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ABSTRACT

Visible Minorities and Job Mobility: Evidence from a Workplace Panel Survey

In this study we use Canadian linked employer-employee data to examine whether visible minority Canadian-borns experience any differences in their inter-firm and intra-firm job mobility, as well as wage returns associated with them, compared to white Canadian-borns. We also examine the extent to which any differences in intra-firm mobility operates within firms versus between firms. Our results suggest that both male and female visible minority Canadian-borns experience substantial differences in probability of promotion, number of times promoted, and wage returns to promotions, compared to their white peers. For male visible minorities, these differences with their white peers mainly operate within firms. For female visible minorities however, almost half of the gap is driven by their crowding into firms with fewer promotion opportunities. In terms of inter-firm mobility, while male visible minorities are similarly likely to move between firms compared to their white peers, female visible minorities are less likely to change employer. Both groups however receive similar wage returns to their inter-firm mobility. This seems to suggest that differences in intra-firm mobility do not translate into visible minorities moving more frequently between firms, or receiving higher returns to their inter-firm mobility. We find no evidence that these differences could be driven by differences in hierarchical level, career path, or immigration background. Labour market discrimination however remains a potential contributor to these differences, which is also consistent with some of our findings. Our results also suggest that for female visible minorities, different family responsibilities driven potentially by different cultural norms or family dynamics could also contribute to these differences.

JEL Classification: J15, J62, J71, M51

Keywords: promotions, inter-firm mobility, job mobility, visible minority, ethnic minority, discrimination

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1. Introduction

We use Canadian linked employer-employee data to examine whether visible minority (or non-white) Canadian-borns experience any differences in their job mobility relative to white Canadian-borns.[1] More specifically, we estimate differences in probability of inter-firm mobility, probability of intra-firm mobility (i.e. promotion), the number of times promoted, as well as wage returns associated with inter-firm and intra-firm mobility, between visible minority and white Canadian-borns. To the best of our knowledge, we are the first study to examine whether nativ-born workers with different ethnic origins face different opportunities in their labour market mobility.

Our focus on job mobility of visible minority native-borns is motivated by two well-documented facts from the labour literature. First, there are several studies from different countries that examine whether there are differences in wages between their visible minority native-born and white native-born population (e.g. De Silva 1996, Card et al. 1998, Pendakur and Pendakur 2002, Blackaby 2005, Hum and Simpson 2007, Dustmann and Theodoropoulos 2008, Hou and Coulombe 2010, Skuterud 2010, Algan et al. 2010). These studies often find that while visible minority native-borns perform better than their pervious generation, namely visible minority immigrants, they still face significant wage disparities with their white counterparts.[2] There is, however, very thin evidence regarding other labour market outcomes of visible minority native-borns, which could also provide insights into these documented differences in wages.

Second, we note that the wage distribution reflects to a large extent the distribution of workers across jobs, which in turn depends on job mobility. It is well-understood that job mobility is one of the primary drivers of improvement in wages among workers. Topel and Ward (1992) find that "wage gains at job changes account for at least a third of early-career wage growth". They argue that "Job changing is a critical component of workers' movement toward the stable employment relations of mature careers." There

[1] Different countries use different terms to refer to their non-white/non-European population. In Canada, they are referred to as "visible minority", which is defined as "persons, other than Aboriginal people, who are non-Caucasian in race or non-white in colour". The visible minority population in Canada consists mainly of the following groups: Chinese, South Asian, Black, Arab, West Asian, Filipino, Southeast Asian, Latin American, Japanese and Korean." (Statistics Canada, 2015). The United States' equivalent classification – "people of color" – is somehow similar. However, it also includes Aboriginal Americans and African-Americans, and often excludes people from the Middle East who are categorized as Caucasian in the US. We define our indicator of visible minority status based on the definition offered by the Canadian Employment Equity Act. A worker is identified as a Canadian-born visible minority if he/she was born in Canada, and her parents or grandparents were reported to belong to a visible minority group as defined before.

[2] For example, Pendakur and Pendakur (2002) find that that the gap in earnings between white and visible minority Canadian-borns narrows through the seventies, stabilizes through the eighties, and widens between 1991 and 1996. Hou and Coulombe (2010) find that there is a significant wage gap between white and visible minority Canadian-borns in the private sector. Skuterud (2010) finds that while the conditional earnings increase across subsequent generations of visible minorities, even third-and-higher generations of visible minorities still experience an earnings gap with white Canadian-borns.

is also strong evidence that suggests inter-firm and intra-firm mobility are associated with large wage increases (e.g. Topel and Ward 1992, Booth et al. 1999, Pergamit and Veum 1999, Cobb-Clark 2001, Francesconi 2001, Munasinghe and Sigman 2004, Blau and DeVaro 2007, Parrado et al. 2007, and Kosteas 2009). Moreover, examining job mobility is important not only because of its direct impact on wages, but also because it could have significant impacts on other important employment conditions such as workers' motivation, employment stability, job satisfaction, and training opportunities which could in turn have important effects on wages, productivity, organizational commitment, turnover, and creativity and innovation (see Mangoine and Quinn 1975, Freeman 1978, McEvoy and Cascio 1985, Akerlof et al. 1988, Koys 2000, Judge et al. 2001; Patterson et al. 2004, and Yee et al. 2008).

With these facts in mind, we believe examining job mobility enhances our understanding of differences in wage outcomes between visible minority and white native-borns. One potential key explanation for the documented differences in wages is slower growth in earnings experienced by visible-minority native-borns by virtue of failing to keep pace with their white counterparts in terms of job mobility. Moreover, focusing on job mobility provides important insights into potential differences in other important employment conditions experienced by visible minority native-borns.

Since visible minority native-borns are the second generation of visible minority immigrants, studying their labour market performance and potential challenges they face also provides important insights into the widely debated issue of immigration and integration. Many countries such as Canada, the US, and several European countries have been experiencing significant changes in the composition of their more recent cohorts of immigrants, who are mainly non-white/non-European.[3] At the same time, it is extensively documented that visible minority immigrants experience significant disadvantages in their labour market outcomes in these host countries, and often do not fully assimilate into the labour market even a few decades after immigration.[4] This has made the labour market integration of visible minority immigrants and also their next generations a key policy objective and also an important challenge in countries such as Canada, the US, and many others. While second generation immigrants seem to have

[3] For example, according to estimates by Statistics Canada, by 2031 visible minorities will approximately comprise one-third of Canada's population (Statistics Canada. The Daily, March 9, 2010). Similarly, in 2010 the foreign-born population comprised 13 percent of the US population, with most of them coming from Asia, Latin America, and the Caribbean (US Census Bureau, 2010). The top 5 sending countries of lawful permanent residents to the US (2013 to 2015) are Mexico, China, India, Philippines and Cuba (U.S. Lawful Permanent Residents: 2015, Department of Homeland Security). Many European countries such as the UK, France, Germany, Sweden, and Denmark also share the same experience (Eurostat, 2016).

[4] **Canada**: Akbari 1992, Howland and Sakellariou, 1993, Baker and Benjamin 1997, Pendakur and Pendakur 1998, Swidinsky and Swidinsky 2002; **Europe**: Chiswick 1980, Bell 1997, Bauer and Zimmermann 1997, Schmidt 1997, Dustman & Fabbri 2003, Adsera and Chiswick 2007, Aeberhardt and Pouget 2007, Silberman and Fournier 2007]; **US**: Chiswick 1986, Borjas 1985 & 1992, Smith 1992, Trejo 1997]; see also Heath and Cheung (2007) for a comprehensive study of thirteen countries.

better chances of assimilation – in the sense of learning English, obtaining education and experience relevant to the host country, and getting more accustomed to the culture of the host country – it makes a great deal of difference whether they remain economically marginalized or are successful in assimilating into the labour market and joining the mainstream middle-class. The answer to this question has important implications for economic and fiscal contribution of immigration to the host country, economic and social inclusion/exclusion of immigrants and their offspring, social attitude towards immigration, as well as devising future immigration and integration policies.

There is some evidence regarding racial differences in job mobility (e.g. Landau 1995 (Managerial and professional employees at a Fortune 500 company), Baldwin 1996 (US army officers), Paulin and Mellor 1996 (a medium-sized financial firm), Pergamit and Veum 1999 (young fulltime workers in the private sector), Pudney and Shields 2000a and 2000b (Nurses in the UK's National Health Service), Bellemore 2001 (Professional baseball)). However, these studies often focus on racial differences without distinguishing between native-borns and immigrants and therefore are not designed to examine difference between these two groups. Moreover, these studies only examine one of the channels (i.e. internal promotions) of job mobility. Inter-firm mobility, however, is another important channel through which workers can progress in their careers and earn higher wages (Topel and Ward 1992, Farber 1994, Booth et al. 1999, Munasinghe and Sigman 2004, and Parrado et al. 2007). We believe it is important to examine differences in intra-firm upward mobility in conjunction with inter-firm mobility since they are closely inter-related. Finally, while these studies all use non-representative samples from a single firm or a specific group of workers, which is potentially responsible for their mixed results, we use a nationally-representative sample to perform our analysis.

Another novel feature of our empirical investigation lies in distinguishing between two different mechanisms that could give rise to economy-wide differences in promotion opportunities: a within-firm mechanism and a between-firm mechanism. For example, any economy-wide gap in probability of promotion between whites and visible minorities could operate through promotion gaps between the two groups within firms. Alternatively, economy-wide gaps could exist even in the absence of any disparities within firms. They could operate through disproportionate sorting of visible minorities into firms offering fewer promotion opportunities—firms hiring workers into "dead-end" jobs.[5] We are the first study to distinguish between these two mechanisms in the context of differences in promotion opportunities. Making

[5] As suggested by Abowd, Kramarz and Margolis (1999), Bronars and Famulari (1997), Dickens and Katz (1987), Groshen (1990, 1991), Salvanes et al. (1998), and others, sorting of workers across firms can explain a significant portion of variation in individual wages. These sorting mechanisms could also be responsible for variation in other labour market outcomes such as promotions, training opportunities, etc.

this distinction is important because these two mechanisms are clearly driven by different factors and therefore provide different insights and have different policy implications.

Our results suggest that both male and female visible minority Canadian-borns experience substantial gaps in probability of promotion, number of times promoted, and wage returns to promotion compared to their white counterparts. For men, we find that promotion gaps are mainly driven by disparities within firms. However, for women, disproportionate sorting across firms accounts for around half of the economy-wide gap. In terms of inter-firm mobility, while male visible minorities are similarly likely to move between firms compared to their white peers, female visible minorities are less likely to change employer. It is perhaps this lower degree of inter-firm mobility that translates into crowding of female visible minorities into firms with more limited promotion opportunities compared to their white counterparts. We find however that both groups receive similar wage returns to their inter-firm mobility. This seems to suggest that, interestingly, differences in intra-firm mobility do not translate into visible minorities moving more frequently between firms, or receiving higher returns to their inter-firm mobility.

Focusing on differences in promotions, which seem to be the main source of disparity in job mobility between visible minority and white Canadian-borns, we find no evidence that they are driven by differences in immigration background, career path, or hierarchical position. Labour market discrimination, however, remains a potential factor that could contribute to these differences, which also seems to be consistent with some of our findings. More specifically, we find that for male visible minorities, the gap in promotion opportunities is mainly experienced by those employed at firms without pay equity policy. For women, however, the gap persists in both firms with and without pay equity policy suggesting that there are other important factors contributing to their experienced differences in promotions. We find some evidence that suggests some of the gaps experienced by female visible minorities could be partly attributed to differences in family responsibilities driven potentially by different cultural norms or family dynamics.

2. Data and Sample Characteristics

Our study uses the Workplace and Employee Survey (WES), a longitudinal annual survey of employers and their employees administered by Statistics Canada between 1999 and 2006.[10] The target population of employers consisted of all business locations in Canada with paid employees in March of the survey year.[11] In the 1999, 2001, 2003, and 2005 surveys, the sample of employers was refreshed with new employers from the Statistics Canada Business Register to maintain a representative cross-section of

[10] In 2006 only the employer part of the survey was administered.

[11] Employers in Yukon, Nunavut and Northwest Territories and employers operating in crop production, animal production, fishing, hunting, trapping, private households, religious organizations and public administration were excluded from the sample. Public administration, which includes establishments primarily engaged in the enactment and judicial interpretation of laws and their pursuant regulations and the administration of programs based on them, accounts for around 6.5 percent of employment in Canada (Statistics Canada, Table 281-0024).

Canadian firms. A maximum of twenty-four employees were interviewed from each sampled firm in each odd year and re-interviewed the following year.[12,13]

The randomly selected workers in each odd year make one of five transitions between the two interviews: enter unemployment or self-employment, move to a new employer, stay with the same employer and are promoted, stay with the same employer and not promoted, or attrit (i.e. cannot be contacted for the second interview).[14] Given the structure of our data, we use two samples for different parts of our analysis. For our analysis of probability of promotion and number of times promoted, we use pooled 1999, 2001, 2003 and 2005 cross-sections of employees. Data from interviews in even-numbered years are not used to avoid potential sample selection problems associated with employee attrition between the two interviews. We restrict the sample to white and visible minority Canadian-borns between the ages of 18 and 65 from firms that have at least two male or female workers sampled over the entire period they appear in the data.[15] The restricted sample includes 28,940 women and 37,970 men.

For our analysis of wage returns to promotions we need to use employee information from both interview years to calculate workers' wage growth. Therefore, for this part of our analysis we use pooled 1999, 2001, and 2003 cross-sections of employees who are also interviewed the year after (i.e. non-attriters) and have not changed employer in the interim.[16,17] Our longitudinal sample is similarly restricted to white and visible minority Canadian-borns between the ages of 18 and 65 from firms that have at least two male or female workers sampled over the entire period they appear in the data. The restricted sample includes 14,925 women and 19,825 men.

One point worth discussing here. Contrary to the former sample (i.e. pooled cross-sections), the latter one (i.e. longitudinally-linked sample of employees) used to analyze differences in returns to promotion is not random since two groups of workers are excluded from this sample, those who change

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[12] The number of workers interviewed from each firm was proportional to firm's size except for workplaces with fewer than four employees in which all employees were surveyed. When properly weighted, the employee sample is representative of the Canadian workforce in the target population of employers; all of our analysis incorporates sample weights from Statistics Canada. Unfortunately, confidentially restrictions by Statistics Canada do not allow us to release the distribution of workers within firms from the Research Data Centre where the data is securely housed. RDC does not allow the release of unweighted counts, with the exception of sample size for regression models.

[13] Only employees whose first-year employer is not in business during the second interview year are excluded to be re-interviewed. Workers who moved to a new employer after the first interview, regardless of whether the new employer is part of the selected sample of workplaces or not, are still included to be followed and re-interviewed.

[14] Workers might attrit due to several reasons that we cannot identify in our data such as refusal, unable to contact or locate, absent for duration of survey, own illness, deceased, or unusual or special circumstances. The average attrition rate in our data is not very high compared to other similar data and is around 16 percent.

[15] Firms with only one sampled worker comprise less than one percent of the sample.

[16] We cannot use the 2005 cross-section of employees because there was no employee survey in 2006 to link them to.

[17] To address the concern that the promotion gap estimates we get using the pooled cross-sections might not be the same in the longitudinally-linked sample of workers we use for our analysis of returns to promotions, we also use the longitudinally-linked sample to reproduce the results reported in table 2 that are based on pooled cross-sections. These results are reported in table A4 in the online appendix and suggest that both samples produce similar results.

employer between the two interviews and attriters. Movers are excluded since this sample is used to analyze differences in wage growth associated with promotion while working for the same employer. However, we include them in our analysis in section 4.2 to examine differences in inter-firm mobility.[18] Attriters on the other hand are excluded because we only observe them once and cannot calculate their wage growth and inter-firm mobility between the two interviews.

Excluding attrites might raise some concerns regarding sample selection which might affect our estimates. To mitigate these concerns we perform several tests and investigations. As the first test for sample selection associated with attrition, we examine whether there are any differences in probability of attrition between whites and visible minorities. These results are reported in table 10 and suggest that among men there are no differences in the probability of attrition between whites and visible minorities in both conditional and unconditional specifications. However, among female workers and in specifications that control for observed characteristics we find that visible minorities are 4-5 percentage points less likely to attrit, although the estimates are not statistically significant.

As the second test we use data from odd years to examine whether the relationship between employees observed characteristics and promotion is different between white and visible minority attriters. This allows us to test whether any non-randomness in attrition is systematically different between the two groups.[19] We run a regression of our promotion indicator on our set of observed characteristics (explained below in more detail), as well as interactions between observed characteristics and an indicator for attriters, and interactions between observed characteristics and an indicator for visible minority attriters.[20] We then test whether the coefficients of the interaction terms between observed characteristics and the indicator for visible minority attriters are equal to zero. We run these regressions separately for men and women and reject the null hypothesis that these coefficients are statistically different from zero at the conventional significance levels for both genders. Together, results of these two tests suggest that whites and visible minorities have the same probability of attrition, and the relationship between employee characteristics and promotion does not seem to be different between the two attriter groups.[21]

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[18] We also run multinomial logit models of the probability of four labour market transitions between the two interviews (i.e. same employer and promoted, same employer and not promoted, new employer, unemployed/self-employed) and our results are similar to regressions that examine inter-firm and intra-firm mobility separately.

[19] Even if attrition is non-random, it won't be a problem for our analysis as long as this non-randomness is the same between white and visible minority attriters. The implicit assumption behind the test we perform is that if non-random attrition is systematically different between the two groups, then we would observe a difference in the relationship between employees observed characteristics and promotion between white and visible minority attriters.

[20] The regression is $promot = X\beta_1 + I(attriter) * X\beta_2 + I(attriter \ \& \ visible \ minority) * X\beta_3 + \epsilon$ where X is a vector of observed characteristics, $I(attriter)$ is an indicator that is equal to 1 if a worker is an attriter and 0 otherwise, and $I(attriter \ \& \ visible \ minority)$ is an indicator that is equal to 1 if a worker is a visible minority attriter and 0 otherwise. We then test whether $\beta_3 = 0$.

[21] To the extent that unobserved characteristics affect the relationship between observed characteristics and promotion, this result also suggests that there does not exist any non-random unobserved differences in attrition between whites

We use several dependent variables in our analysis. To examine differences in probability of promotion we use an indicator for whether the employee has ever been promoted while working for her current employer. This indicator comes from the employee's response to the question, "Have you ever been promoted while working for this employer? (By promotion we mean a change in duties/responsibilities that led to both an increase in pay and the complexity or responsibility of the job.)" Changes in pay and responsibilities are two distinguishing features of promotions (Pergamit and Veum, 1999), and our data identify promotions using precisely these two features.[22] The probability that an employee has *ever* been promoted with his/her current employer is of special interest given that the first promotions received by workers with their current employers in our data are associated with larger wage increases than subsequent promotions.

Estimating whether a worker has ever been promoted, however, may obscure differences in the advancement experiences of visible minorities if they are promoted more or less frequently with their current employers than their white peers. Visible minorities may succeed in obtaining early promotions—particularly pro forma promotions—while still falling behind their white peers if these peers enjoy subsequent promotions that visible minorities do not. Therefore, we also examine differences in number of times promoted while working for the current employer. All employees who report they have been promoted with their current employer are asked to report the number of times they have been promoted. Finally, it is also important to examine any differences in wage growth associated with promotions since while visible minorities might experience the same probability or frequency of promotion, they might receive lower wage returns to these promotions compared to their white peers. To examine differences in returns to promotions we use the change in the worker's log-hourly wage between the two interviews as our dependent variable.[23]

The control variables in our regressions (reported in table 1) are: the highest level of schooling (8 categories), marital status (6 categories), age (9 categories), number of dependent children (5 categories), a

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and visible minorities. For example, if visible minority attriters were of higher ability compared to white attriters, then the effect of their education on promotion would be potentially stronger than whites because education also partly captures ability. Therefore, the fact that we find the relationship between observed characteristics and promotion is not different between whites and visible minority attriters also implies that these two groups of attriters are also unlikely to differ in terms of unobserved characteristics, as long as these unobserved characteristics influence the relationship between observed characteristics and promotion.

[22] Our precise promotion measures are another noble feature of our study. Many studies that identify promotions using changes in job titles or hierarchical levels (e.g., Booth et al. 2003, Cassidy et al. 2012, Kunze 2014) may inadvertently classify "lateral" moves in which job titles change as promotions or miss promotions within job titles or broadly defined hierarchical levels.

[23] To make sure the promotion indicator we use on the right-hand-side in these regressions (to examine returns to promotions) reflects a promotion between the two interviews so we can examine its impact on wage growth and its difference between the two groups, the promotion indicator in these regressions is equal to one if the reported date of the most recent promotion is after the date of the first interview (i.e. the promotion happened in the past year).

quartic in years of (actual) full-time labour market experience, a quadratic in years of seniority with the current employer, language spoken at work (3 categories: English, French, other), indicators for survey year, indicators for full-time employment, membership in a union or collective bargaining agreement, and the language spoken at work being different from the language spoken at home. Some of our regressions also include controls for occupation (6 categories), industry (14 categories), and firm fixed effects. All our regressions are run separately for men and women. They are all estimated using employee sample weights provided by Statistics Canada. All standard errors are heteroskedasticity-robust and are clustered at the firm level.

Table 1 reports weighted sample means for white and visible minority Canadian-borns, separately for men and women, for the cross-sectional and the longitudinal samples explained above.[24] Among both genders, on average white Canadian-borns have higher hourly wages, are more likely to get promoted, and are promoted more times. White Canadian-borns have substantially higher years of labour market experience, which seems to be driven by the fact that they are on average several years older than visible minority Canadian-borns. For both genders, the average visible minority Canadian-born is more educated, less likely to be married or in a common-law relationship, and less likely to have children (again partly driven by the fact that they are on average younger). In terms of job characteristics, male (female) visible minorities have fewer years of seniority with current employer, are less likely (similarly likely) to work full-time, less likely to be a member of union or collective bargaining agreement, less likely to speak French at work, and more likely to speak English at work.

3. Empirical Strategy

We estimate models of both whether a worker has ever been promoted with his/her current employer and the number of times the worker has been promoted with the current employer. The economy-wide differences in average promotion outcomes between white and visible minority Canadian-borns conditional on observed individual and job characteristics are estimated using the linear regression model:

$$E[P_i|X_i, g_i] = X_i'\beta + g_i\delta, \qquad (1)$$

where P_i is—depending on the regression—either an indicator for having ever been promoted with the current employer or the number of times promoted while working for the current employer, X_i is a vector of individual and job characteristics explained above, and g_i is the indicator for visible minority status. Our

[24] We would like to note that while the number of visible minority workers is relatively small (as reported in table 1), these reported number are unweighted. As mentioned before, all our regressions use weights provided by Statistics Canada, which makes the weighted sample of visible minorities a representative sample of the target population. Moreover, while examining the heterogeneity across visible minorities with different ethnic origins would be an interesting extension, our small number of observations does not allow us to further split this group. We leave this to future research.

parameter of interest is δ which measures the economy-wide differences in average promotion outcomes between white and visible minority Canadian-born workers conditional on X_i.

We estimate the within-firm[25] differences in average promotion outcomes by adding firm fixed effects to (1):

$$E[P_i|X_i, g_i, f_i] = X_i'\beta + g_i'\delta + f_i'\psi, \qquad (2)$$

where f_i is a vector of indicators for each firm. The vector ψ captures the firm effects representing inter-firm differences in average promotion outcomes conditional on worker and job characteristics X_i and visible minority status g_i.

Estimate of the economy-wide difference in average promotion outcomes between whites and visible minorities in equation (1), $\hat{\delta}$, captures (a) any systematic differences in sorting of whites and visible minorities into firms offering different opportunities for advancement, (b) the correlation between visible minority status and unobserved worker characteristics related to promotion outcomes (after controlling for X), and (c) firms' preferences for promoting white Canadian-born workers relative to visible minorities. In contrast, the estimate of δ in equation (2), $\tilde{\delta}$, measures conditional white-visible minority differences in average promotion outcomes *within firms* (i.e. (a) is not part of the estimated gap anymore). If $\hat{\delta} < 0$, visible minority Canadian-borns are on average less likely to have been promoted or have been promoted fewer times (economy-wide) than their white Canadian-born peers, conditional on their observed characteristics. If $\hat{\delta} < \tilde{\delta} \leq 0$, then one average visible minority workers are systematically sorted into firms with fewer opportunities for advancement.[26] If $\tilde{\delta} = \hat{\delta} < 0$, then we infer that the average economy-wide difference in promotion outcomes for visible minorities relative to white Canadian-born workers results entirely from difference in advancement *within* firms rather than systematic sorting of workers into firms with different advancement opportunities. We use a Hausman test to test the null hypothesis that there is no systematic sorting of visible minorities into firms offering different opportunities for advancement (i.e., $\hat{\delta} - \tilde{\delta} = 0$).[27]

We estimate the models of (1) differences in inter-firm mobility and (2) differences in wage returns to inter-firm and intra-firm mobility using the exact same empirical strategy explained above. The only

[25] We refer to these estimated differences as "within-firm" differences since they are based on specifications with firm fixed effects and are therefore identified based on differences between the two groups within firms.

[26] In this scenario visible minorities experience both economy-wide and within-firm gaps, but the economy-wide gap is larger than the within-firm gap implying that the difference between the two is due to disproportionate sorting of visible minorities into firms with fewer promotion opportunities.

[27] Under the null hypothesis of no differences between visible minority and white Canadian-borns in sorting across firms, both specifications (1) and (2) produce consistent estimates of the promotion gap, δ. However, the estimate in the specification with firm effects is inefficient due to inclusion of irrelevant variables (i.e. firm indicators). Under the alternative hypothesis of systematic white-visible minority inter-firm sorting, only the estimate from the specification with firm effects is consistent. Pendakur and Woodcock (2010) and Javdani (2015) use similar tests for inter-firm sorting in studies of immigrant-native and male-female wage differences. See Pendakur and Woodcock (2010) for a formal proof of this estimation procedure.

difference is that our dependent variable for (1) is an indicator that is equal to one if a worker changes employer between the two interviews and zero otherwise. The Dependent variable for (2) is the change in log-hourly wages between the two interview years, and our variable of interest is the interaction between the promotion indicator (or employer change indicator) and the visible minority indicator. In addition, as it was explained in the data section, we use the longitudinally-linked sample of workers for this part of the analysis.

4. Results

4.1. Probability of promotion, number of promotions, and wage returns to promotion

4.1.1 Overall sample

Table 2 reports differences in probability of promotion, number of times promoted, as well as returns to promotion between white and visible minority Canadian-borns. Among the first four columns in table 2 that estimate economy-wide differences (i.e. exclude firm fixed effects), our most preferred specification is the one that excludes controls for occupation and industry (i.e. column 2). Theoretically, we see the potential differential sorting of white and visible minority Canadian-borns across different occupations and industries as a mechanism through which differences in labour market outcomes between these two groups could manifest themselves rather than an independent explanation (Lemieux 2011, Albrecht et al. 2013). In addition, empirically, we don't find any differences across these specifications and therefore prefer to use a simpler estimation strategy. Estimates reported in column 5 are based on regressions with firm fixed effects and therefore measure within-firm differences between the two groups. As it was described in section 3, the difference between estimates in columns 2 and 5, which is summarized in column 6, allows us to measure the effect of differential sorting across firms on estimated economy-wide gaps.

The results reported in columns 1 to 4 of panels A to D suggest that both male and female visible minorities experience substantial economy-wide differences in probability of promotion and number of times promoted compared to their white peers. Unconditionally, males (females) are on average 7.6 (3.6) percentage points less likely to have been promoted, and on average have been promoted 0.3 (0.04) fewer times than white Canadian-born males (females). Controlling for personal and job characteristics increases the gap in probability of promotion for both genders. This might be partly due to the fact that visible minorities are younger than white Canadian-borns, and promotions are more likely to occur at earlier stages of a worker's career. Male (female) visible minority Canadian-borns are 9.9 (8.9) percentage points less likely to have been promoted, and are promoted 0.26 (0.12) fewer times, after controlling for personal and job characteristics. Controlling for occupation and industry does not change these estimates. Results reported in columns 1 to 4 of panels E and F suggest that while female visible minorities do not experience large differences in returns to promotion, male visible minorities experience significant differences with

their white peers.[28] These differences are robust across different specifications. For example, results reported in column 2 suggest that male visible minorities on average experience an estimated 0.10 log points less wage growth between the interviews when promoted compared to similar white males.[29]

Estimates reported in column (5) suggest that for men, within-firm gaps in probability of promotion and number of times promoted are as large as the economy-wide gaps (i.e. estimates in column 2). Therefore, consistent with the sorting effects reported in column (6), for visible minority men economy-wide gaps in probability of promotion seem to mainly operate within firms. On the contrary, for female visible minorities almost half of the economy-wide gap in probability of promotion is driven by their crowding into firms with fewer promotion opportunities. These findings regarding gender differences in inter-firm sorting are consistent with Pendakur and Woodcock (2010). They also use the WES data and find that visible minority women "sort into lower-paying firms than their white counterparts, which accounts for about one quarter of the economy-wide wage gap they face". They find however that this experience is not shared by visible minority men. We show in section 4.2 that these differences between male and female visible minorities in within versus between firm mechanisms that drive intra-firm disparities they experience could be partly attributed to their differences in inter-firm mobility with their white counterparts.

Finally, to make sure our results are not sensitive to our choice of estimator (linear probability model for probability of promotion and OLS for the number of promotions), we re-estimate the first four columns of table 2 using probit model for probability of promotion and Poisson model for the number of promotions. The results are reported in Table A1 in our online appendix and are almost identical to our results reported in table 2. The reason we use OLS rather than Probit or Poisson models is that it is much easier to estimate the models with firm fixed effects.[32] As another robustness check, we estimate our models by restricting our sample to only workers below the age of 40. As table 1 suggests, the age distribution is very different between white and visible minorities. While age is controlled for in our regressions, it could have a heterogenous effect given different cohort of visible minorities might face different levels of integration. These results are reported in table A5 in our online appendix and are very similar to those

[28] We further investigate this difference between male and female visible minorities in returns to promotions in section 4.3.3. We show that it is driven by the fact that we are comparing male and female visible minorities with two different groups (i.e. white males and white females) who themselves perform differently in terms of promotions. If we compare both groups of visible minorities with the same reference group, we cannot reject the equality of differences in returns to promotions.

[29] Our finding that white-visible minority differences are larger among men than women, especially within firms, seems to be consistent with the wage gaps male and female visible minorities experience within firms with their white counterparts. Using odd-year pooled cross-sections we find that the conditional within-firm wage gaps between visible minority and white males (females) is on average -0.10 (-0.05) log points.

[32] All procedures that we are aware of that allow estimating probit and Poisson models with firm effects do not allow for individual-level weights that vary within firms. On the other hand, Statistics Canada does not allow us to release any results that do not use employee-level weights in the WES provided by Statistics Canada. In addition, these models often have convergence issues when regressors include a large number of binary indicators, like our specifications.

reported in table 2. In the following sections, we examine some potential channels that could explain the documented gaps in promotion opportunities between whites and visible minorities.

4.1.2. Heterogeneity by marital status and the potential role of family responsibilities

We investigate the potential heterogeneity in our results by marital status to examine if differences in family responsibilities could play any role in the promotion gaps experienced by visible minority Canadian-borns, especially females.[34] Recent evidence from Norway suggests that women with families are less likely than other women to move up the career ladder (Kunze 2014). Javdani and McGee (2017) also document a family gap in women's wage returns to promotion. In the context of our analysis, this could be especially insightful for promotion differences experienced by visible minority females if they face systematically different family responsibilities. This could be potentially driven by different cultural norms and practices, different family dynamics and gender roles, or different coordination mechanisms in making collective labour supply decisions by spouses.[35]

Our analysis results are reported in table 3 and in fact seem to be consistent with the hypothesis above. For women, both the economy-wide and within-firm gaps in probability of promotion are larger for married visible minorities compared to their single peers (-0.107 versus -0.074 for the economy-wide gap, and -0.085 versus -0.039 for the within-firm gap, respectively).[36] Also, the estimated gaps experienced by single visible minority women while quantitatively large, are statistically insignificant.

For men, however, we find that while both single and married visible minorities face substantial differences in probability of promotion with their white peers, both economy-wide and within firms, the gaps are larger among singles (13.5 percentage points for singles versus 10 percentage points for married workers, both economy-wide and within firms). Therefore, not surprisingly, while family responsibilities could potentially explain some of the promotion gaps faced by female visible minorities, they don't seem to negatively affect married visible minority men. In fact, if anything, married visible minority men seem to perform relatively better compared to their single peers. In terms of returns to promotion, both married and single visible minority men receive lower returns to their promotions. The gaps are quantitatively large

[34] From this point on we are not going to report and discuss the estimated differences in the number of times promoted as they consistently tell the same story as the estimated differences in the probability of promotion. We however report these estimates in our online appendix tables A2 and A3.

[35] For example, Fuligni and May Lam (1999) find that in the US "Asian and Latin American adolescents possessed stronger values and greater expectations regarding their duty to assist, respect, and support their families than their peers with European backgrounds." These cultural differences could be re-enforced given the fact that according to the 2006 Canadian Census, 76.2 percent of visible minorities form a union with the same visible minority group and only 3.9% of couples in Canada were mixed unions (a portrait of couples mixed unions, Statistics Canada).

[36] Another potential explanation for larger gaps experienced by married visible minority females is stronger employer stereotypes against them relative to married white women regarding characteristics that might influence promotion decisions (e.g. labour market attachment).

in both subsamples, with within-firm gaps larger than the economy-wide gaps, but both are statistically insignificant for single visible minority men.

4.2. Inter-firm mobility - differences in probability and wage returns

Intra-firm upward mobility is only one of the channels through which workers can progress in their careers and earn higher wages. Inter-firm mobility is also documented to have significant impacts on career progress and wages of workers. Therefore, to gain a better understanding of differences in job mobility between the two groups it is important to investigate potential differences in inter-firm mobility as well. Another advantage of examining differences in inter-firm mobility is that it could shed some light on our findings regarding differences in promotion outcomes between white and visible minority Canadian-borns. For example, visible minorities might be more likely to exploit inter-firm mobility as a channel to progress in their career and therefore might not invest much in intra-firm upward mobility.[38]

Table 5 reports estimated differences in probability of changing employer separately by gender. Our dependent variable in panels A and B is an indicator that is equal to 1 if a worker changes employer between the two interview years, and 0 otherwise. In panels C and D we use a similar indicator, but it is now only equal to 1 if a worker changes employer and the change is reported to be voluntary (i.e. due to the worker quitting her job rather than the job coming to an end). In general, we find that, interestingly, differences in intra-firm mobility experienced by male and female visible minorities do not translate into higher inter-firm mobility to compensate for these intra-firm disparities. This is despite the fact that visible minorities receive the same wage returns to their inter-firm mobility as their white peers. More specifically, we find that there are no differences in probability of changing employer between white and visible minority men. Female visible minorities however seem to be less likely to change employer (the gap is around 5 percentage points).

This difference between male and female visible minorities in the gap in inter-firm mobility they experience with their white counterparts also sheds some light on our results reported in table 2. We found that while for the former group the gap in promotions mainly operates within firms, for the latter group the sorting across firms contributes to half of the promotion gap. It seems that male visible minorities are similarly distributed across firms with different promotion opportunities because they are as mobile between firms as their white peers. For them, therefore, the main source of gap in promotions comes from differences within firms. In contrast, female visible minorities are crowded into firms with fewer promotion opportunities since they are less willing or less able to move between firms compare to their white peers, and this contributes to half of the gap in promotions they experience.

[38] In our data and across all years, the average proportion of workers who change employer is 5.8 percent, and 75 percent of these changes are voluntary (i.e. worker quitting as opposed to job coming to an end).

We also examine whether white and visible minority workers receive different wage returns when they change employer. These results are reported in table 6 and suggest that for female visible minorities, once we focus on voluntary inter-firm mobility (panel D), there are no differences in wage returns to inter-firm mobility. For male visible minorities, our results in panel C suggest that they receive lower returns to their voluntary inter-firm mobility, although the estimates are statistically insignificant. As pointed out before, this suggests that while female visible minorities benefit similarly from inter-firm mobility, they move less often compared to their white counterparts. They could be deterred from seeking employment at firms with better promotion opportunities despite receiving similar returns, for example if these positions are more demanding, offer less flexibility, or require more commitment, and are therefore less attractive to female visible minorities who seem to experience different family responsibilities as we discussed in the previous section.[41]

Altogether, our results suggest that differences in inter-firm mobility between whites and visible-minorities do not seem to be able to justify the differences in promotion opportunities between the two groups. However, they shed some light on differences in between versus within firm mechanisms that contribute to promotion gaps experienced by male and female visible minorities.

4.3. Other potential explanations

Our results so far suggest that differences in intra-firm mobility are the main source of disparity in job mobility between visible minority and white Canadian-borns. In what follows we investigate some potential explanations for these differences in intra-firm mobility.

4.3.1 Differences in career paths or hierarchical levels

One potential explanation for our estimated differences in promotion outcomes is that potential differences in unobserved characteristics between white and visible minority workers might sort them into jobs that put them on different career paths or at different hierarchical levels. It is well-understood that different career paths or hierarchical levels are associated with different promotion rates and returns to promotions. Therefore, one could argue that what we are estimating could (partly) reflect systematic differences in career paths or hierarchical levels between whites and visible minorities which are driven by differences in some unobserved characteristics between them.

It is difficult to find compelling theoretical or empirical evidence that offers supply-side channels (such as differences in productivity, preferences, or competitiveness) that could reasonably explain why there might exist systematic differences in career paths or hierarchical levels between observationally-equivalent white and visible minority Canadian-born workers, especially given the fact that our results

[41] Recent studies by Goldin (2014) and Angelov et al. (2016) have highlighted the roles played by workplace flexibility and collective labor supply decisions made by spouses.

persist even after controlling for occupation, industry, and firm affiliation.[42] We believe that differences in career paths or hierarchical levels between these two groups are channels through which differences in promotion outcomes could manifest themselves, rather than independent explanations for them.

Nonetheless, to address any remaining concerns, we control for a rich set of measures that either directly or as a proxy capture different aspects of an employee's job, hierarchical position, and career path.[43] If promotion differences between white and visible minorities are (partly) driven by systematic differences in hierarchical levels or career paths, then including these variables in our regressions should explain some of the gap experienced by visible minorities. The results of these regressions are reported in table 7. Estimates reported in the first two columns are those reported in table 2, columns 2 and 5, respectively, that are provided for comparison purpose. Estimates reported in the remaining columns are based on specifications with different set of additional control variables. Comparing results from different specifications clearly suggests that including additional variables to control for differences in career paths or hierarchical levels does not affect our results.

4.3.2. Immigration background

Another potential explanation for our results is that while visible minority Canadian-borns might perform better than first generation visible minority immigrants, there might still exist differences between them and white Canadian-borns without immigration background that could justify the documented differences in promotion outcomes. One way to test this hypothesis is to examine promotion outcomes of other groups that also have immigration background (i.e. are second-and-higher generation immigrants) and compare them with visible minority Canadian-borns. To do this, we break our group of white Canadian-borns to those whose parents or grandparents were also white Canadian-born, and those whose parents or grandparents were immigrants from Europe, Australia, or the US (second-and-higher generation white immigrants).[44] We also add white (first generation) immigrants as an additional group to our sample. We then run regression similar to those reported in table 2 using this new categorization.

Results from these regressions are reported in table 8 and suggest that consistent with our previous results visible minority Canadian-borns experience significant differences in promotions and returns to promotions with second-and-higher generation white Canadians. However, estimated gaps for second-and-higher-generation white immigrants are all small and statistically insignificant across the board. More interestingly, we also find that the negative experience of visible minority Canadian-borns is not shared by first generation white immigrants either. The estimated coefficients for white immigrants are also small and

[42] Perhaps one supply-side channel that could affect female visible minorities is potential differences in family responsibilities driven by differences in cultural norms or family dynamics which we discussed before.
[43] See table 7 for a list of these variables.
[44] Around 37% of white Canadian-borns in our sample are second-and-higher generation Canadian, and the remaining 63% are second-and-higher generation white immigrant.

statistically insignificant in all specifications. Therefore, immigration background of visible minority Canadian-borns does not seem to be able to explain their promotion gaps with their white peers.

4.3.3. Invisibility hypothesis and the potential role of discrimination

Our results in previous sections suggest that differences in inter-firm mobility, career path and hierarchical level, or immigration background cannot explain differences in promotion opportunities between whites and visible minorities. In addition, it is difficult to find compelling theoretical or empirical evidence that could provide an explanation for why there might exist systematic differences in other unobserved characteristics between observationally-equivalent workers with different ethnic origins in a way that could differently affect their promotion opportunities. While conditional differences in labour market outcomes between visible minority immigrants and white Canadian-borns, or male and female workers, could be potentially attributed to factors such as language barriers, limited access to work-related networks, lower returns to foreign education and labour market experience, weaker labour market attachments, differences in bargaining power and degree of competitiveness, etc., these are not issues that could be applied to visible minority Canadian-born workers for the most part.

Another alternative explanation for these significant differences in promotion opportunities experienced by visible minority Canadian-borns is labour market discrimination. There is an extensive literature on labour market discrimination faced by visible minority immigrants and native-borns in different countries (e.g. Cain 1986, Kahn 1991, Black 1995, Altonji and Blank 1999, Carlsson and Rooth 2007, and others). For example, In the Canadian context, Oreopoulos (2011) who uses thousands of randomly manipulated resumes sent to online job postings in Toronto finds that resumes with Indian, Pakistani, or Chinese names but Canadian undergraduate education and Canadian experience were 39 percent less likely to receive callbacks compared to English-sounding names.[45] Even those with English first name and Chinese last name (often a signal of being a second-generation Chinese) received significantly lower callback rates. Although this is consistent with discriminatory behaviour against visible minorities in hiring decisions, it won't be a long stretch to picture similar practices in promotion decisions. Moreover, according to 2009 General Social Survey by Statistics Canada, "One-quarter of both visible minority sexes in Canada reported discrimination or unfair treatment during the five years preceding the survey in 2009. In comparison, 13% of non-visible minority people reported discrimination or unfair treatment during the same period." The most common situation of discrimination were "At work or when applying for a job or promotion". Finally, a recent national survey of 17,000 managers, professionals and executives employed in 43 large publicly traded and privately held companies and professional service firms across Canada finds that "Visible minority respondents were more likely to perceive workplace

[45] Bertrand and Mullainathan (2004) find similar results for African-Americans in Boston and Chicago.

barriers than their white/Caucasian colleagues. These barriers included perceived lack of fairness in career advancement processes, absence of role models, inequality in performance standards, and fewer high-visibility assignments." (Giscombe 2008).

While it is difficult to use observational data to directly test for discrimination, the richness of our data allows us to perform some further analysis that could provide some suggestive evidence regarding discrimination. Surveyed firms in the WES are asked whether they have implemented pay equity policy in their workplace. We use this question to examine the relationship between pay equity policy within firms and our estimated differences in promotion opportunities. We should emphasize that sorting of workers between firms with and without pay equity policy is potentially endogenous and so the empirical relationship we investigate in this section cannot be given a strict causal interpretation. Having said that, firms with effective pay equity policies are more likely to offer similar promotion opportunities to their workers to ensure that workers with similar characteristics receive similar wages. Therefore, a finding that visible minorities perform relatively better in firms with pay equity policy could be suggestive of existence of discrimination against them in firms without pay equity policy.

These results are reported in table 4 and suggest that existence of pay equity seems to have a large impact on differences experienced by male visible minorities. In fact, most of the gap in the overall sample of men in probability of promotion and returns to promotion seems to be driven by the gap in workplaces without a pay equity policy. For female visible minorities however, both groups with and without a pay equity policy at their workplace experience a large economy-wide gap in probability of promotion (-0.10 and -0.08, respectively). Consistent with our previous findings, this suggests that for female visible minorities there are other important factors, such as family responsibilities and lower probability of inter-firm mobility, that could contribute to these differences.

To the extent that discrimination is to blame for these differences, the Invisibility Hypothesis developed by Milgrom and Oster (1987) could provide a compelling and consistent framework that could lay out one of the channels through which discrimination could operate in the context of promotion opportunities and affect visible minorities in a way that is consistent with our results. Milgrom and Oster (1987) develop a model where promotions are assumed to influence potential employers' beliefs about a worker's ability. They also assume that potential employers possess less information about the ability of disadvantaged workers, such as visible minorities in our study, or females.[46] This could be driven by employers' prejudice and relative lack of recognition for disadvantaged workers driven by statistical discrimination or stereotypes. Using this framework, Milgrom and Oster (1987) show that the "invisibility"

[46] To justify this assumption, Milgrom and Oster argue that "talent is not inevitably and universally recognized, and those with advantaged backgrounds are more likely to be recognized for their abilities."

(to use their terminology) of disadvantaged workers, and the fact that promotions enhance visibility, could motivate current employers with private information regarding their high-ability but invisible workers to conceal these workers by limiting their promotion opportunities. This will suppress the signals of ability promotions send to other competing employers, and will therefore prevent these workers from being bid away by other firms and also lowers the bargaining power of these workers to negotiate a pay increase.

This framework produces the following implications that are consistent with our results discussed in sections 4.1 and 4.2. First, visible minority Canadian-borns will be less likely to get promoted compared to their white peers. Second, visible minority Canadian-borns will experience lower returns to promotion since, compared to white workers, mainly those with high but not very high ability are promoted.[47] Third, these differences in probability of promotion and returns to promotion will not generate disproportionately higher probability of inter-firm mobility for visible minorities since other employers possess less information about their ability than their current employer and inter-firm mobility is uncertain to improve their match quality and promotion opportunities.

The Milgrom-Oster framework is also consistent with our results that male visible minorities are in a more disadvantaged position in terms of probability of promotion, number of times promoted, and especially returns to promotion, compared to their female counterparts. Based on their model, the larger the difference in the degree of visibility between the two groups, the larger will be the difference in promotion outcomes between them. In our analysis, we compare visible minority men to white men who are the most advantaged group in the labour market. However, visible minority women are compared to white women who according to extensive evidence are already in a disadvantaged position in the labour market compared to white men. Therefore, it seems reasonable to assume that difference in visibility between white and visible minority male Canadian-borns is larger than that of the two counterpart female groups. Hence, according to the model, differences in promotion outcomes between white and visible minority men will be larger than differences for women.

To test whether the choice of comparison group matters, we run regressions similar to those reported in table 2 where we use a pooled sample of both genders and simultaneously compare visible minority men, visible minority women, and white women to white men. These results are reported in table 9. Looking at estimates in column 2 we find that when compared to the same group (i.e. white men), female visible minorities actually face slightly larger differences in probability of promotion and number of times promoted, compared to their male peers. Within-firm differences in probability of promotion (column 5) are however smaller for female visible minorities which is consistent with our results in table 2. Examining

[47] In other words, the average ability of promoted white workers will be higher than promoted visible minority workers, which implies visible minorities on average will receive lower returns to their promotion.

the results reported in panel C, while female visible minorities seem to experience quantitatively smaller differences in returns to promotions relative to their male peers, we fail to reject the null hypothesis that the returns to promotions are statistically the same between the two (p-values of the test are reported in the table). Therefore, we find that both male and female visible minorities experience similar differences in promotion outcomes when compared to the same group.

5. Conclusion

Visible minorities comprise a considerable fraction of the Canadian population, a fraction that has been consistently increasing over time. There is extensive evidence that suggests visible minority immigrants experience substantial disadvantages in the labour market compared to white Canadian-borns and white immigrants. This experience is also shared by non-white immigrants in other countries such as the US, the UK, and several other European countries. However, there is very thin evidence as to whether these poor labour market outcomes are also faced by offspring of these immigrants, especially when we go beyond wage outcomes. To the best of our knowledge, this is the first study that (1) investigates differences in inter-firm and intra-firm mobility, as well as wage returns associated with them, between native-borns with different ethnic origins; (2) uses nationally-representative data to examine promotion differences between these two groups of workers; and (3) measures the extent to which economy-wide differences in promotions operate between firms versus within firms.

We find that both male and female visible minorities are significantly less likely to have been promoted, are promoted fewer times, and receive lower wage returns to promotion compared to their white counterparts. These results hold even after controlling for differences in detailed occupation, industry, firm affiliation (using firm fixed effects). For male visible minorities, these intra-firm differences mainly operate within firms, while for female visible minorities, half of the promotion gaps are driven by their crowding into firms with fewer promotion opportunities.

We also find that, interestingly, these differences in intra-firm mobility experienced by male and female visible minorities do not translate into higher inter-firm mobility to compensate for the intra-firm disparities they experience. This is despite the fact that we find visible minority men and women receive the same wage returns to their inter-firm mobility compared to their white peers. More specifically, we find that there are no differences in probability of changing employer between white and visible minority men, and female visible minorities, if anything, are less likely to change employer. While differences in inter-firm mobility cannot justify the intra-firm differences experienced by male and female visible minorities, they shed some light on differences in between versus within firm mechanisms that contribute to promotion gaps they experience. It seems that male visible minorities are similarly distributed across firms with different promotion opportunities because they are as mobile between firms as their white peers. For them, therefore, the main source of gap in promotions comes from differences within firms. In contrast, female

visible minorities are crowded into firms with fewer promotion opportunities since they are less willing or less able to move to firms with better promotion opportunities compare to their white peers, and this contributes to half of the gap in promotions they experience.

Focusing on differences in promotions which seem to be the main source of disparity in job mobility between visible minority and white Canadian-borns, we find no evidence that these differences can be accounted for by differences in hierarchical level, career path, or immigration background. We find however that married visible minority women experience larger promotion gaps compared to their single counterparts, while this experience is not shared by married visible minority men. This could suggest that visible minority women face different family responsibilities, potentially due to different cultural norms or family dynamics. They could therefore be deterred from moving to firms with better promotion opportunities, or competing for promotions within firms, if these positions are more demanding, offer less flexibility, or require more commitment, and are therefore less attractive to female visible minorities.

Another alternative explanation for our documented differences in promotion opportunities is labour market discrimination. This seems to be more salient for men since we find that most of their promotion disparities occur at firms without a pay equity policy. The Invisibility Hypothesis developed by Milgrom and Oster (1987) provides a framework that could lay out one of the channels through which discrimination could perform in this context and at the same time produces results that are consistent with our findings. They develop a framework where employers discriminate against disadvantaged and less visible groups such as visible minorities by limiting their promotion opportunities in order to block these workers from being bid away by other employers and to limit their bargaining power. As we discussed in the previous section the role of discrimination as one of the contributory factors is also consistent with several other recent findings regarding discrimination faced by visible minorities in the Canadian labour market.

Altogether, our findings highlight that there are important and significant differences in outcomes in internal labour markets between white and visible minority Canadian-borns that require more attention and worth further investigation. This is particularly important since the role of labour market discrimination seems to be more salient in driving these differences. Job mobility through inter-firm and intra-firm moves is an important contributor not only to wage growth, but also to other employment conditions such as workers' motivation, employment stability, and job satisfaction. In terms of policy implications, to the extent that discrimination is to blame for the adverse promotion experiences of visible minorities, then antidiscrimination policies must ensure that such workers face a level playing field within firms when competing for promotions. In this context, the Milgrom-Oster framework predicts that antidiscrimination policies that set both quotas and wage standards correctly would, in the long run, improve promotion opportunities of disadvantaged workers as well as the efficiency of the job assignments. Finally, efforts by

visible minority workers that could improve their visibility and signal their ability to other employers, such as networking or performing high-visibility assignments, could also help to improve their promotion opportunities with their employers.

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Table 1: Summary Statistics

	Cross-sectional Sample pooled 1999, 2001, 2003 and 2005 employee cross-sections				Longitudinal Sample pooled 1999, 2001 and 2003 employee cross-sections that are also interviewed the year after and do not change employer in the interim			
	Males		Females		Males		Females	
	White Canadian-born	Visible Minority Canadian-born	White Canadian-born	Visible Minority Canadian-born	White Canadian-born	Visible Minority Canadian-born	White Canadian-born	Visible Minority Canadian-born
Number of observations	37235	735	28315	625	19510	315	14655	270
Hourly wage	22.87	20.55	17.89	16.4	24.02	23.4	18.59	16.12
Proportion promoted[1]	0.421	0.345	0.358	0.322	0.272	0.27	0.223	0.16
Number of times promoted	0.97	0.666	0.697	0.653	1.442	0.835	1.002	1.001
Personal Characteristics:								
Years of experience	18.83	10.74	15.18	10.67	20.13	12.36	16.66	12.38
Age	39.85	31.73	39.53	32.25	41.2	33.68	41.38	33.41
18-25 (% in category)*	0.096	0.252	0.118	0.242	0.046	0.125	0.074	0.138
25-29 (% in category)	0.106	0.299	0.107	0.217	0.103	0.251	0.081	0.277
30-34 (% in category)	0.135	0.128	0.115	0.176	0.128	0.203	0.108	0.141
35-39 (% in category)	0.147	0.098	0.141	0.151	0.16	0.128	0.144	0.219
40-44 (% in category)	0.157	0.108	0.164	0.101	0.172	0.193	0.188	0.117
45-49 (% in category)	0.142	0.059	0.148	0.050	0.156	0.044	0.169	0.029
50-54 (% in category)	0.116	0.028	0.11	0.034				
55-59 (% in category)	0.072	0.008	0.069	0.018				
60-65 (% in category)	0.028	0.018	0.027	0.010				
Highest educational attainment								
Ph.D., Master's, or M.D	0.036	0.030	0.032	0.031				
Other graduate degree	0.016	0.008	0.020	0.036				
Bachelor's degree	0.11	0.252	0.124	0.195	0.117	0.343	0.129	0.191
Some university	0.084	0.149	0.101	0.178	0.084	0.115	0.096	0.139
Completed college	0.162	0.162	0.249	0.183	0.16	0.15	0.241	0.16
Some college or trade certificate	0.267	0.198	0.219	0.139	0.284	0.146	0.236	0.139
High school diploma	0.187	0.126	0.18	0.227				
Less than high school*	0.136	0.073	0.073	0.010				
Marital Status								
Married	0.543	0.346	0.509	0.351	0.605	0.425	0.55	0.395
Common law	0.162	0.097	0.154	0.125	0.149	0.063	0.137	0.128
Separated	0.022	0.017	0.032	0.022	0.029	0.042	0.034	0.032
Divorced								
Widowed								
Single*	0.233	0.53	0.222	0.474	0.177	0.443	0.182	0.419
Number of Dependent Children								
Zero*	0.529	0.761	0.558	0.529	0.681	0.475	0.672	0.527
One	0.159	0.098	0.164	0.159	0.128	0.176	0.124	0.172
Two	0.224	0.088	0.207	0.224	0.124	0.253	0.113	0.225
Three	0.069	0.041	0.059	0.069				
Four or more	0.018	0.010	0.012	0.018				

Table 1: Summary Statistics (Continued)

	Cross-sectional Sample				Longitudinal Sample			
	Male		Female		Male		Female	
Job Characteristics:	**White Canadian-born**	**Visible Minority Canadian-born**	**White Canadian-born**	**Visible Minority Canadian-born**	**White Canadian-born**	**Visible Minority Canadian-born**	**White Canadian-born**	**Visible Minority Canadian-born**
Fulltime	0.842	0.769	0.526	0.56	0.868	0.769	0.535	0.531
Member of Union or CBA	0.281	0.222	0.286	0.2	0.303	0.276	0.311	0.176
Tenure with current employer	9.334	5.04	8.136	5.766	11.02	6.302	9.836	7.916
Language most often spoken at work								
French	0.277	0.064	0.246	0.044	0.295	0.058	0.249	0.055
English	0.716	0.927	0.748	0.95	0.698	0.939	0.748	0.935
Other	0.007	0.008	0.006	0.005	0.007	0.002	0.003	0.007
Home and work language not the same	0.031	0.015	0.026	0.010	0.032	0.023	0.024	0.010
Occupation								
Manager	0.168	0.147	0.091	0.096	0.174	0.139	0.096	0.156
Professional	0.126	0.22	0.2	0.168	0.135	0.268	0.212	0.162
Technical/Trades	0.536	0.386	0.316	0.311	0.539	0.414	0.322	0.298
Marketing/Sales	0.033	0.096	0.12	0.146	0.026	0.044	0.105	0.125
Clerical/Administrative	0.064	0.098	0.216	0.241	0.063	0.093	0.213	0.251
Production Worker*	0.072	0.050	0.057	0.037	0.062	0.041	0.050	0.019
Industry								
Resource	0.030	0.009	0.005	**0.020**	0.064	**0.025**	0.018	**0.021**
Labor intensive tertiary	0.052	0.053	0.030	0.029	**0.254**	**0.203**	**0.083**	**0.044**
Secondary product manufacturing	0.050	0.033	0.017	0.015				
Capital intensive tertiary	0.065	0.076	0.025	0.010				
Primary product manufacturing*	0.064	0.013	0.011	0.010				
Construction	0.083	0.048	0.014	**0.020**				
Transportation, warehousing,	0.153	0.112	0.065	0.067	0.165	0.126	0.069	0.041
Communication and other utilities	0.029	0.015	0.011	**0.020**	0.064	**0.025**	0.018	**0.021**
Retail trade and consumer services	0.194	0.285	0.261	0.379	0.158	0.189	0.231	0.434
Finance and insurance	0.026	0.067	0.066	0.081	0.027	0.059	0.072	0.079
Real estate, rental and leasing	0.017	0.017	0.018	**0.020**	0.017	0.029	0.015	**0.021**
Business services	0.090	0.09	0.095	0.139	0.082	0.132	0.088	0.14
Education and health services	0.105	0.134	0.343	0.212	0.111	0.144	0.37	0.217
Information and cultural industries	0.036	0.043	0.032	0.034	0.039	0.061	0.035	0.024

Notes: * indicates reference category for regressions. All the means are computed using sample weights provided in the data (Statistics Canada does not allow the report of these means without using the weights for the WES). For some of the variables, we had to collapse two or more categories together to make sure the minimum cell size required by Statistics Canada to report sample means is satisfied. These sample means are bolded in the table above.

[1]In the cross-sectional sample the variable "proportion promoted" reports the percentage of individuals who have ever been promoted, however in the longitudinal sample it reports the proportion of individuals who have been promoted in the past year. This is because as it was explained before we use the cross-sectional sample to estimate differences in probability of promotion, and do not restrict the promotions in terms of when they occurred. However, we use the longitudinal sample to estimate wage returns to promotions that happen between the two interviews, and therefore only focus on promotions in the past year.

Table 2: Estimated Relationships between Minority Status and Probability of Promotion, Number of Times Promoted, and Wage Returns to Promotion

	(1)	(2)	(3)	(4)	(5)	(6: sorting) [(2)-(5)]
A. Males – Probability of Promotion						
Visible Minority Canadian-born	-0.076**	-0.099***	-0.094***	-0.093***	-0.098***	-0.001
	(0.037)	(0.033)	(0.034)	(0.035)	(0.035)	[0.9316]
Number of observations	37972	37972	37972	37972	37972	
B. Females - Probability of Promotion						
Visible Minority Canadian-born	-0.036	-0.089**	-0.087***	-0.095***	-0.047	-0.042***
	(0.053)	(0.038)	(0.032)	(0.032)	(0.036)	[0.000]
Number of observations	28937	28937	28937	28937	28937	
C. Males – Number of Times Promoted						
Visible Minority Canadian-born	-0.303***	-0.266***	-0.254***	-0.245***	-0.301***	0.035
	(0.087)	(0.091)	(0.094)	(0.093)	(0.115)	[0.618]
Number of observations	37972	37972	37972	37972	37972	
D. Females – Number of Times Promoted						
Visible Minority Canadian-born	-0.044	-0.125	-0.116*	-0.135**	-0.094	-0.031
	(0.113)	(0.078)	(0.068)	(0.068)	(0.072)	[0.301]
Number of observations	28937	28937	28937	28937	28937	
E. Males – Wage Returns to Promotion						
Promoted	0.038***	0.033***	0.031***	0.031***	0.036***	
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	
Visible Minority Canadian-born*promoted	-0.090**	-0.099**	-0.103**	-0.102**	-0.139**	0.04
	(0.038)	(0.040)	(0.041)	(0.040)	(0.055)	[0.289]
Visible Minority Canadian-born*not promoted	-0.008	-0.021	-0.023	-0.023	-0.016	-0.005
	(0.017)	(0.018)	(0.018)	(0.018)	(0.025)	[0.776]
Number of observations	19827	19827	19827	19827	19827	
F. Females – Wage Returns to Promotion						
Promoted	0.027**	0.024*	0.023*	0.024*	0.017	
	(0.013)	(0.013)	(0.013)	(0.013)	(0.018)	
Visible Minority Canadian-born*promoted	-0.017	-0.022	-0.025	-0.028	-0.055	0.033
	(0.044)	(0.043)	(0.044)	(0.042)	(0.051)	[0.228]
Visible Minority Canadian-born*not promoted	-0.027	-0.035	-0.037*	-0.033	-0.036	0.001
	(0.021)	(0.022)	(0.022)	(0.022)	(0.036)	[0.980]
Number of observations	14926	14926	14926	14926	14926	
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**	
Occupation	**N**	**N**	**Y**	**Y**	**Y**	
Industry	**N**	**N**	**N**	**Y**	**N**	
Firm Effects	**N**	**N**	**N**	**N**	**Y**	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim.

Table 3: Estimated Relationship between Minority Status and Probability of Promotion/Wage Returns to Promotion - by Marital Status

	Married			Single		
	Economy-wide	**Within firms**	**Sorting**	**Economy-wide**	**Within firms**	**Sorting**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
A. Males – Probability of Promotion						
Visible Minority Canadian-born	-0.097*	-0.105**	0.008	-0.134***	-0.134**	0.000
	(0.050)	(0.041)	[0.779]	(0.048)	(0.058)	
Number of observations	37972	37972		37972	37972	
B. Females – Probability of Promotion						
Visible Minority Canadian-born	-0.107**	-0.085*	-0.022**	-0.074	-0.039	-0.035
	(0.044)	(0.044)	[0.018]	(0.074)	(0.068)	[0.230]
Number of observations	28937	28937		28937	28937	
C. Males – Wage Returns to Promotion						
Promoted	0.04***	0.044***		0.012	0.02	
	(0.008)	(0.010)		(0.013)	(0.016)	
Visible Minority Canadian-born*promoted	-0.109**	-0.125***	0.016	-0.073	-0.137	0.064
	(0.050)	(0.043)	[0.530]	(0.060)	(0.087)	[0.309]
Visible Minority Canadian-born*not promoted	-0.009	-0.011		-0.034	-0.011	
	(0.022)	(0.030)		(0.029)	(0.035)	
Number of observations	19827	19827		19827	19827	
D. Females – Wage Returns to Promotion						
Promoted	-0.007	-0.006		0.042***	0.033*	
	(0.020)	(0.019)		(0.015)	(0.018)	
Visible Minority Canadian-born*promoted	-0.025	-0.009	-0.016	-0.036	-0.161	0.125
	(0.067)	(0.063)	[0.482]	(0.050)	(0.102)	[0.159]
Visible Minority Canadian-born*not promoted	-0.028	-0.010		-0.028	-0.050	
	(0.026)	(0.054)		(0.033)	(0.045)	
Number of observations	14926	14926		14926	14926	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim. Estimates for different subsamples are generated by fully interacting observed characteristics with appropriate indicators for each subsample (in this case indicators for whether the worker is married or single).

Table 4: Estimated Relationship between Minority Status and Probability of Promotion/Wage Returns to Promotion - by Existence of Pay Equity Policy Within Firms

	Pay Equity			No Pay Equity		
	Economy-wide	**Within firms**	**Sorting**	**Economy-wide**	**Within firms**	**Sorting**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
A. Males – Probability of Promotion						
Visible Minority Canadian Born	-0.038	0.009	-0.047	-0.118***	-0.128***	0.01
	(0.060)	(0.075)	[0.296]	(0.039)	(0.042)	[0.521]
Number of observations	10145	10145		27525	27525	
B. Females – Probability of Promotion						
Visible Minority Canadian Born	-0.105**	-0.105*	0.000	-0.082*	-0.052	-0.03
	(0.048)	(0.063)		(0.043)	(0.047)	[0.113]
Number of observations	7655	7655		20890	20890	
C. Males – Wage Returns to Promotion						
Promoted	0.041***	0.043***		0.0324***	0.039***	
	(0.012)	(0.011)		(0.008)	(0.010)	
Visible Minority Canadian Born*promoted	0.003	0.003	0.000	-0.144***	-0.195***	0.051
	(0.047)	(0.036)		(0.034)	(0.059)	[0.290]
Visible Minority Canadian Born*not promoted	0.029	-0.027		-0.037*	-0.017	
	(0.031)	(0.061)		(0.019)	(0.026)	
Number of observations	5445	5445		14015	14015	
D. Females – Wage Returns to Promotion						
Promoted	0.022**	0.021*		0.021**	0.023**	
	(0.009)	(0.010)		(0.009)	(0.011)	
Visible Minority Canadian Born*promoted	-0.026	0.005	-0.031	-0.032	-0.069	0.037
	(0.067)	(0.071)	[0.187]	(0.045)	(0.053)	[0.186]
Visible Minority Canadian Born*not promoted	0.005	-0.025		-0.042	-0.028	
	(0.017)	(0.020)		(0.027)	(0.044)	
Number of observations	4145	4145		10435	10435	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who are also interviewed the year after and have not changed employer in the interim. Estimates for different subsamples are generated by running a separate regression for firms with and without pay equity policies.

Table 5: Estimated Relationship between Minority Status and Probability of Changing Employer					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
A. Males – New employer					
Visible Minority Canadian-born	0.011	-0.024	-0.019	-0.016	-0.019
	(0.027)	(0.028)	(0.028)	(0.028)	(0.034)
Number of observations	21279	21279	21279	21279	21279
B. Females - New employer					
Visible Minority Canadian-born	-0.022	-0.054***	-0.054***	-0.055***	-0.028
	(0.015)	(0.018)	(0.017)	(0.018)	(0.023)
Number of observations	16117	16117	16117	16117	16117
C. Males – New employer (employee quitted)					
Visible Minority Canadian-born	0.022	-0.008	-0.004	-0.002	-0.013
	(0.027)	(0.028)	(0.027)	(0.027)	(0.034)
Number of observations	21279	21279	21279	21279	21279
D. Females – New employer (employee quitted)					
Visible Minority Canadian-born	-0.020	-0.047***	-0.047***	-0.048***	-0.027
	(0.013)	(0.016)	(0.015)	(0.016)	(0.021)
Number of observations	16117	16117	16117	16117	16117
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimation sample is based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after.

Table 6: Estimated Relationship between Minority Status and Wage Returns to Changing Employer					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
A. Males – New employer					
New Employer	0.055***	0.045***	0.045***	0.045***	0.049***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)
Visible Minority * New Employer	-0.021	-0.035	-0.034	-0.032	-0.045
	(0.138)	(0.140)	(0.141)	(0.142)	(0.146)
Number of observations	21279	21279	21279	21279	21279
B. Females - New employer					
New Employer	0.073***	0.066***	0.066***	0.068***	0.066***
	(0.021)	(0.022)	(0.022)	(0.022)	(0.025)
Visible Minority * New Employer	0.093	0.081	0.081	0.082	-0.061
	(0.086)	(0.086)	(0.086)	(0.086)	(0.158)
Number of observations	16117	16117	16117	16117	16117
C. Males – New employer (employee quitted)					
New Employer	0.091***	0.082***	0.082***	0.082***	0.092***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)
Visible Minority * New Employer	-0.059	-0.071	-0.072	-0.070	-0.087
	(0.149)	(0.152)	(0.154)	(0.154)	(0.162)
Number of observations	21279	21279	21279	21279	21279
D. Females – New employer (employee quitted)					
New Employer	0.095***	0.088***	0.088***	0.090***	0.086***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.026)
Visible Minority * New Employer	0.008	0.001	0.000	-0.001	-0.184
	(0.075)	(0.076)	(0.077)	(0.077)	(0.171)
Number of observations	16117	16117	16117	16117	16117
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimation sample is based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after.

Table 7: Including Additional Controls[1]					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
A. Males – Probability of Promotion					
Visible Minority Canadian-born	-0.099***	-0.098***	-0.086**	-0.089**	-0.098***
	(0.033)	(0.035)	(0.038)	(0.036)	(0.036)
Number of observations	37972	37972	37972	37972	37972
B. Females - Probability of Promotion					
Visible Minority Canadian-born	-0.089**	-0.047	-0.086***	-0.079***	-0.035
	(0.038)	(0.036)	(0.030)	(0.029)	(0.036)
Number of observations	28937	28937	28937	28937	28937
C. Males – Number of Times Promoted					
Visible Minority Canadian-born	-0.266***	-0.301***	-0.248**	-0.254**	-0.311***
	(0.091)	(0.115)	(0.099)	(0.100)	(0.118)
Number of observations	37972	37972	37972	37972	37972
D. Females – Number of Times Promoted					
Visible Minority Canadian-born	-0.125	-0.094	-0.110*	-0.094	-0.079
	(0.078)	(0.072)	(0.064)	(0.063)	(0.071)
Number of observations	28937	28937	28937	28937	28937
E. Males – Wage Returns to Promotion					
Visible Minority Canadian-born*promoted	-0.099**	-0.139**	-0.105**	-0.081*	-0.119*
	(0.040)	(0.055)	(0.042)	(0.047)	(0.050)
Visible Minority Canadian-born*not promoted	-0.021	-0.016	-0.025	-0.029	-0.014
	(0.018)	(0.025)	(0.018)	(0.017)	(0.023)
Number of observations	19827	19827	19827	19827	19827
F. Females – Wage Returns to Promotion					
Visible Minority Canadian-born*promoted	-0.022	-0.055	0.007	0.004	0.008
	(0.043)	(0.051)	(0.04)	(0.039)	(0.048)
Visible Minority Canadian-born*not promoted	-0.035	-0.036	-0.031	-0.031	-0.029
	(0.022)	(0.036)	(0.021)	(0.024)	(0.034)
Number of observations	14926	14926	14926	14926	14926
Personal and job characteristics	**Y**	**Y**	**Y**	**Y**	**Y**
Occupation (coarse)	**N**	**N**	**Y**	**N**	**Y**
Occupation (detailed)	**N**	**N**	**N**	**Y**	**N**
Industry	**N**	**N**	**Y**	**Y**	**N**
Additional controls[1]	**N**	**N**	**Y**	**Y**	**Y**
Hierarchical level[2]	**N**	**N**	**Y**	**Y**	**Y**
Firm Effects	**N**	**Y**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim.

[1]Additional controls include: indicator for whether the employee supervises any workers; the number of workers supervised; indicators for terms of employment (regular, seasonal, term employee, casual or on-call, other); indicator for whether the worker has received any classroom training in the last twelve months, has received any on-the-job training in the last 12 months; number of different training courses received; the length of training courses received; the length of on-the-job-training received; indicator for whether any training offered in the last 12 months has been declined by the employee; indicators for whether the worker works a compressed workweek, has a usual workweek (i.e. work each day Monday to Friday, for at least 6 hours per day, between the hours of 6am and 6pm), carries out work duties at home, works flexible hours, works the same number of paid hours per week, has taken any unpaid leave; number of days of paid leave, paid sick leave, paid vacation leave, unpaid vacation; paid overtime, unpaid overtime; Indicators for hiring requirements when the employee was first hired (tests for specific skills (for example typing or manual dexterity), Aptitude or other personality testing, Security check, Medical examination, Drug test, Tests administered by a recruitment agency, Personal interview, Test on job-related knowledge, Test on general knowledge or literacy skills, Any other type of testing or screening, none).

[2]Proportion of workers in higher earnings categories. In the WES, firms are asked to report the number of permanent full-time and part-time employees in each of the following annual earnings categories: $80k and above, $60k-80k, $40k-60k, $20k-40k, $20k and below. We use this information along with the total number of employees within the firm to calculate the proportion of workers within firm that are in a higher earnings category.

Table 8: Estimated Relationships between Minority Status and Probability of Promotion, Number of Times Promoted, and Wage Returns to Promotion – Comparing Visible Minority Canadian-borns, Second-and-Higher Generation White Immigrants, and First Generation White Immigrants, to Second-and-Higher Generation White Canadians[1]

	(1)	(2)	(3)	(4)	(5)
A. Males – Probability of Promotion					
	0.046***	0.011	0.012	0.011	-0.000
	(0.013)	(0.012)	(0.011)	(0.011)	(0.012)
White Immigrants	0.018	0.018	0.019	0.016	-0.001
	(0.019)	(0.020)	(0.020)	(0.020)	(0.021)
Visible Minority Canadian-born	-0.049	-0.099***	-0.097***	-0.096***	-0.137***
	(0.041)	(0.037)	(0.039)	(0.039)	(0.043)
Number of observations	42539	42539	42539	42539	42539
B. Females - Probability of Promotion					
	0.032**	0.003	-0.001	-0.001	-0.002
	(0.143)	(0.133)	(0.126)	(0.124)	(0.130)
White Immigrants	0.005	-0.01	-0.005	-0.003	0.014
	(0.019)	(0.020)	(0.019)	(0.019)	(0.021)
Visible Minority Canadian-born	-0.016	-0.079*	-0.081**	-0.088***	-0.069*
	(0.052)	(0.049)	(0.033)	(0.034)	(0.041)
Number of observations	32454	32454	32454	32454	32454
C. Males – Number of Times Promoted					
	0.138***	0.043	0.048	0.045	0.007
	(0.044)	(0.040)	(0.039)	(0.039)	(0.038)
White Immigrants	-0.003	-0.014	-0.009	-0.012	-0.031
	(0.060)	(0.063)	(0.062)	(0.061)	(0.065)
Visible Minority Canadian-born	-0.222**	-0.245**	-0.235**	-0.227**	-0.337***
	(0.097)	(0.098)	(0.103)	(0.101)	(0.111)
Number of observations	42539	42539	42539	42539	42539
D. Females – Number of Times Promoted					
	0.058*	-0.019	-0.030	-0.027	-0.020
	(0.034)	(0.033)	(0.031)	(0.031)	(0.033)
White Immigrants	0.028	-0.014	0.001	0.005	-0.057
	(0.058)	(0.063)	(0.061)	(0.061)	(0.062)
Visible Minority Canadian-born	-0.014	-0.019	-0.121*	-0.136*	-0.136
	(0.112)	(0.084)	(0.070)	(0.070)	(0.083)
Number of observations	32454	32454	32454	32454	32454
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**

Table 8: Continued

E. Males – Wage Returns to Promotion					
Promoted	0.049***	0.043***	0.042***	0.041***	0.048***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)
Visible Minority Canadian-born*promoted	-0.096**	-0.111***	-0.114***	-0.113***	-0.146***
	(0.039)	(0.040)	(0.041)	(0.041)	(0.056)
Visible Minority Canadian-born*not promoted	0.002	-0.014	-0.016	-0.16	-0.011
	(0.019)	(0.019)	(0.020)	(0.020)	(0.025)
	-0.011	-0.017	-0.018	-0.018	-0.019
	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
	0.007	-0.001	-0.001	-0.001	-0.001
	(0.007)	(0.009)	(0.009)	(0.009)	(0.009)
White Immigrant*promoted	-0.006	-0.008	-0.009	-0.009	-0.024
	(0.017)	(0.018)	(0.018)	(0.018)	(0.021)
White Immigrant*not promoted	0.034***	0.034**	0.034**	0.033**	0.026
	(0.012)	(0.013)	(0.013)	(0.013)	(0.017)
Number of observations	22312	22312	22312	22312	22312
F. Females – Wage Returns to Promotion					
Promoted	0.023**	0.021*	0.020*	0.021*	0.007
	(0.011)	(0.011)	(0.011)	(0.011)	(0.018)
Visible Minority Canadian-born*promoted	-0.026	-0.036	-0.037	-0.042	-0.075
	(0.042)	(0.043)	(0.043)	(0.043)	(0.050)
Visible Minority Canadian-born*not promoted	-0.020	-0.032	-0.034	-0.030	-0.061
	(0.021)	(0.023)	(0.024)	(0.023)	(0.038)
	-0.015	-0.018	-0.019	-0.019	-0.007
	(0.021)	(0.024)	(0.024)	(0.024)	(0.023)
	0.006	0.002	0.002	0.002	-0.006
	(0.008)	(0.011)	(0.011)	(0.011)	(0.012)
White Immigrant*promoted	-0.007	-0.012	-0.011	-0.012	-0.043
	(0.026)	(0.027)	(0.027)	(0.027)	(0.030)
White Immigrant*not promoted	0.008	0.001	0.001	0.001	-0.013
	(0.011)	(0.013)	(0.012)	(0.013)	(0.014)
Number of observations	16844	16844	16844	16844	16844
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim.

[1]We break our group of white Canadian-borns to those whose parents or grandparents are also white Canadian-born, and those whose parents or grandparents are immigrants from Europe, Australia, or the US (second-and-higher generation white immigrants). We also add white (first generation) immigrants as an additional group to our sample. We then run regression similar to those reported in table 2, but instead of only comparing visible minority Canadian-borns to white Canadian-borns, we compare (first generation) white immigrants, second-and-higher generation white immigrants, and visible minority Canadian-borns (i.e. second-and-higher generation visible minority immigrants) to white Canadian-borns with Canadian ancestry (i.e. second-and-higher-generation white Canadians). Around 37% of white Canadian-borns in our sample are second-and-higher generation Canadian, and the remaining 63% are second-and-higher generation white immigrant.

Table 9: Estimated Relationships between Minority Status and Probability of Promotion, Number of Times Promoted, and Wage Returns to Promotion – Comparing Male and Female Visible Minorities and White Females to White Males

	(1)	(2)	(3)	(4)	(5)
A. Probability of Promotion					
Male Visible Minority Canadian-born	-0.076*	-0.094**	-0.089**	-0.090**	-0.096***
	(0.041)	(0.038)	(0.040)	(0.042)	(0.033)
Female Visible Minority Canadian-born	-0.099*	-0.11***	-0.092***	-0.083**	-0.067*
	(0.054)	(0.041)	(0.035)	(0.036)	(0.039)
Female White Canadian-born	-0.062***	-0.0193*	-0.002	0.015	-0.012
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)
B. Number of Times Promoted					
Male Visible Minority Canadian-born	-0.303***	-0.247***	-0.233**	0.228**	-0.313***
	(0.092)	(0.093)	(0.099)	(0.098)	(0.101)
Female Visible Minority Canadian-born	-0.317***	-0.276***	-0.221***	-0.174**	-0.217**
	(0.116)	(0.082)	(0.070)	(0.070)	(0.084)
Female White Canadian-born	-0.273***	-0.142***	-0.091***	-0.019	-0.098***
	(0.029)	(0.026)	(0.026)	(0.026)	(0.027)
C. Wage Returns to Promotion					
Male Visible Minority Canadian-born*promoted (A)	-0.090**	-0.096**	-0.101**	-0.098**	-0.124***
	(0.039)	(0.040)	(0.040)	(0.040)	(0.042)
Female Visible Minority Canadian-born*promoted (B)	-0.047	-0.061	-0.063	-0.066	-0.095**
	(0.043)	(0.045)	(0.045)	(0.044)	(0.046)
Female White Canadian-born*promoted	-0.030**	-0.036**	-0.035**	-0.034**	-0.048**
	(0.015)	(0.015)	(0.016)	(0.015)	(0.021)
P-value of testing (A) = (B)	0.461	0.544	0.532	0.578	0.633
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for wage returns to promotions are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim.

Table 10: Probability of attrition					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
A. Males – Probability of Attrition					
Visible Minority Canadian-born	0.024	-0.008	-0.010	-0.007	-0.009
	(0.033)	(0.035)	(0.035)	(0.035)	(0.035)
Number of observations	27474	27474	27474	27474	27474
B. Females – Probability of Attrition					
Visible Minority Canadian-born	-0.012	-0.043	-0.043	-0.046	-0.045
	(0.032)	(0.033)	(0.033)	(0.033)	(0.033)
Number of observations	20564	20564	20564	20564	20564
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**	**N**
Firm Effects	**N**	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimation sample is based on pooled 1999, 2001, 2003 cross-sections of employees.

Visible Minorities and Job Mobility: Evidence from a Workplace Panel Survey[Ψ]

Online Appendix

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Table A1: Estimated Relationships between Minority Status and Probability of Promotion/Number of Times Promoted – Probit/Poisson Versus LPM				
	(1)	**(2)**	**(3)**	**(4)**
A. Males – Probability of Promotion				
LPM: Visible Minority Canadian-born	-0.076*	-0.099***	-0.094**	-0.093**
	(0.041)	(0.036)	(0.038)	(0.039)
Probit: Visible Minority Canadian-born	-0.077*	-0.097***	-0.095**	-0.093**
	0.043	0.037	0.038	0.039
# of observations	37972	37972	37972	37972
B. Females - Probability of Promotion				
LPM: Visible Minority Canadian-born	-0.036	-0.089**	-0.087***	-0.095***
	(0.054)	(0.039)	(0.032)	(0.032)
Probit: Visible Minority Canadian-born	-0.036	-0.087**	-0.085**	-0.093***
	0.056	0.039	0.033	0.033
# of observations	28937	28937	28937	28937
C. Males – Number of Times Promoted				
LPM: Visible Minority Canadian-born	-0.303***	-0.266***	-0.254**	-0.245**
	(0.092)	(0.096)	(0.100)	(0.099)
Poisson: Visible Minority Canadian-born	-0.361***	-0.306**	-0.308**	-0.286**
	0.132	0.129	0.132	0.129
# of observations	37972	37972	37972	37972
D. Females – Number of Times Promoted				
LPM: Visible Minority Canadian-born	-0.044	-0.125	-0.116*	-0.135**
	(0.115)	(0.079)	(0.068)	(0.067)
Poisson: Visible Minority Canadian-born	-0.046	-0.132*	-0.149**	-0.156**
	0.122	0.079	0.076	0.073
# of observations	28937	28937	28937	28937
Personal and job characteristics	**N**	**Y**	**Y**	**Y**
Occupation	**N**	**N**	**Y**	**Y**
Industry	**N**	**N**	**N**	**Y**

Notes: Standard errors are in parentheses. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Marginal effects are reported for Probit and Poisson models.

Table A2: Estimated Relationships between Minority Status and Probability of Promotion/Number of Times Promoted - by marital status

	Married			Single		
	Economy-wide	Within firms	Sorting	Economy-wide	Within firms	Sorting
	(1)	(2)	(3)	(4)	(5)	(6)
A. Males – Probability of Promotion						
Visible Minority Canadian-Born	-0.097*	-0.105**	0.008	-0.134***	-0.134**	0.000
	(0.050)	(0.041)	[0.779]	(0.048)	(0.058)	
# of observations	37972	37972		37972	37972	
B. Females – Probability of Promotion						
Visible Minority Canadian-Born	-0.107**	-0.085*	-0.022**	-0.074	-0.039	-0.035
	(0.044)	(0.044)	[0.018]	(0.074)	(0.068)	[0.230]
# of observations	28937	28937		28937	28937	
C. Males – Number of Times Promoted						
Visible Minority Canadian-Born	-0.360***	-0.341**	-0.019	-0.229*	-0.375**	0.146
	(0.129)	(0.142)	[0.748]	(0.119)	(0.171)	[0.919]
# of observations	37972	37972		37972	37972	
D. Females – Number of Times Promoted						
Visible Minority Canadian-Born	-0.117	-0.180*	0.063	-0.126	-0.095	-0.031
	(0.116)	(0.108)	[0.136]	(0.135)	(0.130)	[0.394]
# of observations	28937	28937		28937	28937	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for different subsamples are generated by fully interacting observed characteristics with appropriate indicators for each subsample (in this case indicators for whether the worker is married or single).

Table A3: Estimated Relationships between Minority Status and Probability of Promotion/Number of Times Promoted - by Pay Equity

	Pay Equity			No Pay Equity		
	Economy-wide	Within firms	Sorting	Economy-wide	Within firms	Sorting
	(1)	(2)	(3)	(4)	(5)	(6)
A. Males – Probability of Promotion						
Visible Minority Canadian-Born	-0.038	0.009	-0.047	-0.118***	-0.128***	0.01
	(0.060)	(0.075)	[0.296]	(0.039)	(0.042)	[0.521]
# of observations	10145	10145		27525	27525	
B. Females – Probability of Promotion						
Visible Minority Canadian-Born	-0.105**	-0.105*	0.000	-0.082*	-0.052	-0.03
	(0.048)	(0.063)		(0.043)	(0.047)	[0.113]
# of observations	7655	7655		20890	20890	
C. Males – Number of Times Promoted						
Visible Minority Canadian-Born	-0.122	-0.131	0.009	-0.303***	-0.403***	0.1
	(0.088)	(0.091)	[0.697]	(0.110)	(0.146)	[0.297]
# of observations	10145	10145		27525	27525	
D. Females – Number of Times Promoted						
Visible Minority Canadian-Born	-0.099	-0.187	0.088	-0.137	0.027	-0.164
	(0.132)	(0.182)	[0.482]	(0.164)	(0.207)	[0.194]
# of observations	7655	7655		20890	20890	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates are based on the pooled 1999, 2001, 2003 and 2005 cross-sections. Estimates for different subsamples are generated by running a separate regression for firms with and without pay equity policies.

Table A4: Estimated Relationships between Minority Status and Probability of Promotion/Number of Times Promoted – Longitudinal Sample

	(1)	(2)	(3)	(4)	(5)	(6: sorting)
A. Males – Probability of Promotion						
Visible Minority Canadian-born	-0.118***	-0.134***	-0.128***	-0.129***	-0.146**	0.012
	(0.045)	(0.045)	(0.045)	(0.047)	(0.063)	[0.786]
# of observations	19827	19827	19827	19827	19827	
B. Females - Probability of Promotion						
Visible Minority Canadian-born	0.018	-0.075	-0.090**	-0.091**	-0.052	-0.023**
	(0.091)	(0.055)	(0.044)	(0.044)	(0.054)	[0.027]
# of observations	14926	14926	14926	14926	14926	
C. Males – Number of Times Promoted						
Visible Minority Canadian-born	-0.445***	-0.413***	-0.393***	-0.381***	-0.369***	-0.044
	(0.112)	(0.111)	(0.112)	(0.114)	(0.143)	[0.625]
# of observations	19827	19827	19827	19827	19827	
D. Females – Number of Times Promoted						
Visible Minority Canadian-born	0.084	-0.061	-0.104	-0.098	-0.061	-0.000
	(0.193)	(0.115)	(0.095)	(0.094)	(0.124)	[0.986]
# of observations	14926	14926	14926	14926	14926	
Personal and job characteristics	**N**	**Y**	**Y**	**Y**	**Y**	
Occupation	**N**	**N**	**Y**	**Y**	**Y**	
Industry	**N**	**N**	**N**	**Y**	**N**	
Firm Effects	**N**	**N**	**N**	**N**	**Y**	

Notes: Standard errors are in parentheses, p-values for the Hausman test for sorting are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates are based on pooled 1999, 2001, 2003 cross-sections of employees who were also interviewed the year after and have not changed employer in the interim.

Table A5: Estimated Relationships between Minority Status and Probability of Promotion/Number of Times Promoted - Workers younger than 40

	Age <= 40	
	Economy-wide	Within firms
	(1)	(2)
A. Males – Probability of Promotion		
Visible Minority Canadian Born	-0.0842**	-0.0935**
	(0.0416)	(0.0422)
# of observations	37972	37972
B. Females – Probability of Promotion		
Visible Minority Canadian Born	-0.0767*	-0.0585
	(0.0435)	(0.0466)
# of observations	28937	28937
C. Males – Number of Times Promoted		
Visible Minority Canadian Born	-0.235**	-0.292**
	(0.0958)	(0.122)
# of observations	37972	37972
D. Females – Number of Times Promoted		
Visible Minority Canadian Born	-0.142*	-0.172*
	(0.0786)	(0.0933)
# of observations	28937	28937

Notes: Standard errors are in parentheses. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All coefficients are estimated using sampling weights provided by Statistics Canada. Estimates for probability of promotion and the number of times promoted are based on the pooled 1999, 2001, 2003 and 2005 cross-sections.