricho*) or above P_W=0.2153, P_M=0.6850			
	Difference	Unexplained, cumulative (%)	Explained, cumulative (%)	Explained, additive (%)	Difference	Unexplained, cumulative (%)	Explained cumulative (%)	Explained, additive (%)
Sample	-0.3191***	100.0	0.0	--	-0.4697***	100.0	0.0	--
Model 1	-0.2928***	91.8	8.2	8.2	-0.3884***	82.7	17.3	17.3
Model 2	-0.2974***	93.2	6.8	6.8	-0.4345***	92.5	7.5	7.5
Model 3	-0.2571***	80.6	19.4	12.6	-0.3354***	71.4	28.6	21.1
Model 4	-0.2522***	79.0	21.0	1.6	-0.3272***	69.7	30.3	1.7
Model 5	-0.1946***	59.9	40.1	19.1	-0.2598***	55.3	44.7	14.4

Notes: 1. Variables whose distributions are equalized between men and women in each model.
Model 1: Age, *P*(age)
Model 2: Education by age, *P*(educational attainment | age)
Model 3: Combination of education and age: *P*(educational attainment, age)
Model 4: Variables of Model 3 plus employment duration
Model 5: Variables of Model 5 plus working hours per week.
2. The extent of additive explanation for Models 1 and 2 is a result of comparison with the sample result. The extent of additive explanation for Models 3, 4 and 5 is a result of comparison with Models 2, 3 and 4, respectively.
***p< .001 **p< .01 *p< .05

and above" (hereafter "supervisors and above"), the degree to which the effect of equalizing women's age distribution to that of men, including the offsetting effect of lowering educational attainment (Model 1), and the effect of equalizing women's conditional distribution of educational attainment by age to that of men (Model 2) contribute to reducing the gender gap in the proportion of each status rank. Four categories of educational attainment ("college and above," "junior colleges or advanced technical schools,"[1] "advanced training schools,"[2] and "high school or lower"), and the seven categories of age group described in Figure 3 are employed. Model 3 shows a result whereby women's joint distribution of educational attainment and age becomes the same as that of men, and the "additive" contribution to the "explained" effect in comparing this model with Model 2 reflects the effect of equalizing age distribution without involving the offsetting effect of lowering educational attainment.

The results show that gender difference in educational attainment "explains" 6.8% of

[1] Advanced technical schools provide five-year programs for engineering and other majors in technology for those who finished lower secondary education. These are equivalent to junior colleges in educational attainment.

[2] Advanced training schools provide a variety of vocational training for high school graduates.

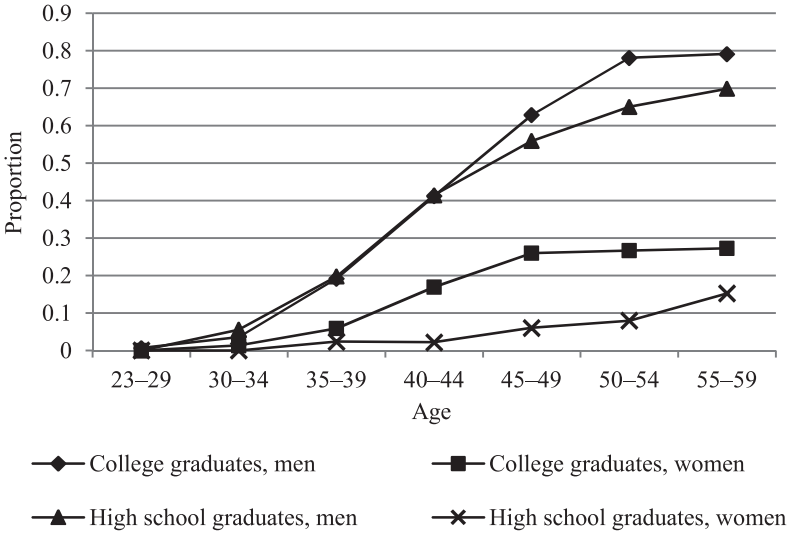

Figure 4. Proportion of Managers and above by Gender, Education, and Age

the gender gap in the proportion of managers and above and 7.5% of the gender gap in the proportion of supervisors and above, and therefore around 7% of both. However, the extent of explanation made by the gender difference in age varies with rank. In the case of managers and above, it is 8.2% if the offsetting effect of lowering educational attainment is included and 12.6% if it is not. In the case of supervisors and above, gender difference in age explains 17.3% of the gender gap even with the offsetting effect of lowering educational attainment, and 21.1% without the offsetting effect, and therefore, gender difference in age contributes to the explanation more than gender difference in educational attainment.

Why is the effect of gender difference in educational attainment so small? It does not make sense intuitively. It is because, as we have seen in Figure 3, there is quite a large gender difference in educational attainment, and therefore, we could expect a large reduction in the proportion of managers and supervisors when women came to have the same distribution of educational attainment in each age group. Figure 4 shows a very important fact related to this puzzle about the small explanatory power of gender difference in educational attainment. Figure 4 shows the proportion of managers and above by gender, by education (college graduates and high school graduates) and age. The two middle categories of educational attainment, "junior colleges and advanced technical schools" and "advanced training schools," are not included in this analysis.

Figure 4 shows three important facts. First, from ages 35–39 and above, when the proportion of managers and above increases, the proportion among female college graduates does not even reach the proportion attained by male high school graduates throughout all those age ranges. In sociology, we regard societies where social opportunities and rewards are mainly determined by individual achievements as modern, and societies where they are

determined by ascribed status as pre-modern. Even though "Japan's post-modernism" has been discussed in Japan, contemporary Japanese society maintains characteristics that cannot even be called "modern." Rather than the major achieved status of being a college graduate or not, whether a person is born as a man rather than as a woman is the major determinant of becoming a manager in Japan.

This seems to result from indirect discrimination against women through firms' internal tracking systems, such as the distinction between the managerial career track (*sogo shoku*), to which the majority of men are assigned, and the clerical career track (*ippan shoku*), to which the majority of women including college graduates are assigned[3] and in which opportunities for promotion to managerial positions are virtually absent. Even if the age is the same, the employment duration could of course be different between men and women. As shown in Figure 2, however, the proportions of men and women attaining managerial positions also differ greatly among those with the same employment duration. It will also be shown below that, after gender difference in age is taken into account, the extent to which gender difference in employment duration explains the gender gap in the proportion of managers is very small.

The second characteristic in Figure 4 is that among white-collar regular employees, it is only after age 40 that the distinction between college graduates and high school graduates makes a difference in the proportion of managers and above. However, in this sample of employees hired by firms with 100 or more employees, firms that hire college graduates tend to be larger than those that hire high school graduates (the average number of employees in firms hiring college graduates was 617, while the average number in firms hiring high school graduates was 265). Hence, even though the title of "section heads and above" is the same, there is inequality between college and high school graduates because wage and employment security is higher for employees of larger firms. In addition, since high school graduates enter the labor market four years earlier than college graduates on average, the average employment duration is longer for high school graduates than for college graduates at each age. In Western societies, however, the probability of becoming a manager is greatly affected not only by being a college graduate rather than a high school graduate, but also by the attainment of an MBA. In contrast, education seems to play a relatively small role in the attainment of middle-management positions among white-collar men in Japan. Although the term "educational credential society" has been used by Japanese scholars to characterize Japan, educational credentials actually have a limited influence in status attainment once men enter regular white-collar employment.

The third characteristic in Figure 4 is that, compared with men, the difference in the proportion of managers and above between college graduates and high school graduates is more significant among women. This implies that if the job continuation rate of college

[3] Although alternative tracks are nominally the result of employees' choices, the majority of women prefer jobs in the clerical career track because of their exemption from regular overtime work and transfers to distant workplaces.

educated women becomes higher, we can expect some improvement in gender inequality. However, as long as the present state whereby gender plays a much greater role than educational attainment in providing opportunities for reaching managerial positions continues, the improvement will be very limited.

This fact is shown in the results of Model 4 in Table 1. Model 4 represents a counterfactual situation whereby women's distribution of employment duration, in addition to those of age and educational attainment, becomes equal to that of men, and shows its effect on the gender gap in the proportion of managers and supervisors. In Japan, where employers' practices of "lifetime employment" still prevail to a considerable degree, the correlation between age and employment duration with the same employer among regular employees is strong and has a value of -0.731. As a result, the additional explanatory power of equalizing employment duration between men and women is not large after equalizing the age distribution between men and women, and the results show that the variable increases the "unexplained" portion of the gender gap by 1.6% and 1.7% for the gap in the proportion of managers and above and that of supervisors and above, respectively.

As a result, if we consider the major reasons given by personnel officers when explaining why there are so few female managers, i.e. the relative lack of educational attainment and experience among women compared with men, as being based on gender differences in human capital characteristics, the results of Model 4, which equates women's distribution of age, educational attainment and employment duration with those of men, show that such gender differences in human capital characteristics explain only 21% of the gender gap in the proportion of managers and above and only 30% of the gender gap in the proportion of supervisors and above. Hence, the gender gap explained by the gender difference in human capital characteristics is not large. This is demonstrated more clearly in the next figure.

Figure 5 shows the proportion of managers and supervisors by gender and age. In addition to the sample mean, the figure presents estimates based on Model 4, which realizes the counterfactual situation whereby women's distribution of age, educational attainment and employment duration become equal to those of men. Since Figure 5 shows the results by age, the estimate for the counterfactual situation represents the proportion that would be realized if the distribution of women's educational attainment and employment duration were made equal to those of men.

First, let us look at the graphs that reflect the sample mean. Although we have seen in Table 1 that the effect of gender difference in the age distribution on the gender gap in the proportion of managers and supervisors differs somewhat depending on whether the effect is on the proportion of managers or on that of supervisors, the reason for this difference is shown in Figure 5. As shown in the figure, the proportion of managers and above among women (the line with the symbol ■) does not increase much with age, failing even to reach 20% by age 55–59, whereas the proportion of supervisors and above among women (the line with the symbol +) steadily increases with age for the first 20 years and becomes greater than 40% in ages 45–54. Hence, if women do not leave their jobs and continue to work as

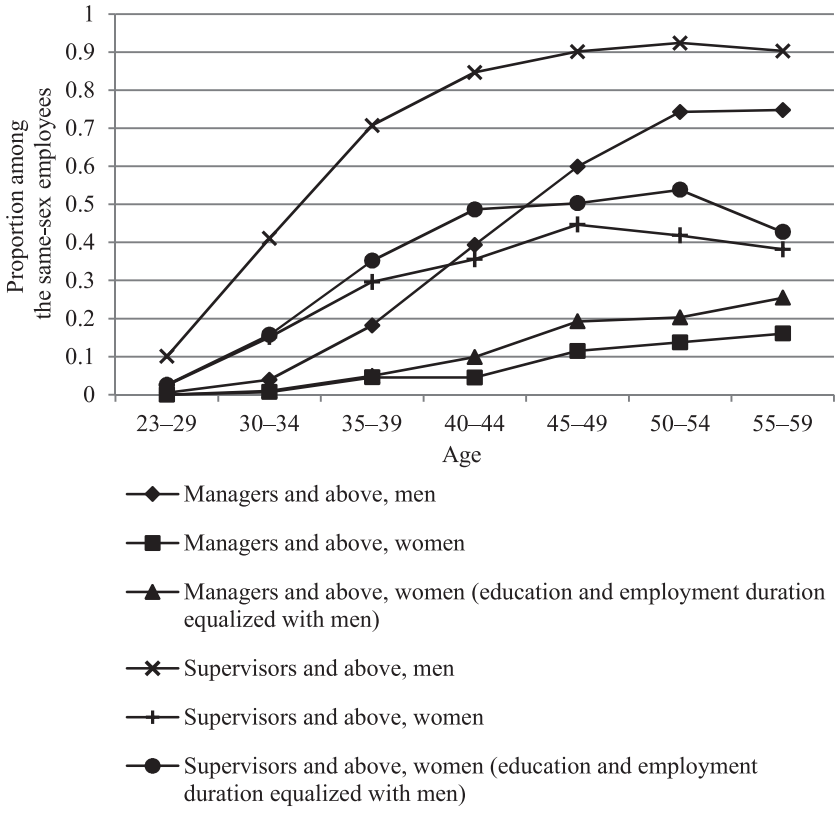

Figure 5. Gender Differennce in the Proportion of Managers/Supervisors: Factual and Counterfactual Results

regular employees, the chance of becoming a supervisor increases to a considerable extent, whereas the chance of becoming a manager does not. This difference between the two generates the differential impact of equalizing women's age distribution with that of men on the gender gap in the proportion of managers compared with that of supervisors.

Next, let's look at the estimates for women under the counterfactual situation in Figure 5. The line with the symbol ▲ represents the proportion of managers and above and the line with the symbol ● the proportion of supervisors and above. Compared with the corresponding sample estimates (given by lines with the symbols ■ and +, respectively), the proportion increases to some extent under the counterfactual situation. In particular, the proportion of managers and above increases by 9.4% from 16.0% to 25.4% in ages 55–59, and by 6.9% on average from 3.6% to 10.5% for the total over all age groups. The proportion of supervisors and above, meanwhile, increases most greatly in ages 50–54 by 12.0% from 41.8% to 53.8%, and by 14.3% from 21.5% to 35.8% on average. This is a considerable increase, making it evident that part of the reason why the proportion of managers and

supervisors is smaller among women than among men is due to a smaller proportion of college graduates and a smaller average duration of employment among women than among men. However, Figure 5 also shows at the same time that even when women's educational attainment and employment duration become equal to those of men, the gender gap in attaining a managerial or supervisory position increases with age, and the size of the gap thus generated is much greater than the reduction potentially achieved by improving women's educational attainment and employment duration. This characteristic leads to the fact found in Table 1, i.e. the 21% reduction in the gender gap in the proportion of managers and above and the 30% reduction in the proportion of supervisors above by equalizing human-capital characteristics between men and women. These results strongly suggest an origin in gender-discriminatory internal tracking systems developed by Japanese employers, such as the practice of distinguishing between the managerial career track and the clerical career track, and its strong influence on reducing women's opportunities for promotion to managerial and supervisory positions.

Model 5 in Table 1 includes weekly working hours as the additional variable, in addition to the educational attainment, age and employment duration used in Model 4, to be equalized between men and women. As discussed before, we cannot deny the possibility that working hours might be affected by becoming a manager or supervisor. Accordingly, the following analysis that treats working hours as an explanatory variable is provisional. The results of Model 5 compared with those of Model 4 indicate that the equalization of this variable makes an additional explanation of 18% in reducing the gender gap for the proportion of managers and above and 13% for the proportion of supervisors and above, both of which are relatively large. The relative explanatory power that this variable has among the variables considered here is the largest for the proportion of managers and above, and the second largest next to age for the proportion of supervisors. Although the possibility of reverse causation remains, this fact is consistent with Hypothesis 3. Figure 6 shows the distribution of the four categories of weekly working hours by gender.

If the relationship between working hours and the proportion of managers and supervisors indicates the effects of long working hours on the rate of promotion among women, as shown by Kato, Kawaguchi, and Owan (2013), then the results described above will imply that the gender gap that will be reduced by equalizing working hours between men and women represents an aspect of the gender gap that is very difficult to eliminate. The reason for this is that, since the traditional division of household labor strongly persists in Japanese households and the currently significant gender inequality in wages makes the opportunity cost of childrearing much greater for men than for women, the practice of women taking main responsibility for childrearing and household work will continue, making it nearly impossible to equalize their working hours to those of men.

However, the results of Model 5 in Table 5 also show that, even after equalizing working hours between men and women, the extent of the explained gender gap is 39% for the proportion of managers and above and 44% for the proportion of supervisors and above.

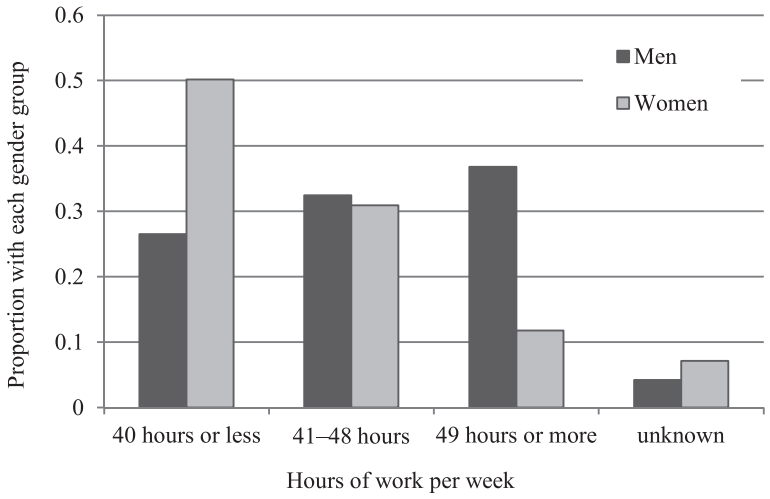

Figure 6. Gender Difference in Working Hours

This means that more than half of the gender gap remains unexplained after taking into account gender differences in educational attainment, age, employment duration and working hours. Gender differences in specific departments in the current firm, in work experiences in other firms, and in the proportion of managerial or supervisory positions in the current firm were also considered, but none of these showed significant additional explanatory power. In other words, the remaining differences come from gender differences in the proportion of managers and supervisors among those with the same individual and firm characteristics. In the next section, the characteristics of the gender gap that remains unexplained by gender differences in the distribution of observed variables will be analyzed.

3. Analysis of Interaction Effects between Gender and Individual and Firm Characteristics on the Proportion of Managers and Supervisors

In this section, the mechanism whereby the gender gap in the proportion of managers and supervisors is generated will be analyzed using logistic regression analysis of being a manager or supervisor.

First, as Model 1, the main effects of explanatory variables that have little possibility of endogeneity were analyzed. They are (1) gender (women versus men), (2) educational attainment, (3) age, (4) employment duration, (5) the subject's department in the firm (the seven categories described in Table 2 plus "Unknown"), (6) the employer's size in terms of regular employees (the four categories described in Table 2 plus "Unknown"), and (7) the industry of the employer (the six categories described in Table 2). Next, as Model 2, statistically significant interaction effects between gender and the other six variables were added. In addition, for Models 3 and 4, two theoretically important employee variables were also added, although the endogeneity problem may exist for those variables. Those variables are (8) weekly working hours, and (9) marital and childrearing status (the six categories described in Table 3). As in

Table 2. Logistic Regression for Being a Manager/Supervisor: The Effects of Employee and Employer Characteristics

Explanatory variables	Being a manager or above			Being a supervisor or above		
	Model 1	Model 2		Model 1	Model 2	
	Main effects	Main effects	Interaction with gender	Main effects	Main effects	Interaction with gender
I. Employee characteristics						
1. Gender (vs. men)						
Women	-2.354***	-3.349***		-2.049***	-2.021***	
2. Education (vs. high school or below)						
College or above	0.501***	0.392***	1.119***	0.547***	0.402***	0.471**
Junior college	0.039	0.031	0.268	0.188	0.209	-0.051
Advanced training school	0.012	-0.088	0.818	0.094	0.102	-0.172
3. Age (vs. 23−29)						
30−34	2.132***	2.157***	------	1.287***	1.236***	0.073
35−39	3.701***	3.730***	------	2.233***	2.206***	-0.085
40−44	4.616***	4.637***	------	2.873***	3.021***	-0.653*
45−49	5.344***	5.362***	------	3.247***	3.423***	-0.720*
50−54	5.896***	5.928***	------	3.288***	3.634***	-1.213***
55−59	5.972***	6.017***	------	3.142***	3.470***	-1.143***
4. Employment year (vs. 2005 or later)						
2000−2004	0.258	0.259	------	1.071***	1.111***	------
1995−1999	0.343*	0.362**	------	1.685***	1.716***	------
Whole1990−1994	0.578***	0.583***	------	1.679***	1.705***	------
1985−1989	0.827***	0.830***	------	1.965***	2.030***	------
1980−1984	0.894***	0.897***	------	1.947***	2.036***	------
1979 or before	0.996***	1.014***	------	2.060***	2.185***	------
5. Department in the firm (vs. personnel/accounting/ administration/PR)						
Planning	0.316*	0.297*	------	0.259	0.221	------
Research/Development	0.041	0.008	------	0.069	0.031	------
IT/Information processing	-0.285	-0.305*	------	-0.378**	-0.397**	------
Business & Marketing	0.050	0.042	------	-0.030	-0.005	------
Sales/Services	0.185	0.166	------	0.067	0.078	------
Construction/ Manufacturing/ Transportation	0.341**	0.306**	------	0.072	0.034	------

Table 2 (*Continued*)

Explanatory variables	Being a manager or above			Being a supervisor or above		
	Model 1	Model 2		Model 1	Model 2	
	Main effects	Main effects	Interaction with gender	Main effects	Main effects	Interaction with gender
II. Employer characteristics						
1. Regular employee size (vs. less than 300)						
300−499	0.161	-0.218	0.599	-0.263**	-0.299*	0.048
500−900	0.140	-0.137	-0.240	-0.308**	-0.277*	-0.211
1000 or more	0.166	-0.348*	1.089**	-0.546***	-0.734***	0.560*
2. Industry (vs. Manufacturing)						
Construction	-0.506*	-0.524*	------	-0.544**	-0.560*	-0.046
Information & Telecommunication, Transportation, Postal	-0.091	-0.079	------	-0.207	-0.646**	1.516***
Wholesale, Retail	0.026	0.004	------	0.413***	0.244	0.404*
Other service	0.234	0.198	------	0.438*	0.272	0.373
Other, unknown	-0.291	-0.324	------	-0.126	0.069	-0.497

Note: Coefficients estimated but omitted from the table include (1) intercept, (2) "unknown" for the employment year, (3) "unknown" for the firm's regular employee size in Model 1. In addition, omitted coefficients also include (5) the interaction effect between gender and "unknown" regular employee size.

***p< .001 **p< .01 *p< .05

Models 1 and 2, Model 3 includes only the main effects of the nine variables, while Model 4 adds significant interaction effects of gender and those variables.

Although important results are those concerning the interaction effects of gender and other variables, important characteristics of the main effects are as follows.

(1) The main effect of gender is much greater than the main effect of contrasting college graduates versus high school graduates. In terms of odds ratio, being a man rather than a woman gives 10.43 (=exp(2.345)) times more odds of being a manager or above, while being a college graduate rather than a high school graduate gives only 1.65 (=exp(0.501)) times more. Similarly, being a man rather than a woman gives 7.76 (=exp(2.049)) times more odds of being a supervisor or above, while being a college graduate rather than a high school graduate gives only 1.73 (=exp(0.547)) times more.

Next, the results of Models 2 and 4 regarding the interaction effects of gender and other variables indicate the following.

(2) The extent to which college graduates have higher odds than high school graduates of being a manager or supervisor is greater for women than for men. As a result, gender gaps in both the probability of being a manager or above and that

of being a supervisor or above are smaller among college graduates than among high school graduates, and the reduction in the gender gap is greater for the probability of being a manager or above.

(3) Compared with firms with fewer than 300 employees, the gender gap is smaller in firms with 1,000 or more employees. This applies both to the probability of being a manager or above and to that of being a supervisor or above, but especially to the former. Gender gaps in the probability of being a manager or supervisor in firms with 300–999 employees and in firms in 500–999 employees do not differ from the gaps in firms with fewer than 300 employees.

(4) Compared with regular employees in the manufacturing industry, those in information, telecommunication, transportation and postal industries and those in wholesale and retail trade industries have a smaller gender gap in the probability of being a supervisor or above. The extent of the gender gap in other industries does not differ from that of the manufacturing industry.

(5) Gender gaps both in the probability of being a manager or above and in that of being a supervisor or above are smaller for employees with 49 working hours per week than for employees with 48 or fewer working hours per week.

Finding (5) is consistent with Hypothesis 4. Regardless of whether the relationship between working hours and being a manager or supervisor is causal (where long working hours are a required condition for becoming a manager or supervisor more for women than for men), or reverse causal (where becoming a manager or supervisor makes women work long hours more than it does for men), the finding suggests that "becoming a manager or supervisor" is a higher hurdle for women than for men because of women's relative difficulty in working long hours compared with men.

Although the distinction between married and single will involve a reverse causation, such that becoming a manager or supervisor may increase the opportunity for marriage or remarriage among men, we may assume little confounding by reverse causation for the distinction among married people between the presence or absence of children and for comparisons among different ages of the last child. As such, the results of Table 3 show the following findings that partially support Hypotheses 5 and 6.

(6) For married men, having a last child at least six years old leads to a larger probability of both being a manager or above and being a supervisor or above. For married women, conversely, having a last child at least six years old leads to a smaller probability of both being a manager or above and being a supervisor or above.

(7) With age and other individual attributes controlled, the gender gap in both the probability of being a manager or above and that of being a supervisor or above is greater for married people with a last child at least six years old than for married people either with no children or with a last child younger than six years old. The increase in the gender gap is especially large in the probability of being a manager or above for people whose last child is aged 6–14.

Table 3. Logistic Regression for Being a Manager/Supervisor: The Effects of Additional Employee Characteristics

Explanatory variables	Being a manager or above			Being a supervisor or above		
	Model 3	Model 4		Model 3	Model 4	
	Main effects	Main effects	Interaction with gender	Main effects	Main effects	Interaction with gender
I. Employee characteristics						
1. Gender (coefficients omitted)						
2. Education (coefficients omitted)						
3. Age (vs. 23−29)						
30−34	1.952***	1.986***	------	1.216***	1.103***	0.253
35−39	3.418***	3.458***	------	2.103***	1.984***	0.209
40−44	4.326***	4.356***	------	2.715***	2.741***	-0.260
45−49	4.997***	5.007***	------	3.037***	3.062***	-0.312
50−54	5.531***	5.560***	------	3.069***	3.230***	-0.767*
55−59	5.602***	5.627***	------	2.924***	3.033***	-0.647
4. Employment year (coefficients omitted)						
5. Department in the firm (coefficients omitted)						
6. Working hours per week (vs. 40 hours or less)						
41−48 hours	0.377***	0.389***	-0.146	0.340***	0.350***	-0.031
49 hours or more	0.923***	0.876***	0.569*	0.692***	0.612***	0.388*
7. Marital & childrearing status (vs. married, no children)						
Single, without children	-0.565***	-0.543***	-0.327	-0.301***	-0.386***	0.185
Single, with children	-0.346	-0.152	-1.024*	-0.115	0.055	-0.207
Married, age of last child less than 6 years old	-0.013	0.058	-0.312	-0.048	0.063	-0.282
Married, age of last child 6−14 years old	0.136	0.262*	-1.787***	0.178	0.341*	-0.675*
Married, age of last child 15 years old or more	0.222	0.363**	-1.040**	0.114	0.361*	-0.715*
II. Employer characteristics						
1. Regular employee size (coefficients omitted)						
2. Industry (coefficients omitted)						

Note: The omitted coefficients in Model 3 are the same as in Model 1. The omitted coefficients in Model 4 are the same as in Model 2.

***p< .001 **p< .01 *p< .05

Generally, since about 60% of women leave their jobs within six months after their first childbirth in Japan, there will be major sample selection bias in the difference among female employees between "married with no children" and "married with the last child younger than 6 years old." However, we can expect much less selection bias in differences among married women with different ages of their last child. Hence, findings (6) and (7) that having a last child at least six years old leads to an increase among married men and a decrease among married women in the probability of being a manager or above and that of being a supervisor or above, thus increasing the gender gap in those probabilities, suggest that the traditional division of household labor is reinforced most strongly in the life stage when the last child is 6–14 years old.

The employer survey analyzed in this article collected information about employers' personnel policies based on eight survey items and about employers' work-life balance policies based on fifteen survey items. As a result of examining the interaction effects between gender and each of those variables, only one variable was found to have a significant interaction effect with gender on the probability of being a manager or above, while three variables were found to have significant interaction effects with gender on the probability of being a supervisor or above.

The results of Table 4 show that when an employer has a work-life balance policy involving the establishment of a department or a center to promote employees' work-life balance, the gender gap in the proportion of managers and above becomes significantly smaller for employees. This finding indicates that Hypothesis 8 concerning the effect of the employer's work-life balance policy holds, but Hypothesis 7 concerning the effect of the employer's personnel policy of "encouraging employees to fulfil their potential, regardless of gender" does not hold. On the other hand, regarding the effect on the proportion of supervisors and above, the results from Models 5, 6 and 7 in Table 5 show, respectively, that the gender gap in this proportion is reduced when the employer has "a policy of parental leave policy over and above the statutory minimum," "a work-life balance policy involving the establishment of a department or center," or a personnel policy of "encouraging employees to fulfil their potential, regardless of gender." However, when all three variables are included simultaneously in the set of explanatory variables, only the effect of a gender-neutral personnel policy remains significant (Model 8). However, when we combine variables 1 and 2 to make an interval scale variable having both policies (2), one of them (1), and none (0), its interaction effect with gender gains significance (in Model 9). Hence, firms with a personnel policy of "encouraging employees to fulfil their potential, regardless of gender" and those with "a policy of parental leave over and above the statutory minimum" and/or "a work-life balance policy involving the establishment of a department or center" generate workplace environments where the gender gap in the proportion of supervisors and above becomes smaller. While it is likely that firms with these characteristics provide more gender equal opportunities, there also remains a possibility of selection bias, in that women with greater aspiration for promotion may get hired and remain employed by those firms.

Table 4. Logistic Regression for Being a Manager or above: The Effects of Additional Employer Characteristics

Additional explanatory Variables	Being a manager or above		
	Model 5	Model 6	Model 7
1. Parental leave policy over and above statutory minimum			
Main effect	0.027		
Interaction effect with gender	0.463		
2. Work life balance policy involving establishment of a department/center			
Main effect		-0.117**	
Interaction effect with gender		0.637*	
3. Encouraging employees to fulfil their potential, regardless of gender			
Main effect			0.034
Interactive effect with gender			0.044

***p< .001 **p< .01 *p< .05

Table 5. Logistic Regression for Being a Supervisor or above: Additional Employer Characteristics

Additional explanatory variables	Being a supervisor or above				
	Model 5	Model 6	Model 7	Model 8	Model 9
1. Parental leave policy over and above statutory minimum					
Main effects	-0.129			-0.091	
Interaction effect with gender	0.370**			0.288	
2. Work life balance policy involving establishment of a department/center					
Main effect		-0.211**		-0.189*	
Interaction effect with gender		0.396**		0.266	
3. Encouraging employees to fulfil their potential, regardless of gender					
Main effect			-0.010	0.009	0.009
Interaction effect with gender			0.190**	0.157*	0.156*
4. Variables 1 and 2 combined					
Main effect					-0.277*
Interaction effect with gender					0.558**

***p< .001 **p< .01 *p< .05

V. Conclusions and Policy Implications

How can Japan solve the issue of gender inequality in the proportion of managers, and become a nation where men and women equally participate in decision making related to economic activity? This article has shown that even when human capital characteristics become equal between men and women, only 21% of the gender gap in the proportion of managers and above and only 30% of that in the proportion of supervisors and above will be eliminated.

For the remaining gender gap, only the gender difference in working hours provides an additional explanation. However, since the traditional division of household labor continues strongly in Japan and its abolition will be difficult to attain in a short period of time, it will be very difficult to eliminate the gender gap in working hours. Nevertheless, even we add the effect of the gender difference in working hours, only about 40% of the gender gap in the proportion of managers and above will be reduced. Accordingly, more than half of the gender gap, about 60%, will remain even when educational attainment, age, employment duration and working hours are equalized between men and women.

When considering that the proportion of managers increases with age in Japan, Japanese employment practices (especially [1] the promotion of male regular employees, almost regardless of educational attainment, mainly based on employment duration as a way of rewarding seniority in the firm, and [2] institutionalized statistical discrimination against women by establishing internal tracking systems whereby the vast majority of women are virtually excluded from opportunities for promotion to managerial positions) seem to be the major underlying causes of gender inequality. This is evidenced by the fact that, of white-collar regular employees with more than 30 years of employment duration, about 80% of male college graduates and about 70% of male high school graduates attain managerial positions, while by contrast, only 30% of female college graduates and less than 15% of female high school graduates attain managerial positions.

In order to break through this present situation, the definition of indirect discrimination in Japan must be changed to comply with international standards, including, as discriminatory practices, institutions that have a disparate impact on the minority, rather than only institutions that are discriminatory in intention. In particular, an essential requirement for gender equality of opportunity will be to prohibit by law internal tracking systems such as the distinction between the managerial career track and the clerical career track, which is very strongly associated with the employee's gender, as an institution of indirect discrimination. On the other hand, it has been argued that such a system has been rationally developed to reduce the "job-quitting cost" for women. However, when we consider the opportunity cost of not utilizing the human resources of talented women, the validity of such an argument is doubtful. In addition, the author has shown in a previous study (Yamaguchi 2008) that such a practice of statistical discrimination based on the predicted high probability of job quitting actually becomes a self-fulfilling prophecy, in that women quit their jobs

when raising children due to their small chance of developing a career in their firms. In order to break that vicious circle, the EEO law in Japan should adopt a more comprehensive definition of indirect discrimination.

This article has also shown that the relative absence of long working hours is a major barrier to promotion among women. It is highly recommended that Japanese firms should employ a measure of labor productivity based on productivity per hour of work, rather than productivity per day relying on long working hours, in order to promote equal opportunities for women.

The article also showed that married women with a last child aged 6–14 have the lowest probability of being a manager or supervisor of all white-collar regular employees. It suggests that women at this life stage are more handicapped than women with a last child aged up to six years old (to whom various forms of public childcare support have been made available by the government) and have more trouble in balancing between work and family roles. The government should thus support women in this life stage by, for example, extending after-school care and education programs for children in the 1st–3rd grades, which are currently available at public primary schools, to children in the 4th–6th grades.

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