

## Gender and Racial Differentials in Promotions Is There a Sticky Floor, a Mid-Level Bottleneck, or a Glass Ceiling?

### Les différences dans les promotions des femmes et des minorités raciales : existe-t-il un « plancher collant », un goulot intermédiaire ou un plafond de verre ?

### Diferenciales de género y de raza en las promociones: ¿existe un piso pegajoso, un cuello de botella de nivel medio o un techo de vidrio?

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Résumé de l'article

Cet article traite des facteurs qui déterminent les promotions en milieu de travail et effectue une évaluation empirique afin de vérifier si les femmes et les minorités raciales bénéficient des mêmes possibilités d'avancement que les hommes de race blanche à divers niveaux de la hiérarchie organisationnelle. Le fait d'être promu est un facteur clé qui affecte la rémunération, les chances de développement personnel et la satisfaction au travail. Du point de vue de l'organisation, une main-d'œuvre diversifiée est étroitement associée à des niveaux plus élevés de capacité de résolution de problèmes, de créativité, d'innovation et de performance organisationnelle. Tenant compte de la diversité croissante de cette main-d'œuvre et du fait que ces groupes continueront de représenter une partie significative et grandissante de la main-d'œuvre totale, il devient crucial de comprendre l'expérience des femmes et des minorités visibles sur le marché du travail. Nous devons tenir compte de leur possibilité de développer pleinement leur potentiel et de la capacité qu'a l'organisation de bénéficier de l'expérience, des connaissances et du talent de ces travailleurs.

Cet article se base sur les trois hypothèses suivantes pour tenter d'identifier les causes de la difficulté d'avancement professionnel pour les femmes et les minorités raciales: (1) l'hypothèse du plancher collant, selon laquelle les hommes de race blanche ont un avantage sur les femmes de race blanche ainsi que sur les hommes et les femmes de minorités visibles pour les promotions dans les niveaux les plus bas de la hiérarchie organisationnelle; (2) l'hypothèse du goulot affirmant que les hommes de race blanche ont un avantage sur les femmes de race blanche, les hommes et les femmes de minorités visibles pour les promotions dans les rangs de cadres moyens de la hiérarchie organisationnelle; et (3) l'hypothèse du plafond de verre postulant que les hommes de race blanche ont un avantage dans les promotions sur les femmes de race blanche, les hommes et les femmes de minorités visibles à des niveaux organisationnels supérieurs.

En utilisant un ensemble de données contenues dans les dossiers de plus de 22 000 travailleurs à temps plein non syndiqués d'une firme canadienne opérant à l'échelle nationale de 1996 à 2000, nous avons constaté que les femmes et les minorités raciales sont moins susceptibles d'être promues que leurs collègues masculins de race blanche et ce, même en considérant un large éventail de variables relatives à l'offre (années de service, âge, niveau de scolarité, performance et interruption de travail) et de variables portant sur la demande (catégorie d'emploi, niveau d'emploi, répartition race/sexe des emplois).

Les résultats nous démontrent des impacts variables selon les différents groupes des divers paliers de la hiérarchie organisationnelle après avoir contrôlé un large éventail de facteurs influençant la probabilité de promotion. Les désavantages sont plus sévères pour les femmes de race blanche et les femmes de minorités visibles aux niveaux les plus bas de la hiérarchie organisationnelle, ce qui vient confirmer l'hypothèse du « plancher collant ». De plus, les femmes de race blanche, les femmes de minorités visibles et les hommes de minorités visibles sont désavantagés pour les promotions aux postes de cadres moyens, ce qui vient confirmer l'hypothèse du « goulot » en matière d'avancement professionnel pour les femmes et les minorités visibles. Bien que les femmes de race blanche et les femmes de minorités visibles aient des chances égales aux hommes de race blanche d'être promues aux niveaux les plus élevés de la hiérarchie organisationnelle, les hommes de minorités visibles sont désavantagés à ces niveaux, ce qui suggère un effet de « plafond de verre » pour ce groupe.

Même pendant la période de forte croissance économique et avec un marché du travail favorable de 1996 à 2000, les groupes minoritaires race/sexe ont vécu des difficultés par rapport à leurs chances d'avancement au sein de la hiérarchie organisationnelle. Les difficultés plus larges vécues par les femmes de minorités visibles dans des emplois de niveaux organisationnels bas et moyens tout comme l'effet de plafonnement observé chez les hommes de minorités visibles sont difficilement attribuables à des déterminants non discriminatoires basés sur les groupes de travailleurs pour l'attribution des promotions, suggérant que la force de la main-d'œuvre ne suffit pas à elle seule à éradiquer les inégalités existantes sur le marché du travail.

Les décisions liées à l'emploi devraient être basées sur des critères de mérite et de capacité, permettant ainsi à tous les employeurs de mettre les talents et compétences à profit et de fournir une contribution maximale à la société. La transparence à tous les niveaux du processus de promotion et le fait de jumeler les employés à des positions en se basant sur leurs compétences plutôt que sur des caractéristiques déjà assignées pourrait promouvoir l'efficacité via la rationalisation du processus de répartition des ressources humaines.

Malgré toute l'emphase qui a été mise sur le fait de briser le plafond de verre, on a omis de parler suffisamment du plancher collant et, jusqu'à cette étude, aucune attention n'a été portée sur l'effet de goulot de niveau intermédiaire. De véritables efforts sont requis de la part des divers intervenants en vue d'alléger ou sinon d'éliminer carrément les inconvénients que vivent les femmes et les minorités raciales à tous les paliers de la hiérarchie organisationnelle.

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# Gender and Racial Differentials in Promotions: Is There a Sticky Floor, a Mid-Level Bottleneck, or a Glass Ceiling?

Margaret Yap and Alison M. Konrad

**Using a proprietary dataset containing personnel records on over 22,000 full-time, non-unionized employees from a large Canadian firm with nationwide operations from 1996 to 2000, this paper explores the incidence of promotion for women and racial minorities. The findings show that women and racial minorities are less likely than their white male counterparts to be promoted. For both white women and minority women, the disadvantage is most severe at the lower rungs of the organizational hierarchy, lending support to the “sticky floor” hypothesis. Significant promotion disadvantages occur for white women, visible minority women, and visible minority men at the middle ranks of the organization, and visible minority men continue to experience a promotion disadvantage at the highest organizational levels.**

**KEYWORDS:** women, visible minorities, advancement opportunity, organizational level, Canada

Researchers have shown great interest in the study of gender effects, and to a lesser extent, of race effects on promotion outcomes. The bulk of the evidence suggests that women are disadvantaged such that they are less likely to be promoted than their equally qualified male counterparts (Baldwin, 1996; Blau and Devaro, 2007; Cannings, 1988; Chow, Siu and Crawford, 2004; Igbaria and Baroudi, 1995; Lyness and Heilman, 2006; Maume, 1999, 2004; Pekkarinen and Vartiainen, 2006; Pergamit and Veum, 1999; Spurr, 1990; Swimmer, 1990; Winter-Ebmer and Zweimuller, 1997). Considerably fewer studies have been conducted to examine race effects on promotions, but the extant research indicates a promotion disadvantage for members of racial minority groups (Francesconi, 2001; Greenhaus, Parasuraman and Wormley, 1990; Greenhaus and Parasuraman, 1993; James, 2000; Maume, 1999, 2004; Pergamit and Veum, 1999).

There are several reasons to study gender and race effects on promotions. In addition to avoiding the cost of discrimination, a more diverse workforce at all levels of an organization can be advantageous for both workers and organizations. From the organization's perspective, diverse teams have been linked with better problem solving and higher levels of innovation (Bantel and Jackson, 1989; McLeod, Lobel and Cox, 1996; Schneider and Northcraft, 1999; Richard, 2000; Richard, Murthi and Ismail,

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2007), and thus are more effective in serving the diverse customer base in today's globalized economy. Expanding the talent pool to include women and minorities will also help organizations mitigate the potential talent shortage. And finally, studies have also shown that a diverse workforce, if managed properly, is associated with higher levels of organizational performance (Wiersema and Bantel, 1992; Wright *et al.*, 1995; Hartenian and Gudmundson, 2000).

From an employee's perspective, promotions are linked to wage increases and are therefore a determinant of wage outcomes (Gerhart and Milkovich, 1989; Baker, Gibbs and Holmstrom, 1994a, 1994b; Francesconi, 2001; McCue, 1996; Pergamit and Veum, 1999; Bognanno, 2001). Promotions are also linked to authority (Bihagen and Ohls, 2006; Pergamit and Veum, 1999), training opportunities (Pergamit and Veum, 1999), and increased job satisfaction (Pergamit and Veum, 1999; Francesconi, 2001). Lack of advancement opportunities is a major contributor to voluntary quit decisions by employees who otherwise fit the job well and contribute value-added to the firm (Moss, Salzman and Tilly, 2008). Because promotions are linked to so many important outcomes, gender and race effects on promotion outcomes imply differential access to an important source of resources, benefits and satisfaction.

Beyond documenting a significant main effect of gender and race on promotion outcomes, it is important to study the promotion process in more detail to better understand the observed race and gender differentials. Previous researchers have identified discrepancies in the promotion process whereby the qualifications of women and members of racial minority groups are differentially valued (Li, 2001; Alboim, Finnie and Meng, 2005; Aydemir and Skuterud, 2008, Schaafsma and Sweetman, 2001) such that their likelihood of promotion is reduced despite the same level of effort (Konrad and Cannings, 1994, 1997), performance evaluation (Lyness and Heilman, 2006; Castilla, 2008), mentoring (Lyness and Thompson, 2000), experience (Hurley and Sonnenfeld, 1998; Maume, 1999; Smith, 2005), and social capital (Eddleston, Baldrige and Veiga, 2004; Forret and Dougherty, 2004).

In assessing the impact of the promotion process, it is also important to consider the location of the job incumbent within the hierarchical structure of the organization. Some evidence suggests that gender and race effects on promotion are more prevalent in some parts of the organizational hierarchy than in others. For instance, Powell and Butterfield (1994) found that for promotions to the highest organizational levels, women experienced an advantage over equivalent male counterparts. Powell and Butterfield (1997) found that in the same organization, race had no impact, either positive or negative, on promotions at the highest organizational levels. Dencker (2008) reported a similar finding indicating a female promotion advantage at the highest organizational levels in a single large organization. Other evidence suggests that women experience large promotion disadvantages in occupations that are located at the lowest organizational levels (Bihagen and Ohls, 2006; Pekkarinen and Vartiainen, 2006).

Previous research has not compared the size of gender and race promotion differentials at different hierarchical levels of the organization. Such a comparison is needed to test concepts such as "the glass ceiling", which suggests larger

differentials at higher organizational levels, and concepts such as “the sticky floor”, which suggests larger differentials at lower organizational levels. In addition, previous conceptualizations have ignored the potentially key role that middle-level organizational positions play as feeder pools that determine the candidates available for promotion into top management positions.

This paper contributes to extant understanding of the promotion process by examining gender and race effects on promotions at three distinct levels in a single large organization. A clear advantage of a within-organization study is the ability to draw clear inferences about the consequences of the promotion process at the lower levels for feeder pools at higher levels. A within-organization study also rules out organizational differences on factors such as size, number of hierarchical levels, profitability, growth, human resource policies and practices, etc., as possible alternative explanations for any gender and race effects that are observed.

Because we have a very large sample ( $n > 22,000$ ), we are able to examine the promotion outcomes of white women, minority women, and minority men separately. This methodological advance allows us to more accurately represent the distinct experiences of minority women. Previous authors have argued that minority women’s experiences of gender are qualitatively different from those of white women, while their experiences of race are qualitatively different from those of minority men (Hurtado, 1989; Nkomo and Cox, 1989). Hence, a model that simply captures the additive effects of gender and race together likely does not reflect the realities of minority women’s outcomes.

## Background and Hypotheses

Although gender and race can be viewed as having a constant impact that is similar at all levels of the organization, researchers have suggested that gender and race differentials might be wider at some hierarchical levels than at others. The “glass ceiling” argument suggests that gender and race differentials are largest at higher organizational levels. The “sticky floor” perspective implies that gender and race differentials are largest at the lowest levels in the hierarchy. Researchers have been rather silent on the impact of gender and race on outcomes at mid-level positions in the organizational hierarchy. In this section, we discuss conceptual arguments regarding the size of gender and race gaps in promotion probabilities at three hierarchical levels: the low, mid-level, and highest-level positions in the organization.

### Sticky Floor

Booth, Franscesconi and Frank (2003) link the sticky floor hypothesis to the need for employers to incentivize workers to attain the specific human capital needed for employees to contribute value-added to the firm. Consistent with earlier conceptualizations of the internal labour market (Pfeffer and Cohen, 1984), they argue that the initial wage increase associated with a promotion represents the firm’s inducement for workers to exert the effort needed to acquire specific human capital. Further wage increases, they argue, are unnecessary in the absence of outside offers to particular employees.

Given that women are more tied to a specific geographic location for family reasons than men are (Bielby and Bielby, 1992) and that employers might prefer men over women due to actual or perceived supervisor, coworker, or client discrimination (Hultin, 2003), men are likely to have more outside offers, which result in increases in their pay. Race discrimination in employment and lack of access to informal networks that lead to better job prospects (Fernandez and Fernandez-Mateo, 2006) similarly result in whites having more outside offers than members of racial minority groups. Hence, both women and visible minorities are more likely than their white male counterparts to stay at the floor of the pay scale for their particular job grade.

This argument implies that gender and race do not necessarily affect the probability of promotion itself. That implication only holds, however, under the assumption that there is no practical limit to the amount of wage dispersion that can exist within job categories and that promotions are not valued in their own right. Because promotions result in increased job satisfaction (Pergamit and Veum, 1999), opportunities to do more complex work (Pekkarinen and Vartiainen, 2006), and greater ability to exercise authority (Hultin, 2003), many employees value promotions. Promotion to a higher-level job title also constitutes a signal to other employers of the employee's productivity, generating more outside opportunities, which raise chances for increased wages. Hence, to retain highly desirable white male workers who receive the most outside offers, employers are likely to give them more promotions, in addition to higher wages with each promotion. As a result, white males are likely to have a higher probability of promotion than equivalent women and visible minorities.

Furthermore, if employers believe that certain groups of employees are less reliable, less committed, less able to learn, and/or less likely to be productive after the training period (Aigner and Cain, 1977), they will be less likely to incentivize those employees with promotion opportunities. As a result, women and visible minorities, who tend to suffer from negative views of their abilities and preferences (Greenhaus and Parasuraman, 1993), are likely to receive fewer promotions and more likely to remain at the lower rungs of the organizational hierarchy.

H1: White men will have a promotion advantage over white women, minority men, and minority women at the lowest levels of the organizational hierarchy.

### **Mid-Level Bottleneck**

A critical leap in the organizational hierarchy is the move into management. Beyond the level of first-line supervisor, middle-level management positions in many organizations require college or university degrees. Moves up the middle management hierarchy signify increasing levels of authority and responsibility for the firm's financial success. Promotions into management positions tend to convey wage and prestige growth, and each promotion to a higher management level is associated with substantial gains in earnings and authority. Individuals who move quickly up the middle management ranks are the most likely to eventually attain senior management positions (Hurley and Sonnenfeld, 1998).

White men may be particularly likely to be selected for promotions into and within the middle management ranks for a number of reasons. Due to the fact that promotion into management means gaining control over the direction and resources of the firm (Maume, 2004), employers may be particularly hesitant to give such promotions to women and members of racial minority groups. A substantial body of evidence indicates that people stereotype women as being less capable of leading and managing than men (Powell, Butterfield and Parent, 2002; Schein, 2001). The relationship between stereotypes of minority group members and perceived management capabilities has received considerably less study, but the findings of the extant literature indicate that whites are viewed as more competent for management positions than members of minority groups (Greenhaus and Parasuraman, 1993; Tomkiewicz, Brenner and Adeyemi-Bello, 1998).

Due to negative views of the leadership and management qualities of women and racial minorities, employees may prefer to be supervised by white men and supervisors may preferentially promote white men into supervisory and management positions. Indeed, research shows that white men are considerably more likely to be promoted into management than women and visible minorities (Maume, 2004), especially in occupations predominated by women and racial minorities (Maume, 1999; Hultin, 2003).

On the labour supply side, employee preferences are thought to impact the probability of promotion for both women and racial minorities. Meta-analytic evidence suggests that few meaningful race differences exist in occupational preferences (Fouad and Byars-Winston, 2005) or preferences for managerial careers (Stevens and Brenner, 1990). For women, however, a preference for devoting time and effort to home and family is positively associated with fertility and negatively associated with hours of paid employment (Hakim, 2002). Women with work-centered preferences are more likely to work the long hours necessary for promotion into management jobs, as job demands expand at each successive level in the hierarchy. The demands associated with management positions create work-family conflicts for women especially, because men in paid employment are considerably more likely to have an adult partner who takes on the bulk of family responsibilities (Lincoln, 2008). Hence, competing for managerial promotions becomes more difficult for women at higher management levels. About 20% of women make the choice, however, to devote themselves primarily to their paid career (Hakim, 2002). A focus on preferences suggests that these are the women most likely to attain promotion into and within middle-level management.

H2: White men will have a promotion advantage over white women, minority men, and minority women in the middle-management levels of the organizational hierarchy.

## **Glass Ceiling**

The idea of the "glass ceiling" implies that promotions into top management are particularly prone to gender and race bias. Top management positions entail the highest levels of authority, responsibility, and risk for the firm. In addition, predicting

who will be effective in top management positions is difficult because the link between top management actions and firm financial performance is not well understood. Due to high risk combined with uncertainty about individual performance, social similarity is thought to have a substantial impact on decision-makers' choices of whom to promote into top management positions (Kanter, 1977). The rationale for this proposition is that given uncertainty in predicting individual performance in top management roles, a useful decision rule is to choose someone who is very similar to successful role incumbents.

Given increased pressure toward social similarity at the top management ranks, women and members of racial minority groups who are seriously considered for top management are likely to be more rigorously selected, more motivated (Konrad *et al.*, 2000), and more qualified than their white male counterparts (Bihagen and Ohls, 2006). Indeed, Lyness and Heilman (2006) found that women promoted into top management positions had higher performance evaluations than men promoted to the same level. Findings that race discrimination is attenuated (Powell and Butterfield, 1997), and that women have a promotion advantage at the tops of large organizations (Dencker, 2008; Powell and Butterfield, 1994) support the notion that in order to be seriously considered for top management positions, women and members of racial minority groups must be extremely well-qualified for promotion.

H3: White men will have a promotion advantage over white women, minority men, and minority women at the higher organizational levels.

## Data and Method

### Data

The data used in the analyses are compiled from confidential archived administrative records from a large organization in the information and communications technology (ICT) sector with nationwide operations in Canada between the years 1996 and 2000.<sup>1</sup> In this firm, there are ten job levels below the chief executive officer level, eight of which are included in the analyses.<sup>2</sup> The final dataset<sup>3</sup> of 22,338 full-time, non-unionized employees allows us to consider the impact of variables that are not available in cross-sectional data. These include work interruptions and the race/gender composition of the job-level/job-family combination; thus we can determine whether these have differential effects for the race/gender groups with respect to promotion probabilities.

There are a number of advantages to a firm-level dataset. As promotion opportunities depend on the firm's technology, product market, rate of organizational growth, and business strategy, the firm-level dataset holds these important factors constant. Differences among firms, industries, and the overall economic and market conditions in which they operate will affect their employees' promotion prospects. For example, large established firms may be better able to offer higher rewards, more job security, and better career opportunities (Oi, 1990; Brown and Medoff, 2001). By focusing on only one company, the effects of omitted variables can be minimized. This

research design offers natural controls for, or holds constant, a number of factors that may have a significant impact on promotion decisions. These factors include the firm's age, size, industry, business strategy, compensation policy, and career development philosophy, some of which may be difficult to measure or appropriately control for. In other words, within-firm findings will not reflect any unobserved inter-firm differences that are common in national studies.

More importantly, the study of promotions requires that jobs be ordered. Economy-wide studies have tried to overcome this obstacle by looking at wages or changes in job titles that may or may not reflect genuine promotions. The use of firm-level data will preclude this measurement problem, as rankings are consistently determined based on the firm's policies, and the hierarchy of jobs is defined by the complexity of those jobs. Each position in the firm is assessed a grade level, based on the following seven criteria: impact and scope of decision making, level of problem solving, interpersonal skills, leadership impact, education and experience. Higher levels of qualification and competence are required of employees in order to perform the tasks involved in higher level jobs. For example, the firm's policy states that a level 3 requires up to 2 years of experience with limited practical experience; a level 5 should have 2 to 5 years of relevant experience, whereas a level 7 requires 8 or more years of extensive relevant experience. Finally, the current dataset maintains the advantages of conventional national datasets, both with respect to sample size and longitudinal nature.

## Method

To examine the determinants of promotion, a multivariate probit model of promotion was estimated. The dependent variable is a dichotomous variable that takes on a value of "1" if the employee received one or more promotions between 1996 and 2000, and "0" otherwise. An employee is considered to have been promoted if the employee's job level is higher than his or her job level in the previous year. The probability that an employee is promoted to a higher job level between one year and a subsequent period is estimated by the following:

$$\Pr(y_i = 1 | X_i) = \Phi(X_i\beta)$$

where the outcome (or dependent variable) is a dichotomy indicating the incidence of promotion to the next higher job level,  $\Phi$  is the standard normal cumulative distribution,  $\beta$  is a vector of probit coefficients, and  $X$  is the corresponding vector of explanatory variables, together with a set of dummy variables to measure the impact of race/gender status on the probability of promotion. The estimates reported in the following analyses are marginal effects, calculated as the derivative of the conditional expectation of the observed dependent variable evaluated at the sample means.

## Dependent Variable

Table 1 shows the percentage of promotions received by each of the four race/gender groups in the period observed by the dataset used in this part of the analyses, not controlling for any differences in characteristics. Overall, a somewhat higher



percentage of whites (59.4%) than non-whites (55.7%) received one or more promotions, a 3.7 percentage-point differential that is statistically significant at the 1% level. Differentiating by gender, a higher proportion of male employees (57.2%) than female employees (54.7%) received one or more promotions, a 2.6 percentage-point differential that is also statistically significant at the 1% level.

**TABLE 1**  
**Comparison of Gross Promotion Rates by Race and Gender**

|                    | Percentage Promoted | % Difference from Reference Group |
|--------------------|---------------------|-----------------------------------|
| Overall            | 56.5                | –                                 |
| <b>Whites</b>      | <b>59.4</b>         | –                                 |
| Non-whites         | 55.7                | -3.7***                           |
| <b>Males</b>       | <b>57.2</b>         | –                                 |
| Females            | 54.7                | -2.6***                           |
| <b>White Males</b> | <b>60.0</b>         | –                                 |
| White Females      | 58.1                | -1.9*                             |
| Minority Males     | 56.7                | -3.3***                           |
| Minority Females   | 52.6                | -7.4***                           |

Reference categories in bold italics.  
\*\*\*, \*\*, \* denote significance at  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.10$  respectively

The gross promotion rates of white males and of the race/gender minority group are also compared. While the proportion of white females who were promoted was lower than that of white males (58.1% versus 60.0%), the differential is only statistically significant at the 10% level. The promotion gaps between white males and minority males (3.3 percentage points) and between white males and minority females (7.4 percentage points) are both significant at the 1% level.

Previous research studies have suggested that because men are more likely to be situated in the higher levels of the organizational hierarchy, analyzing promotion data across all organizational levels may lead us to conclude that females are more likely to be promoted (Konrad and Cannings, 1997). In order to explore the differential effects for groups situated at different levels of the organizational hierarchy and in order to test the hypotheses set out earlier, the data are partitioned into three separate segments. These segments are derived from the criteria the firm used in assigning job grades to employees, e.g., education and skill requirements. These groups represent (1) the entry-level employees at job levels 1 to 3, (2) the “pipeline” or feeder group at job levels 4 and 5, and (3) the senior level employees at job levels 6 to 8. Jobs at levels 1 to 3 require technical/vocational training with minimal experience, levels 4 and 5 require completion of an undergraduate degree with several years of experience, and jobs at the senior levels require an advanced degree in a relevant discipline with eight or more years of experience.

Table 2 shows the sample means and proportions for selected characteristics for each partition. Promotions were most frequent in the middle levels. Employees in these levels were also younger and were relatively new to the firm, with an average tenure of less than 5 years. The proportion of employees with university education and the average salaries both increase at higher levels of the organizational hierarchy.

**TABLE 2**  
**Sample Means and Proportions by Job Categories**

|                                    | Entry | Feeder | Management | Overall |
|------------------------------------|-------|--------|------------|---------|
| Proportion Promoted                | 53.7% | 62.2%  | 49.3%      | 56.5%   |
| White Male                         | 20.2% | 29.1%  | 47.6%      | 34.4%   |
| White Female                       | 33.4% | 12.9%  | 11.7%      | 15.2%   |
| Minority Male                      | 7.9%  | 14.0%  | 12.5%      | 12.7%   |
| Minority Female                    | 6.3%  | 4.8%   | 2.1%       | 4.0%    |
| Undisclosed*                       | 32.2% | 39.3%  | 26.1%      | 33.7%   |
| Proportion with University Degrees | 8.3%  | 56.3%  | 73.3%      | 57.7%   |
| Age [in years]                     | 36.5  | 33.0   | 39.5       | 35.7    |
| Tenure [in years]                  | 6.6   | 4.6    | 10.7       | 7.0     |
| Annual Salary [in\$'000]           | 35.1  | 54.2   | 82.9       | 61.8    |
| Job Level                          | 2.7   | 4.6    | 6.6        | 5.1     |
| With "Exceeded" Performance Rating | 9.5%  | 9.3%   | 22.2%      | 13.9%   |
| <b>JOB COMPOSITION</b>             |       |        |            |         |
| Percent White Female               | 49.6% | 21.1%  | 15.7%      | 22.9%   |
| Percent Minority Male              | 11.7% | 23.1%  | 17.3%      | 19.6%   |
| Percent Minority Female            | 9.1%  | 8.1%   | 2.8%       | 6.4%    |
| No. of Observations                | 2924  | 11564  | 7850       | 22338   |

\* Racial/visible minority status information is collected on the basis of self-identification through the use of a short survey/form administered by the employer. Self-identification is the positive affirmation of belonging to one or more under-represented groups: women, visible minorities, aboriginal peoples and persons with disabilities. Legislation ensures that self-identification is "voluntary", i.e., the employee decides if (s)he wants to provide their employer with their information. Employers cannot attribute employees to any particular groups and are not allowed to pressure people into self-identification. As self-identification does not provide any direct benefits to the employees, employees may be reluctant to self-identify as they do not want to be looked upon as owing their situation to membership in an under-represented group but to be recognized as achieving success as a result of their talent and performance. Others did not self-identify due to fear of discrimination or felt it is an invasion of privacy that should have nothing to do with their employment with their organizations.

## Independent Variables

The explanatory variables have been classified into four main categories: a set of key independent variables that relate to employees' gender and racial-minority status; a set of supply-side or conventional human-capital variables, including age, education, and tenure; a set of demand-side or structural variables including job level, job family, and any gender or racial considerations for the job; and a set of control variables for year of promotion and region of employment. The values of each of the explanatory

variables as of the year-end of the first year of each set of the matched files are retained, as they are most likely to provide the information on which the promotion decision is based.

### **Race and Gender**

Race and gender are the key independent variables. It is important to note at the outset that the race variable only differentiates between whether an employee is a member of a visible minority or not, based on employees' self-identification. To allow the investigation of the inter-relationships between gender and race in addition to their individual effects, four race/gender combination variables were also created: white males, white females, visible minority males, and visible minority females. Previous studies have found that these four race/gender groups may have very different labour market experiences (Browne and Misra, 2003; Smith, 2005; Greenman and Xie, 2008). The creation of these variables will allow us to gauge the experiences of each, relative to their white male counterparts.

### **Supply-side Variables**

The model also includes a set of conventional human-capital and demographic variables. These variables include tenure, age, education attainment, some measure of performance rating, and work interruptions.

Tenure is included in the model as a proxy for firm-level or job-specific skill accumulation. In their analyses of promotion for nonunion salaried employees in a manufacturing firm in the US, Abraham and Medoff (1985) found evidence that seniority had a substantial negative impact on promotion decisions for 60% of the employees, whereas Stewart and Gudykunst (1982) found positive effects of tenure on promotion rates. A logical expectation is that one needs to accumulate enough firm-level skills before being considered ready to be promoted. However, it is also reasonable to expect that this effect is not a linear one. Studies have found a negative tenure effect on promotions after the initial years; i.e., the effect of tenure on the probability of promotion takes on the shape of an inverted U. Tenure is therefore expected to have a positive effect on the probability of promotion initially, but to become a burden (have a negative effect) when tenure reaches a particular point in time.

Age and education are used as signals to employers in their screening and matching processes. They are included as proxies for general skill accumulation. Conventional beliefs suggest that the probability of promotion increases as one's general skill increases. Rosenbaum (1979) suggested that, as with job tenure, the relationship between age and promotion opportunity exhibits a curvilinear relationship, in the shape of an inverted U. Therefore, one's opportunity for advancement is expected to increase with age up to a certain point and then decrease. Other studies have found that the incidence of promotion falls with age while education effects are frequently found to be not significant in explaining the incidence of promotion (Lewis, 1986).

Performance rating is included as a measure to account for an employee's productivity. Objectives are usually agreed to between the employee and his or her supervisor at the beginning of a performance period, followed by an evaluation at the end of the period. Performance ratings, determined by the supervisor in consultation with the employee, are one of the outcomes of the evaluations. Two dummy variables are included in the model: one reflects superior performance and one shows that objectives have been met. Previous research studies have shown that good performance ratings usually increase the chances of promotion or career advancement (Gibbs, 1995; Igbaria and Greenhaus, 1992). Therefore, in a meritocratic setting, employees who perform relatively better than others would stand a better chance of being awarded a promotion. It has also been found that minorities are more likely to receive lower performance evaluation ratings (Greenhaus, Parasuraman and Wormley, 1990). Although this cannot be ascertained by our data, in the event that this is true, any disadvantage experienced by the minorities would be understated.

As the data contain consecutive end-of-year information on all employees, they allow the identification of incidence of work interruptions or a "breaks-in-service" variable that identifies whether an employee's tenure with the company was continuous or not during the time period studied. For example, an employee who existed in the dataset in 1995, 1996, 1997, 1999, and 2000 would be considered to have an interruption in his or her tenure with the firm. These interruptions can represent a termination/rehire situation or they can be due to a parental, maternal, or educational leave. The reason for the interruption cannot be determined from the available data. A rehire or return from education leave may signal a higher level of skills, whereas a return from maternity/paternity leave might be seen as a depreciation in skills. This variable is included in the model; however, this variable may not be statistically significant, as any significant positive effect may cancel out any negative effect, depending on the nature of the interruptions.<sup>4</sup>

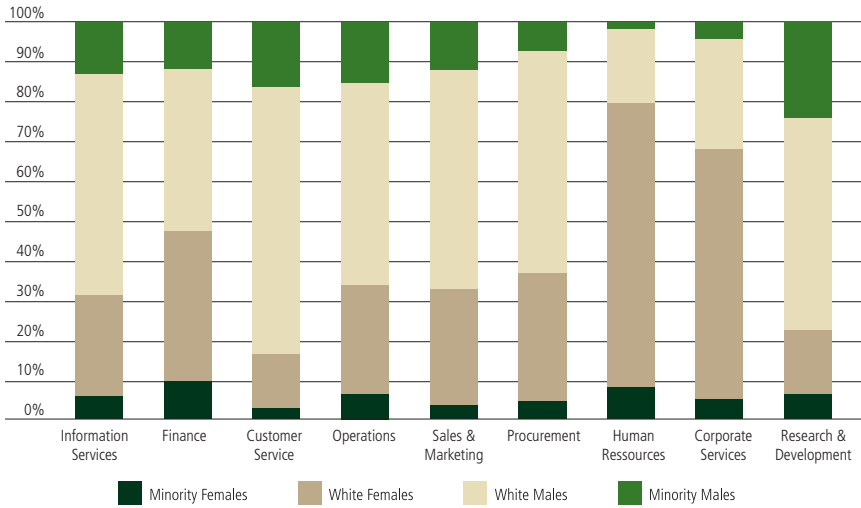
### **Demand-side Variables**

To aid our understanding of the nuances of the promotion process from the firm's perspective, a set of demand-side variables that account for how work is structured in this firm is included. These variables include job family, job level, and the race/gender composition of each job family/level combination.

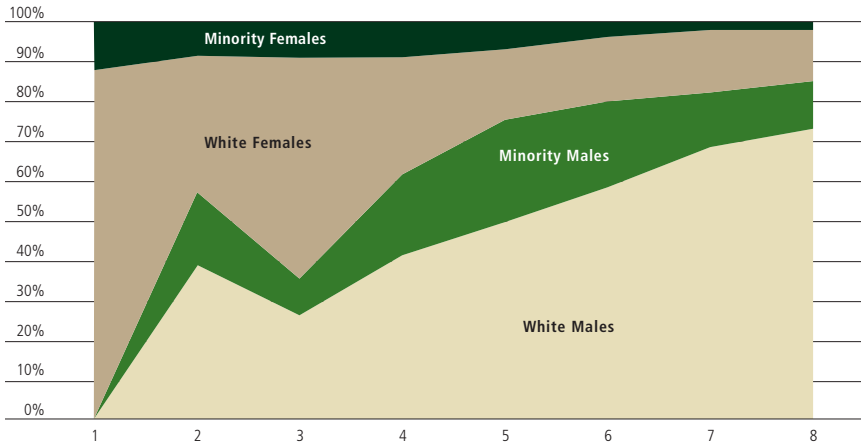
Employees were classified into nine job families based on the functions they perform. Figure 1 shows the distribution of the four combinations of race/gender groups in each of the job families. Minorities account for a small percentage of all employees in all job families. The Human Resources function has a high percentage of white females and Customer Service has the highest percentage of white males.

Employees in each job family can be situated at different job levels in the organizational hierarchy, based on the complexities and the levels of responsibility of the jobs. Figure 2 shows the distribution of the four combinations of race/gender

**FIGURE 1**  
**Distribrtion of Race / Gender Groups by Job Family**



**FIGURE 2**  
**Distribrtion of Race / Gender Groups by Job Level**



groups by their levels in the organizational hierarchy. The proportion of white females is higher in the lower job levels, and decreases significantly at the higher levels in the organizational hierarchy. The opposite is true for white males: they are more likely to be situated in the top half of the organizational hierarchy. The profiles for racial minorities are quite flat, with a slight peak at level 5 for minority males, followed by an evident downward trend. Although the distributional pattern may suggest the existence of a sticky floor or a glass ceiling, it can also simply be the consequences of past practices and social forces. It is of interest, however, as there may be ramifications affecting the

probability of a promotion occurring. For example, conventional wisdom will inform us that it is increasingly difficult to be promoted as one moves up the organizational hierarchy, as the number of positions at the top of the house is relatively fewer than at junior levels. Accordingly, if white males are more often situated at higher job levels, then the probability of promotion for white males should be lower than for the other race/gender groups—if promotion decisions are made fairly. For this reason, job level is included as an explanatory variable in the model.

As discussed earlier, the probability of promotion is expected to decrease as an employee progresses through an organizational hierarchy. This effect should apply to the different race/gender groups equally in a non-discriminatory environment.

The mix of incumbents in jobs may contribute to differential treatment in promotions (Gerhart and Milkovich, 1989; Maume, 1999). To capture the effect of race/gender composition on the probability of promotion, three new variables were created: percent white female, percent visible minority male, and percent visible minority female, for incumbents in each of the job-family/job-level combinations.

Finally, control variables to account for the year of promotion and the region in which each employee worked are included.

## Results

Table 3 presents the estimates from the probit model of promotion for all employees in the sample (Specification I) and then separately for specific groups based on key partitions of the organizational hierarchy (Specifications II to IV). Dummy variables for each of the three race/gender categories are used to capture the differential impact of both race and gender, controlling for a wide range of variables described in the section on independent variables.

The first column of Table 3 reports the marginal effects on the probability of promotion for the pooled sample for all job levels estimated from the probit model of promotion.<sup>5</sup> The results indicate that even after controlling for an extensive list of supply-side, demand-side, and control variables, white females, minority males, and minority females were all less likely to receive promotions than white males. White females were 4.5% less likely to be promoted than comparable white males, and minority males 7.9% less likely. Minority females experience the largest disadvantage as they were 16% less likely than similar white males to receive promotions.

Most of the independent variables included in the model exhibited the expected patterns of influence. For example, employees with higher levels of educational attainment are significantly more likely to be promoted. Tenure had a significant inverted U-shaped relationship with the probability of receiving a promotion. A work interruption reduced the probability of promotion by 13%. The likelihood of promotion also decreased as one moved up the organizational hierarchy, confirming the common belief in the increasing difficulty of climbing the corporate ladder. In line with meritocratic principles, employees who performed well relative to others stood a better chance of promotion. Higher salaries were also positively and significantly

**TABLE 3**  
**Determinants of Promotions, 1996 to 2000**

|                                   | Specification I<br>All Levels |           | Specification II<br>Levels 1 to 3 |           | Specification III<br>Levels 4 to 5 |           | Specification IV<br>Levels 6 to 8 |           |
|-----------------------------------|-------------------------------|-----------|-----------------------------------|-----------|------------------------------------|-----------|-----------------------------------|-----------|
|                                   | dF/dx                         | Std.Err.  | dF/dx                             | Std.Err.  | dF/dx                              | Std.Err.  | dF/dx                             | Std.Err.  |
| <b>WHITE MALES</b>                |                               |           |                                   |           |                                    |           |                                   |           |
| White Females                     | 0,0454                        | ** 0,0121 | 0,1124                            | ** 0,0316 | 0,0575                             | ** 0,0177 | 0,0258                            | 0,0208    |
| Minority Males                    | 0,0788                        | ** 0,0123 | 0,0597                            | 0,0465    | 0,1014                             | ** 0,0172 | 0,0602                            | ** 0,0195 |
| Minority Females                  | 0,1612                        | ** 0,0192 | 0,2875                            | ** 0,0434 | 0,1725                             | ** 0,0260 | 0,0279                            | 0,0421    |
| Undisclosed                       | 0,0974                        | ** 0,0096 | 0,1423                            | ** 0,0325 | 0,1040                             | ** 0,0131 | 0,0666                            | ** 0,0160 |
| <b>HIGH SCHOOL OR LESS</b>        |                               |           |                                   |           |                                    |           |                                   |           |
| Post HS / College                 | 0,0909                        | ** 0,0119 | 0,1154                            | ** 0,0233 | 0,0077                             | 0,0172    | 0,0682                            | * 0,0293  |
| Undergraduate Degrees             | 0,1119                        | ** 0,0120 | 0,1314                            | ** 0,0379 | 0,0806                             | ** 0,0156 | 0,0415                            | 0,0269    |
| Graduate Degrees                  | 0,0963                        | ** 0,0135 | 0,1727                            | 0,1242    | 0,0476                             | * 0,0183  | 0,0694                            | * 0,0283  |
| Undisclosed                       | 0,0962                        | ** 0,0160 | 0,1447                            | ** 0,0375 | 0,0299                             | 0,0217    | 0,1068                            | ** 0,0366 |
| Age [in years]                    | 0,0089                        | * 0,0039  | 0,0009                            | 0,0091    | 0,0140                             | ** 0,0054 | 0,0183                            | * 0,0090  |
| Age Squared                       | 0,0001                        | * 0,0001  | 0,0002                            | 0,0001    | 0,0000                             | 0,0001    | 0,0000                            | 0,0001    |
| Tenure [in years]                 | 0,0136                        | ** 0,0017 | 0,0373                            | ** 0,0068 | 0,0244                             | ** 0,0027 | 0,0204                            | ** 0,0026 |
| Tenure Squared                    | 0,0006                        | ** 0,0001 | 0,0009                            | ** 0,0003 | 0,0010                             | ** 0,0001 | 0,0007                            | ** 0,0001 |
| Break in Service                  | 0,1346                        | * 0,0626  | 0,2624                            | 0,1737    | 0,1217                             | 0,0800    | 0,2774                            | * 0,0980  |
| <b>LEVELS 1 &amp; 2</b>           |                               |           |                                   |           |                                    |           |                                   |           |
| Level 3                           | 0,5527                        | ** 0,0133 | 0,4959                            | ** 0,0454 | -                                  | -         | -                                 | -         |
| Level 4                           | 0,4005                        | ** 0,0255 | -                                 | -         | -                                  | -         | -                                 | -         |
| Level 5                           | 0,7400                        | ** 0,0175 | -                                 | -         | 0,5349                             | ** 0,0234 | -                                 | -         |
| Level 6                           | 0,7516                        | ** 0,0110 | -                                 | -         | -                                  | -         | -                                 | -         |
| Level 7                           | 0,7481                        | ** 0,0067 | -                                 | -         | -                                  | -         | 0,3447                            | ** 0,0313 |
| Level 8                           | 0,6479                        | ** 0,0043 | -                                 | -         | -                                  | -         | 0,4365                            | ** 0,0323 |
| Annual Salary (\$'000)            | 0,0145                        | ** 0,0005 | 0,0237                            | ** 0,0033 | 0,0221                             | ** 0,0009 | 0,0116                            | ** 0,0008 |
| <b>Performance Rating</b>         |                               |           |                                   |           |                                    |           |                                   |           |
| Exceeded                          | 0,2904                        | ** 0,0097 | 0,3552                            | ** 0,0267 | 0,2425                             | ** 0,0128 | 0,3474                            | ** 0,0188 |
| Achieved                          | 0,1648                        | ** 0,0101 | 0,2645                            | ** 0,0320 | 0,1532                             | ** 0,0125 | 0,1754                            | ** 0,0201 |
| <b>RESEARCH &amp; DEVELOPMENT</b> |                               |           |                                   |           |                                    |           |                                   |           |
| Information Technology            | 0,0627                        | ** 0,0185 | 0,1263                            | 0,1675    | 0,4475                             | ** 0,0486 | 0,1233                            | ** 0,0379 |
| Finance                           | 0,1438                        | ** 0,0261 | 0,1530                            | 0,1984    | 0,0716                             | 0,1165    | 0,1841                            | ** 0,0640 |
| Customer Service                  | 0,1166                        | ** 0,0204 | 0,1173                            | 0,1071    | 0,4485                             | ** 0,0477 | 0,0428                            | 0,0443    |
| Operations                        | 0,0001                        | 0,0187    | 0,3641                            | ** 0,1148 | 0,6742                             | ** 0,0276 | 0,1088                            | ** 0,0289 |
| Sales & Marketing                 | 0,1730                        | ** 0,0158 | 0,2194                            | ** 0,0567 | 0,5292                             | ** 0,0650 | 0,2201                            | ** 0,0366 |
| Procurement                       | 0,0828                        | ** 0,0264 | 0,2480                            | 0,1931    | 0,5678                             | ** 0,0479 | 0,2125                            | ** 0,0470 |
| Human Resources                   | 0,2440                        | ** 0,0319 | 0,3112                            | * 0,0833  | 0,4620                             | * 0,1406  | 0,3716                            | * 0,1078  |
| Corporate Services                | 0,0025                        | 0,0375    | 0,0053                            | 0,0740    | 0,6495                             | ** 0,0158 | 0,2180                            | ** 0,0753 |
| <b>Job Composition</b>            |                               |           |                                   |           |                                    |           |                                   |           |
| Percent White Female              | 0,0007                        | 0,0009    | 0,0063                            | 0,0055    | 0,0078                             | ** 0,0027 | 0,0003                            | 0,0034    |
| Percent Minority Male             | 0,0055                        | ** 0,0015 | 0,0017                            | 0,0153    | 0,0465                             | ** 0,0035 | 0,0005                            | 0,0032    |
| Percent Minority Female           | 0,0035                        | 0,0022    | 0,0270                            | 0,0179    | 0,0453                             | ** 0,0073 | 0,0140                            | * 0,0070  |

|  | Specification I<br>All Levels |          | Specification II<br>Levels 1 to 3 |          | Specification III<br>Levels 4 to 5 |          | Specification IV<br>Levels 6 to 8 |          |
|--|-------------------------------|----------|-----------------------------------|----------|------------------------------------|----------|-----------------------------------|----------|
|  | dF/dx                         | Std.Err. | dF/dx                             | Std.Err. | dF/dx                              | Std.Err. | dF/dx                             | Std.Err. |
| ONTARIO  |                               |          |                                   |          |                                    |          |                                   |          |
| The Maritimes  | 0,0444                        | 0,0399   | 0,0460                            | 0,0690   | 0,0235                             | 0,0643   | 0,1689                            | 0,0842   |
| Quebec   | 0,0032                        | 0,0138   | 0,1156                            | 0,0979   | 0,0353                             | 0,0190   | 0,0512 *                          | 0,0200   |
| The Prairies   | 0,0262 *                      | 0,0121   | 0,0723 **                         | 0,0266   | 0,0060                             | 0,0170   | 0,0061                            | 0,0237   |
| British Columbia   | 0,1687 **                     | 0,0333   | 0,0198                            | 0,1580   | 0,2966 **                          | 0,0440   | 0,0457                            | 0,0520   |
| Others   | 0,2088 **                     | 0,0289   | –                                 | –        | 0,1400                             | 0,0681   | 0,2359 **                         | 0,0367   |
| PROMOTED IN 1996   |                               |          |                                   |          |                                    |          |                                   |          |
| Promoted in 1997   | 0,2417 **                     | 0,0117   | 0,2559 **                         | 0,0360   | 0,1783 **                          | 0,0155   | 0,3466 **                         | 0,0215   |
| Promoted in 1998   | 0,0430 **                     | 0,0121   | 0,0468                            | 0,0354   | 0,0364 *                           | 0,0165   | 0,0721 **                         | 0,0209   |
| Promoted in 1999   | 0,0145                        | 0,0122   | 0,0081                            | 0,0333   | 0,0044                             | 0,0170   | 0,0275                            | 0,0217   |
| Promoted in 2000   | 0,0510 **                     | 0,0118   | 0,0857 *                          | 0,0337   | 0,0397 *                           | 0,0168   | 0,1530 **                         | 0,0204   |
| No. of Observations  | 22 338                        |          | 2 918                             |          | 11 561                             |          | 7 849                             |          |
| LR Chi-sq  | 5244.02 (43)                  |          | 906.42 (36)                       |          | 3015.44 (37)                       |          | 1775.91 (38)                      |          |
| Log Likelihood   | -12670,12                     |          | -1560,94                          |          | -6159,57                           |          | -4551,74                          |          |
| Pseudo R-sq  | 0,1715                        |          | 0,2250                            |          | 0,1966                             |          | 0,1632                            |          |
| Reference categories in square brackets. **, * denote significance at $p < 0.01$ and $p < 0.05$ respectively.                                  |                               |          |                                   |          |                                    |          |                                   |          |
| Reference category for job level is Levels 1 and 2 for specification I and II, Level 4 for specification III and Level 6 for specification IV. |                               |          |                                   |          |                                    |          |                                   |          |

related to higher promotion probability. In terms of the effect of race/gender job composition, only percent minority male had a significant negative effect on the promotion probability in this overall model. Percent white female had an insignificant negative effect, whereas percent minority female had an insignificant positive effect on the likelihood of receiving a promotion. Finally, employees in almost all job functions were more likely to be promoted than those in Research and Development. This may reflect the fact that in this firm, in order to attract employees with specific technical skills, those employees are placed in relatively high levels in the organizational hierarchy at earlier stages of their career.

The only variable that carries a different sign than expected is the age variable. Older employees seem to be significantly less likely to be promoted, and the probability further decreases the older they grow. Although a positive effect is expected, as both age and education are proxies for general skills, a negative effect of age on the probability of promotion is reasonable, as the model also controls for tenure. In summary, all race/gender groups were significantly less likely than white males to be promoted, even after controlling for an extensive list of factors that affect the promotion probability in the overall model.

In order to test the glass ceiling and sticky floor hypotheses, the maximum likelihood estimates from the various specifications for each of the three partitions of the organizational hierarchy are presented in the last three columns of Table 3.

Specification II in Table 3 shows the maximum likelihood-of-promotion estimates from the probit model for employees at levels 1 to 3: i.e., the entry levels. White



females had a significant 11% disadvantage in being promoted as compared to similar white males. Minority males seemed less likely to be promoted than white males, but the difference is not statistically significant at conventional levels. Minority females at entry levels were almost 29% less likely to receive a promotion than comparable white males. The other variables included in the model exhibit patterns similar to the regression for the overall sample except age, interruption in service, and race/gender composition of jobs. As age and tenure are both proxies for general and specific human capital, it is reasonable to look at the two variables together. The coefficients of both variables are negative, reflecting the fact that the older the employee becomes and the longer that employee stays at an entry-level job, the more difficult career advancement becomes. Interruption in service, significant and negative in predicting a promotion in the overall sample, now carries a positive (and insignificant) coefficient. Employees at lower levels may be more likely to take time out for educational purposes to better equip themselves for potential future advancement. The gender/racial composition of jobs had no significant impact on the promotion probabilities of employees at the entry levels.

Specification III in Table 3 shows the maximum likelihood-of-promotion estimates from the probit model for employees situated at the mid-level ranks of the organizational hierarchy: i.e., levels 4 and 5. The disadvantages suffered by both female groups improved at these levels as compared to those at entry levels: white female employees at job levels 4 and 5 were only six percentage points less likely to be promoted than comparable white males, while the minority female employees suffered a 17 percentage-point disadvantage. The situation for minority males worsens at these levels: the magnitude of the disadvantage doubled to 10% as compared to the experience of white males. Age is negatively related to the probability of promotion: the older one gets, the less likely a promotion becomes. Tenure exhibits an inverted U-shaped relationship with the likelihood of promotion: the probability of receiving a promotion increased as one accumulated firm-specific human capital, reaching a maximum at around 11.3 years and declining thereafter. Interruption in service had a negative (though not significant) impact on the promotion probability at these middle ranks, but job composition becomes quite an important factor in predicting promotion here. Percent white female, percent minority male, and percent minority female are all significantly and negatively related to the incidence of promotion. For example, a 10% increase in percent white female in the composition of a job translates to an 8 percentage-point disadvantage in the probability of promotion. Percent minority male and percent minority female have a relatively larger negative impact on the incidence of promotion. The other variables included in the model exhibit similar patterns as expected.

Finally, Specification IV in Table 3 shows the maximum likelihood-of-promotion estimates from the probit model for employees situated at the top three levels of the organizational hierarchy; i.e., levels 6 to 8. White females seem to enjoy an “advantage”.

Though the positive coefficient is not statistically significant, a white female at these job levels was 2.5% more likely to receive a promotion than a comparable white

male. Minority males at these top three levels suffered a disadvantage of about 6% (versus 10% for minority males in the mid-level ranks), relative to their white male counterparts. The likelihood of receiving a promotion improves quite significantly for the minority females who were now only 3% less likely than comparable white males to be promoted, making their promotion rates not significantly different from those of white males. The other variables included in the model exhibit similar patterns to those in Specification III except interruption in service and job composition. The interruption-in-service variable has a significantly negative impact on the promotion probability at these job levels. An interruption in service for an employee at these levels lowered the probability of promotion by almost 28%. Job composition is less important in predicting promotion for these levels than it is in the mid-level ranks. Only percent minority female is significantly and negatively related to promotion. A 1% increase in percent minority female in the composition of a job lowered the probability of promotion by 1.4%.

## Discussion

Our findings indicated that promotion disadvantages were experienced by visible minority men, visible minority women, and white women compared to white men. Of these groups, visible minority women experienced the largest promotion disadvantage compared to white men. Our prediction equations included several supply- and demand-related variables as controls, ruling out as plausible alternative explanations that the findings are as a result of differences in qualifications, performance, job family, hierarchical level, or geographic location. Also, given the fact that all study participants were employed by the same organization, industry effects or organizational differences in strategy or practice do not constitute plausible alternative explanations for our findings.

Furthermore, to the extent that gender and/or race disadvantage affects the initial hiring decision, specifically, if women or visible minorities are more likely to be hired into job classifications below those warranted by their qualifications, the promotion disadvantages we observed are likely to be understated. Similarly, if performance evaluations are biased such that women and visible minorities receive lower ratings than they deserve, then controlling for those ratings caused us to understate the amount of promotion discrimination experienced in this organization. As such, the findings of this study are even more startling.<sup>6</sup>

Furthermore, as we suggested in our introduction, organizational level had an impact on the size of the promotion disadvantage experienced by visible minority men, visible minority women, and white women. Similar to the findings for Swedish women reported by Bihagen and Ohls (2006), we observed that both white women and visible minority women experienced the greatest promotion disadvantages at the lowest hierarchical levels. Visible minority men, however, experienced no significant promotion disadvantage compared to white men at the lowest levels. These findings suggest that the sticky floor effect is more relevant to women such that women at the lowest organizational levels are particularly likely to see themselves passed over for promotion in favour of their male counterparts, whether white or visible minority.

Because qualifications and performance are ruled out as plausible explanations for our findings, conceptual explanations for the sticky floor experienced by women are limited to either preferential treatment of men (Aigner and Cain, 1977) or male-female differences in preferences for promotion at the lowest organizational levels (Hakim, 2002). However, it is unlikely that differences in employee preferences can explain why visible minority women experience a larger disadvantage than white women do. As such, discrimination against visible minority women seems to be a more plausible explanation for that outcome.

The middle levels examined in our analysis showed significant promotion disadvantages for visible minority men, visible minority women, and white women, with visible minority women experiencing the largest promotion disadvantage. The middle organizational levels represent promotion into and within the management hierarchy. As such, career advancement through these levels is crucial for determining who has responsibility and authority for expending organizational resources as well as who will eventually be considered for positions at the highest executive levels (Hurley and Sonnenfeld, 1998). Our findings suggest that white men experience a promotion advantage at a crucial career stage, specifically, the early and middle-management stage of the career.

There are two possible reasons for the white male promotion advantage at the middle-level ranks of the organization. First, decision-makers may discriminate in favour of white men, trusting them more to show the commitment and ability to lead the organization (Kanter, 1977). Second, the climb to the executive levels requires considerable commitment to the career and the organization, and white men may be more willing and able to sacrifice time with family and other outside interests in order to pursue an ambitious career. Although evidence supports the notion that women differ in the extent to which they are willing to devote themselves to a demanding career (Hakim, 2002), women seeking managerial careers have been shown to be equally ambitious and committed to their careers as their male counterparts (Konrad *et al.*, 2000). Also, no credible evidence suggests that visible minority men in management are less devoted to their careers than white male managers are. Furthermore, employee differences in commitment and preferences for promotion are not very plausible explanations for the fact that visible minority women are more disadvantaged than either visible minority men or white women are. Hence, our findings provide some evidence of discriminatory preferential treatment of white men in promotions in the middle management ranks.

In the context of our other findings, it is not surprising that women experience no promotion disadvantage at the highest organizational levels. Both white and visible minority women experience slower promotions at the middle-management ranks, and those who are the least tenacious in their career ambitions may become discouraged and reduce the effort they exert to obtain career advancement, as a result. Hence, the women who survive the middle-management bottleneck to be considered for promotions at the highest organizational levels are likely to be the highest performers, the hardest workers, and the most committed to their careers.

Our findings therefore suggest that the very best white and visible minority women are accepted into senior management positions.

The story is less positive for visible minority men. Like women, visible minority men experience slower promotion in the middle-management ranks, such that only the most tenacious and capable are likely to be considered for promotion into senior executive positions. Yet, even after surviving a middle-management screening process that likely is overly rigorous in that it requires them to be better than their white male counterparts to get to the same career level, visible minority men in this organization still experienced a promotion disadvantage at the top organizational levels. It is unlikely that these individuals who have continued to push forward in their careers despite promotion disadvantages are less interested in obtaining senior management positions, ruling out a difference between white and visible minority men in preferences for promotion as a plausible interpretation. As such, discrimination and the existence of a glass ceiling for visible minority men appears to be the most likely explanation for this finding.

### **Study Limitations**

The fact that this study was conducted in a single organization limits the generalizability of our findings. Promotion dynamics may be different in other organizations. Our single organization study has the advantage, however, of providing us with very detailed information on qualifications and performance of employees. The fact that the actual performance ratings used to make decisions in the organization are controlled in our prediction equations rules out group differences in rated performance as a plausible explanation for why we observe promotion advantages to white men. Studies of representative samples of individuals working in many different organizations do not generally include organizational ratings of performance, making the findings of such studies vulnerable to performance as a plausible explanation for group differences in outcomes. Hence, our design favoured internal over external validity.

The fact that we combined several groups of people to create the “visible minority” category means that we are unable to detect differences in the experiences of different visible minority groups. For instance, we cannot assess whether Indian and Chinese employees experienced differences in their promotion outcomes. This data limitation, however, allows us to retain sufficient statistical power to detect racial effects in the data. Even if we had been able to differentiate among the various ethnic groups, the small numbers in each group would have rendered the comparisons too weak for true population differences to be detected.

Another measurement issue is the number of participants who did not disclose their ethnic origin. The “undisclosed” group showed several significant promotion disadvantages in our data. In order to examine the impact of this group on our findings, we re-estimated our prediction equations under two separate assumptions. First, we assumed that all “undisclosed” respondents were white. Second, we re-estimated the equations again assuming that all of the “undisclosed” participants were visible minorities. In either of these extreme cases, the findings of the prediction

equations were virtually identical to the reported results. Hence, we concluded that the “undisclosed” participants did not constitute a threat to the validity of our conclusions.

## Implications

Like other studies (Bihagen and Ohls, 2006), we found that both white and visible minority women experience a significant promotion disadvantage at the lowest organization levels compared to either white or visible minority men. Future research is needed to determine the extent to which those differences are due to discrimination or gender differences in preferences: however, preferences are an unlikely explanation for the fact that visible minority women experience a larger promotion disadvantage than white women do at these levels.

We also found, like other studies (Dencker, 2008; Powell and Butterfield, 1994), that white women do not experience a significant promotion disadvantage compared to white men at the highest organizational levels. We also observed that visible minority women do not experience a significant promotion disadvantage at these levels. We explain this finding as being the result of an extremely rigorous middle-management selection process that advantages white men such that only the most capable and committed women can succeed to even be considered at the top management levels. Visible minority men, however, were less likely to be promoted at the highest levels, suggesting the existence of a glass ceiling for that group.

## Conclusion

Even during a period of strong economic growth and a tight labour market in the 1996-to-2000 period, the minority race/gender groups experienced disadvantages in their advancement opportunities throughout the organizational hierarchy. Specifically, for white women and minority women, the disadvantage is most severe at the lower rungs of the organizational ladder. Furthermore, white women, visible minority women, and visible minority men experience promotion disadvantages at the middle-management level, which is a crucial phase of the managerial career (Hurley and Sonnenfeld, 1998), and visible minority men experience a promotion disadvantage at the highest organizational levels. Although gender differences in preferences for promotion cannot be ruled out as a possible explanation for some of these findings, preferences are not a plausible explanation for the fact that visible minority women experience greater promotion disadvantages than white women do at the lower and middle organizational ranks, nor can preferences explain the disadvantage faced by visible minority men at the highest levels. This shows that market forces alone are not effective in removing labour market inequities.

Employment-related decisions should be based on criteria related to merit and ability, allowing all employees to put their talents and skills to good use and contribute to their fullest potential to society. Making the promotion process transparent at all levels and matching employees with jobs based on abilities rather than on ascribed characteristics will promote equity and remove barriers for all participants in the

labour market. Employers' policies, programs, and practices that address the various aspects of equality in employment can not only act as a force towards equity, they can also promote efficiency through the rationalization of the allocation of human resources and the depersonalization of employment decisions, reducing the likelihood of potentially biased managerial discretion. Progressive employers are continuing to conduct analyses of their workforce and employment policies and practices to eliminate employment barriers and implement special measures to enhance advancement opportunities for women and minorities.

## Notes

- 1 To ensure and maintain confidentiality, information that would allow the identification of the firm and/or its employees is not included.
- 2 Promotion data for the top two levels, representing the presidential and vice-presidential level employees, are not available. The number of employees at these two levels accounts for a very small proportion of the sample, and since the strategy and philosophy governing executive compensation and promotion are quite different for executive level positions, they were not included in the analyses.
- 3 Using the year-end data files for the years 1995 to 2000, and following procedures similar to that of Hartmann (1987), "matched" files were created by merging pairs of consecutive year-end files. To ensure independence of the observations, for those employees who received one or more promotions during the time period studied, only the first promotions are analyzed. A total of 15,671 promotions took place in the time period observed, of which 12,629, or about 81%, reflect first promotions. For those employees who did not receive a promotion, the information as they first entered the dataset is used.
- 4 This may not be true when women and men are present in different proportions. We are grateful to one anonymous reviewer for this suggestion.
- 5 The model was also estimated excluding those whose race/gender status cannot be identified. The results are substantially the same.
- 6 We are grateful to one anonymous reviewer for suggesting these interpretations of our findings.

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## RÉSUMÉ

### Les différences dans les promotions des femmes et des minorités raciales : existe-t-il un « plancher collant », un goulot intermédiaire ou un plafond de verre ?

Cet article traite des facteurs qui déterminent les promotions en milieu de travail et effectue une évaluation empirique afin de vérifier si les femmes et les minorités raciales bénéficient des mêmes possibilités d'avancement que les hommes de race blanche à divers niveaux de la hiérarchie organisationnelle. Le fait d'être promu est un facteur clé qui affecte la rémunération, les chances de développement personnel et la satisfaction au travail. Du point de vue de l'organisation, une main-d'œuvre diversifiée est étroitement associée à des niveaux plus élevés de capacité de résolution de problèmes, de créativité, d'innovation et de performance organisationnelle. Tenant compte de la diversité croissante de cette main-d'œuvre et du fait que ces groupes continueront de représenter une partie significative et grandissante de la main-d'œuvre totale, il devient crucial de comprendre l'expérience des femmes et des minorités visibles sur le marché du travail. Nous devons tenir compte de leur possibilité de développer pleinement leur potentiel et de la capacité qu'a l'organisation de bénéficier de l'expérience, des connaissances et du talent de ces travailleurs.

Cet article se base sur les trois hypothèses suivantes pour tenter d'identifier les causes de la difficulté d'avancement professionnel pour les femmes et les minorités raciales: (1) l'hypothèse du plancher collant, selon laquelle les hommes de race blanche ont un avantage sur les femmes de race blanche ainsi que sur les hommes et les femmes de minorités visibles pour les promotions dans les niveaux les plus bas de la hiérarchie organisationnelle; (2) l'hypothèse du goulot affirmant que les hommes de race blanche ont un avantage sur les femmes de race blanche, les hommes et les femmes de minorités visibles pour les promotions dans les rangs de cadres moyens de la hiérarchie organisationnelle; et (3) l'hypothèse du plafond de verre postulant que les hommes de race blanche ont un avantage dans les promotions sur les femmes de race blanche, les hommes et les femmes de minorités visibles à des niveaux organisationnels supérieurs.

En utilisant un ensemble de données contenues dans les dossiers de plus de 22 000 travailleurs à temps plein non syndiqués d'une firme canadienne opérant à l'échelle nationale de 1996 à 2000, nous avons constaté que les femmes et les minorités raciales sont moins susceptibles d'être promues que leurs collègues masculins de race blanche et ce, même en considérant un large éventail de variables relatives à l'offre (années de service, âge, niveau de scolarité, performance et interruption de travail) et de variables portant sur la demande (catégorie d'emploi, niveau d'emploi, répartition race/sexe des emplois).

Les résultats nous démontrent des impacts variables selon les différents groupes des divers paliers de la hiérarchie organisationnelle après avoir contrôlé un large éventail de facteurs influençant la probabilité de promotion. Les désavantages sont plus sévères pour les femmes de race blanche et les femmes de minorités visibles aux niveaux les plus bas de la hiérarchie organisationnelle, ce qui vient confirmer l'hypothèse du « plancher collant ». De plus, les femmes de race blanche, les femmes de minorités visibles et les hommes de minorités visibles sont désavantagés pour les promotions aux postes de cadres moyens, ce qui vient confirmer l'hypothèse du « goulot » en matière d'avancement professionnel pour les femmes et les minorités visibles. Bien que les femmes de race blanche et les femmes de minorités visibles aient des chances égales aux hommes de race blanche d'être promues aux niveaux les plus élevés de la hiérarchie organisationnelle, les hommes de minorités visibles sont désavantagés à ces niveaux, ce qui suggère un effet de « plafond de verre » pour ce groupe.

Même pendant la période de forte croissance économique et avec un marché du travail favorable de 1996 à 2000, les groupes minoritaires race/sexe ont vécu des difficultés par rapport à leurs chances d'avancement au sein de la hiérarchie organisationnelle. Les difficultés plus larges vécues par les femmes de minorités visibles dans des emplois de niveaux organisationnels bas et moyens tout comme l'effet de plafonnement observé chez les hommes de minorités visibles sont difficilement attribuables à des déterminants non discriminatoires basés sur les groupes de travailleurs pour l'attribution des promotions, suggérant que la force de la main-d'œuvre ne suffit pas à elle seule à éradiquer les inégalités existantes sur le marché du travail.

Les décisions liées à l'emploi devraient être basées sur des critères de mérite et de capacité, permettant ainsi à tous les employeurs de mettre les talents et compétences à profit et de fournir une contribution maximale à la société. La transparence à tous les niveaux du processus de promotion et le fait de jumeler les employés à des positions en se basant sur leurs compétences plutôt que sur des caractéristiques déjà assignées pourrait promouvoir l'efficacité via la rationalisation du processus de répartition des ressources humaines.

Malgré toute l'emphase qui a été mise sur le fait de briser le plafond de verre, on a omis de parler suffisamment du plancher collant et, jusqu'à cette étude, aucune attention n'a été portée sur l'effet de goulot de niveau intermédiaire. De véritables efforts sont requis de la part des divers intervenants en vue d'alléger ou sinon d'éliminer carrément les inconvénients que vivent les femmes et les minorités raciales à tous les paliers de la hiérarchie organisationnelle.

MOTS-CLÉS : femmes, minorités raciales, possibilité d'avancement, niveau organisationnel, Canada

## RESUMEN

### Diferenciales de género y de raza en las promociones: ¿existe un piso pegajoso, un cuello de botella de nivel medio o un techo de vidrio?

Este documento explora la incidencia de la promoción para las mujeres y minorías raciales. Para ello utilizamos un banco de datos de propiedad registrada que contiene datos de 22,000 empleados a tiempo completo, no sindicalizados, de una gran empresa canadiense operando a nivel nacional de 1996 al 2000. Los resultados muestran que la probabilidad de ser promovido es menor para las mujeres y las minorías raciales que para sus contrapartes masculinas de raza blanca. Tanto para las mujeres de raza blanca y las mujeres de minoría racial, la desventaja es más severa en los peldaños más bajos de la jerarquía organizacional, lo que soporta la hipótesis del "piso pegajoso". Ciertas desventajas significativas a la promoción afectan las mujeres de raza blanca, las mujeres de minorías visibles y los hombres de minorías visibles en los rangos medios de la organización y los hombres de minorías visibles continúan a experimentar desventajas en la promoción en los más altos niveles organizacionales.

PALABRAS CLAVES: mujeres, minorías visibles, oportunidades de avance, niveles organizacionales, Canadá