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Firm-size wage gaps and hierarchy:

EVIDENCE FROM CANADA

Innovation, Science and Economic Development Canada
Small Business Branch
Ibrahim Bousmah

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Canada

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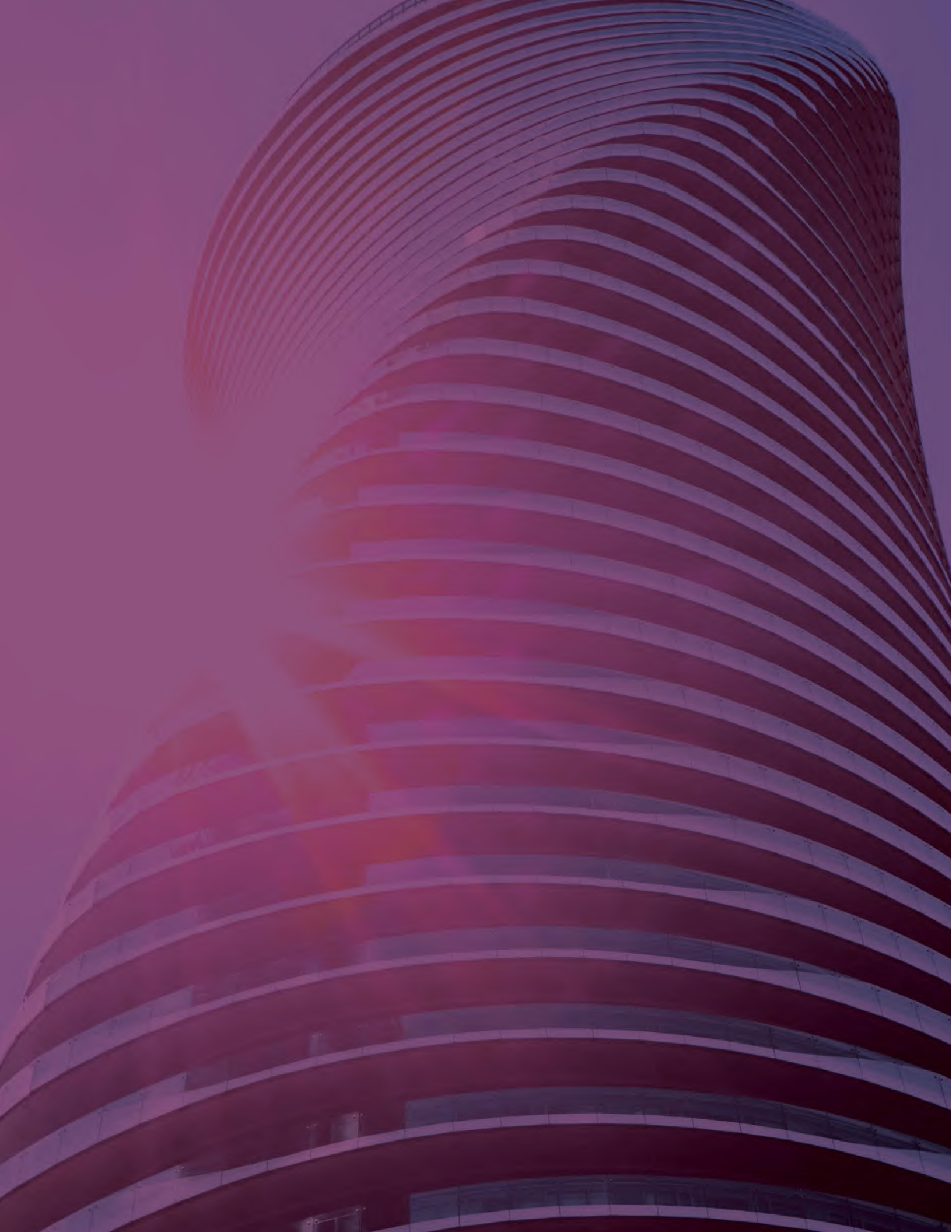


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Abstract

We investigate the role of hierarchy in explaining the wage differential between large and small firms in Canada. We use the confidential-use files of the *Labour Force Survey* (LFS) from 2016 to 2022 and exploit the mini-panels form to control for time-invariant unobserved heterogeneity. The results show that the Canadian employer size-wage effects for managers are approximately twice those for non-managers, which is consistent with the results of prior studies for other countries. Managers who move from a small to a large firm see an earnings increase of 20%, twice the estimated size-wage differential of non-managers (11%). The results also demonstrate that low-skill workers moving from a small to a large firm have an earnings increase of 5.3%, which is significantly lower than high-skill workers (14.1%). Those results support the role of the hierarchy in explaining an important part of the size-wage effect for Canadian workers.

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1 Introduction

Firm size is considered an important factor to explain part of the wage difference between workers. The question of why we observe higher wages in larger firms has been studied for decades but to this date has no complete answers. In this paper, we contribute to the discussion by providing the first Canadian analysis examining the role of hierarchy in explaining the size-wage differential. We use the confidential-use files of the *Labour Force Survey* (LFS) from 2016 to 2022. We found that the size-wage differential between large and small firms for managers is approximately twice the estimated size-wage differential for non-managers. The mini-panel form of the survey allows us to use within-worker variation to estimate the impact of firm size on wages.

The panel fixed effects (FE) result suggests that managers who move from a small to a large firm have an earnings increase of 20% which is smaller in magnitude than the benchmark OLS regression (27%). Given that panel FE controls for time-invariant heterogeneity (e.g. talent) and pooled OLS does not, the results suggest that the OLS results are biased upwards.

The smaller estimated coefficient of the FE model could reflect a sorting on ability where larger establishments hire more talented managers or a match-specific return where more talented managers receive returns in larger establishments that are not present in smaller establishments.

We also further repeat the analysis by skill level and found that high-skill workers have estimated coefficients closer in magnitude to managers, while low-skill workers have significantly lower size-wage differentials.

This is consistent with the hierarchical model where the firm-size wage gaps increase with job responsibility. The rest of the paper is structured as follows. The second section reviews the literature on firm-size wage differential. The third section describes the LFS confidential-use database, explains the sample restrictions and presents some descriptive statistics. The fourth section documents the econometric strategies. The fifth section contains the discussion of the results of the empirical work, and the last section concludes the paper.

2 Review of the literature

Do larger firms pay higher wages? This was first revealed more than a century ago (Moore,1911) and has since been well confirmed by many studies in the economic literature (e.g. Brown and Medoff 1989; Morissette 1993; Berlingieri, Calligaris, and Criscuolo 2018; Bloom et al. 2018; Colonnelli et al. 2020). Economists have tried to explain why large firms pay equivalent workers more than small firms, and we still do not have a complete answer to this question, but we do have a number of potential theoretical explanations for part of the wage-size relationship. One points to the theory of compensating differentials. The compensating differential theory explains the size-wage differential by the quality of labour and working conditions. The labour quality explanation suggests that larger firms employ higher-quality workers.

Brown and Medoff (1989) clarify that larger firms may have a higher-quality workforce because of a greater capital intensity and capital-skill complementarity. Large firms could also pay higher wages because of less desirable working conditions. However, the literature has generally shown that the working conditions explanation is unlikely to hold (Oi and Idson 1999). Further theoretical motivation for the positive wage-size relationship is the efficiency wage model that holds that larger firms may pay efficiency wages to reduce higher monitoring cost (Oi 1983, Lallemand et al. 2007). The rationale is that larger employers have more difficulty monitoring workers and may choose better quality workers to save on fixed per worker monitoring. As pointed out by Even and Macpherson (2012), rent sharing could also describe part of the size-wage relationship, suggesting that larger firms share rents with their employees because of market power or excess profit. Despite the effort to try to control for those factors, an unexplained size-wage gap often remains in the literature. Several studies have tried to explain the remaining wage differential by addressing firm heterogeneity or unobserved abilities. For instance, Evans and Leighton (1989) have assessed the effect of unobserved heterogeneity with the use of panel data and the first-difference estimator. Their results suggest that unobserved heterogeneity explains an important part of the size-wage effect but that a nontrivial premium remains even after controlling for unobserved heterogeneity. Gibson and Stillman (2009) use a worker literacy measure to try to control for unobserved worker quality. They use a control for worker literacy as an additional measure of workers skill beyond the typical human capital variables generally used in the literature. Their results show no evidence that the size-wage premium is explained by higher skill levels of workers in larger firms. The authors conclude that larger firms pay workers with similar skills more than smaller firms. They suggest that it could be in part interpreted by workers becoming more productive in larger firms or by the capture of workers' rents in bigger firms.

Another recent line of the literature has used matched employer-employee panel data to try to control for observed and unobserved workers and firm characteristics. Bloom et al. (2018) use the fixed effects regression framework of Abowd, Kramarz, and Margolis (1999) to control for workers and firm fixed effects. They use the confidential database of the Master Earnings File from the US Social Security Administration and estimate the model separately for five seven-year intervals from 1980 to 2013. Their key findings suggest that the size-wage premium has started to decline over the last 30 years. They explain that this decline is mainly concentrated in very large firms while remaining stable for firms with less than 1000–2500 employees. Colonnelli et al. (2020) use similar empirical strategy to examine the size-wage premium with matched employer-employee databases from Brazil, Germany, Sweden and the United Kingdom. Their results confirm the existence of a large-firm premium across all countries with, however, some significant heterogeneity among countries in the evolution of the wage premium over the past decades. Their results show a declining trend in the size-wage premium

for Brazil but not for Germany, Sweden and the United Kingdom – suggesting that the driving factors of the size wage premium are likely to be country-specific.

A growing literature has argued in favour of the hierarchy theory to explain why unobserved ability is concentrated more in larger firms. The hierarchy theory suggests in part that the return to supervisory talent is more important for larger employers because they have deeper hierarchies and wider spans of control and that talented supervisors receive a match-specific return that is not present for smaller employers (Green, Heywood and Theodoropoulos (2021)). Meagher and Wilson (2004) clarify that the value of ability increases with the seniority of management positions, and that larger firms have more senior management positions than smaller firms. They test the hierarchy theory on cross-sectional Australian survey data and found that the plant-size effect is at least double for supervisors compared with non-supervisors. Fox (2009) uses data for both Sweden and the United States to explore whether the firm-size wage gaps increase with job responsibility. His key result confirms that firm-size wage gaps increase with job responsibility. As one measure of job responsibility, the author uses workers' occupational codes.

Based on the occupation titles, Fox (2009) is able to obtain information on the level of responsibility and hierarchy across workers' reported occupation. More recently, Mueller et al. (2017) examine the relationship between within-firm pay inequality and firm size. They divide their sample into different hierarchy levels based on required skills and tasks. Their key findings show that the wage gap increases with firm size for higher hierarchy levels and there is no significant effect of the firm size for lower hierarchy levels. They explain that when pay inequality increased with firm size, this is entirely driven by hierarchy levels where responsibilities and managerial skills are important. Green, Heywood and Theodoropoulos (2021) also suggest that the wage-size effect is largely a hierarchical phenomenon. They use British data to compare the establishment-size effect for supervisors and non-supervisors. Their findings confirm that the employer-size wage effect is larger for supervisors than for non-supervisors, and larger for managers than for line workers. The authors propose that the results reflect a sorting on ability where larger establishments hire more talented supervisors/managers. They also argue that the results reflect a match-specific return where more talented supervisors/managers receive returns in larger establishments that are not present in smaller establishments.

3 Data description

The data sets used for this paper are the confidential-use files of the monthly *Labour Force Survey* (LFS) cross-sections starting in January 2016 and ending in February 2022.¹ The LFS is household-level data with a target population of the non-institutionalized population 15 years of age and over. The LFS employs a rotating sample design with dwelling remaining in the sample for six consecutive months. The monthly sample size is approximately 56,000 households, which result in approximately 100,000 individuals. This database is a rich source of information on labour market characteristics and demographic characteristics of individual-level information of the Canadian population.

To compute measures of hierarchy we use the four-digit National Occupational Classification (NOC). The first two digits provide important information on the type of work performed. Management occupations that are present in all broad occupational categories can be identified with the first digit being 0. We can further identify different skill levels required for entering occupations by using the second digit of the NOC code. The second digit ranges from values 1 to 7 and are associated with four skill levels A to D. The skill levels are based on the education and training required for the jobs. More precisely when the second digit of the NOC code is a 0 or 1, the position is identified as highly skilled and requiring university education. Skill level B, coded 2 or 3, requires some post-secondary education or on-the-job training. Skill level C, with second digit 4 or 5, requires some secondary school education with on-the-job training or specific work experience. Finally, skill level D, coded 6 or 7, is considered low skill and requiring no educational requirements.

We restrict my analysis to full-time² paid workers from the private sector aged between 20 and 65 years. Table 1 presents descriptive statistics for the sample's main variables for workers in management and non-management positions. The summary statistics indicate that managers in our sample earn average hourly earnings of \$43.7 in comparison to \$26.4 for non-managers and that the distribution of employment by employer size is approximately similar for both groups. Managers tend to have higher levels of education with approximately 17% of them having a graduate degree in comparison with only 7% for non-managers. Table 1 also indicates that there is a higher proportion of men in management position (63%).

Table 2 presents average hourly earnings by firm size for all workers, managers, non-managers, high-skill and low-skill workers. The numbers suggest that for all paid workers, large firms (500+employees) pay approximately 28% higher earnings than small firms (1 to 19 employees). The size-wage differential between large and small firms is much higher for managers (35%) and high-skill workers (32%) in comparison with non-managers (24%) and low-skill workers (10%).

¹ The regressions of this paper have been repeated without including the year 2020, 2021 and 2022 to verify if the pandemic might have incorporated any distortions to the results. We found for all the models estimates that are very close to those presented and provided similar conclusions.

² Full-time employment consists of persons who usually work 30 or more hours per week at their main or only job.

4 Empirical strategy

To study the role of the hierarchy in explaining the size-wage differential, we estimate variants of the following pooled OLS specification separately for managers and non-managers.

$$\ln w_{i,t} = \text{size}_{i,t}\beta + X_{i,t}\gamma + \theta_c + \lambda_t + \varphi_{my} + \epsilon_{i,t} \quad (1)$$

where $\ln w_{i,t}$ is the logarithm of hourly earnings for workers (i) in the month (t) who worked full time. $\text{size}_{i,t}$ is the firm size where the employee works, which is a set of four dummies: firms with 1–19 employees, 20–99 employees, 100–499 employees and 500 or more workers. β is a vector of the estimated size-wage differentials for a given size with respect to small firms (firms with 1–19 employees). $X_{i,t}$ is a vector of characteristics of workers i at time t which include age, age squared, union, tenure³, tenure squared, education, gender, marital status and worker industry sectors.⁴ The vector θ_c represents place-of-residence fixed effects, which identify cities (CMA), smaller towns (CA) and rural areas. λ_t corresponds to time (month, year) fixed effects. We include additional specifications with φ_{my} , which corresponds to month-by-year fixed effects to account for different macroeconomic seasonal shocks (e.g. effect of the COVID-19 pandemic). Finally, $\epsilon_{i,t}$ is the error term clustered at the place-of-residence level (CMA/CA/rural areas).

One potential source of bias from equation (1) is unobserved individual heterogeneity that could bias our estimated coefficients β , for instance sorting of more able workers in larger firm. We address this source of bias by exploiting the rotating mini-panel design of the LFS where households remain in the sample for six consecutive months. We create unbalanced six-month mini panels covering the 2016–2022 period. The LFS doesn't include a single person identifier, but workers can be identified across the monthly files by combining variables that are only available in the master files. Brochu (2021) provided a detailed discussion and guidance on how to create individual-level six-month mini panels with the master files of the LFS. We estimate the effect of the size-wage differential with the following panel model:

$$\ln w_{i,t} = \text{size}_{i,t}\alpha + Z_{i,t}\delta + \tau_i + u_{i,t} \quad (2)$$

$Z_{i,t}$ is a vector of time-varying worker characteristics and τ_i represents the unobserved workers time-invariant effect. The suitable estimation technique for equation (2) depends on whether τ_i is assumed to be random (random effects (RE) model) or fixed (fixed effects (FE) model). This can be tested using Hausman tests. In our case the Hausman tests suggest the use of a fixed effects model over the random effects (see Table 4). Therefore, we use the within estimator that subtracts the within-individual average of each variable in equation (2):

$$(\ln w_{i,t} - \overline{\ln w_i}) = (\text{size}_{i,t} - \overline{\text{size}_i})\alpha + (Z_{i,t} - \overline{Z_i})\delta + \tau_i - \overline{\tau_i} + u_{i,t} - \overline{u_i} \quad (3)$$

Given that τ_i is time invariant $\tau_i - \overline{\tau_i} = 0$. The coefficients α are then identified by variations in firm size within workers. The variation in equation (3) comes from job movers who quit an employer to join another employer of a different size. As mentioned in section 2, we can further classify workers by skills level with the use of the second digit of the NOC code.

³ LFS defines tenure as the number of consecutive months that a person has worked for the current (or, if employed within the previous twelve months, the most recent) employer.

⁴ The industries sectors reflect 19 broad industry categories at the [North American Industry Classification System](#) (NAICS) 2 digits code.

We estimate the richest specification of equation (1) and (3) separately for managers, high-skill workers and low-skill workers.⁵ We remove managers from the high- and low-skill classifications to have three mutually exclusive groups. We expect low-skill workers to have significantly lower estimates than managers and high-skill workers given that they are at the lowest level of the firm hierarchy.

5 Results

Table 3 reports estimated coefficients and standard errors for OLS regressions of the benchmark cross-section log earnings equation (1). The first two columns display the results for workers in management positions and the last two columns are for workers in non-management positions. Column (1) and (3) include the basic controls of 84 place-of-residence (CMA, CA, rural) fixed effects, and time (month, year) fixed effects. The richest specifications in columns (2) and (4) add controls for workers' characteristics (age, age squared, union, tenure, tenure squared, education, gender, marital status and worker industry sectors) and month-by-year fixed effects.

The results show that for both managers and non-managers, large firms pay higher wages than small firms. However, the size-wage differential between large and small firms for managers is 27%, which is almost twice the estimated size-wage differential for non-managers (14%).⁶ These results are the first evidence supporting the hierarchy theory in explaining the size-wage differential for Canada. The findings are in line with those in Green, Heywood and Theodoropoulos (2021), who find a wage premium of 26.9% for managers, 14.4% for supervisors and 11.5% for line workers using data from Britain and are also in line with Meagher and Wilson (2004), who found that the plant-size effect is at least double for supervisors compared with non-supervisors for Australian survey data.

Another interesting result is that the firm-size premium is also large for firms with 20–99 employees (17%), while the wage premium of firms with 100–499 employees is close to the premium for firms with 500+ employees (25%), suggesting the effect of size is mostly important for firms with fewer than 20 employees.

Regarding the impacts of the other socioeconomic variables, the results are as expected. For instance, in all our specifications, workers with higher education levels earn significantly higher wages. Age and tenure both have positive effects on earnings, while both variables have negative estimated coefficients for the squared variables, indicating concave patterns. Males earn significantly higher wages than their female counterparts, and the effect of marital status is positive. Another interesting result is that union has a negative effect on wage for managers (-8%) while being positive for non-managers (5%). This agrees with similar findings in the literature. For instance, Card (1996) found a positive union effect for workers with lower levels of observed skills and a negative effect for workers with higher levels of observed skills.

In Table 4, we use the panel structure of the LFS to estimate random and fixed effects panel models. The Hausman tests are presented at the bottom of the table and clearly reject the null hypothesis that the preferred model is random effects and confirm that the appropriate model to use is the fixed effects. The results of equation (3) are presented in column (1) and (3). The estimated coefficients are the within-workers variation coming from changes in firm size.

⁵ We use the standard definitions of high skill and semi- and low-skilled workers that are employed with Canadian immigration and labour program: High skill workers are those classified in skill level A and skill level B, while semi- and low-skilled workers are those classified in skill level C or skill level D. For the regressions by skill levels, We do not control for education to avoid over controlling for this variable given that skill levels are in part based on education.

⁶ For categorical variables in log-linear regressions the percentage wage differential is the inverse logarithm function of the estimated coefficient minus 1. The 27% wage differential for manager between large and small firms results from $\exp(0.24) - 1$.

The result in column (1) suggests that workers who move from a small to a large firm have an earnings increase of 20%. The size-wage premium for managers declines from 27% (OLS) to 20% (FE). This finding is again consistent with the work of Green, Heywood and Theodoropoulos (2021) which suggests that the smaller magnitude of the FE result could reflect a sorting on ability where larger establishments hire more talented managers or a match-specific return where more talented managers receive returns in larger establishments that are not present in smaller establishments. After eliminating a key source of bias, namely, omitted time-invariant workers' characteristics, the FE model still shows that the size-wage differential between large and small firms for managers (20%) is significantly larger than for non-managers (11%).

We next repeat the analysis separately for managers, high-skill and low-skill workers. The results in Table 5 continue to provide evidence of the importance of the hierarchy where managerial skills and job responsibilities are important. Managers have a larger size-wage premium relative to high-skill workers and low-skill workers. High-skill workers have an estimated coefficient closer in magnitude to managers, 21.5% for the OLS and 15% for the FE. However, low-skill workers have a significantly lower estimate of 6% (OLS) and 5.4% (FE). This is again consistent with the hierarchical model where the firm-size wage gaps increase with job responsibility. High-skill workers advance more in hierarchies and are more likely to have more important technical abilities that increase their job responsibilities while low-skill workers remain at the bottom of the hierarchy. The magnitude of the FE results in comparison with the OLS is greater for managers and high-skill workers while staying approximately the same for low-skill workers. These intriguing results suggest that a sorting on ability or match-specific return are present only for workers in the upper part of the hierarchy and that the value of ability increases with the hierarchy of the positions.

6 Conclusion

In this paper, we study the role of the hierarchy in explaining the size-wage gaps for Canada. We confirm for Canada that the size-wage effect is in large part a hierarchical phenomenon that is consistent with prior studies for Australia (Meagher and Wilson 2004), Sweden and the United States (Fox 2009) and Britain (Green, Heywood and Theodoropoulos 2021).

The analysis is based on the confidential monthly *Labour Force Survey* (LFS) starting in January 2016 and ending in February 2022. We find that the size-wage differential is significantly larger for managers than for non-managers, and substantially higher for managers and high-skill workers compared with low-skill workers. We also control for unobserved heterogeneity using the panel models technique with results indicating that the size-wage premiums decrease for managers and high-skill workers while remaining similar for low-skill workers. This is again consistent with what Green, Heywood and Theodoropoulos (2021) found with British data, suggesting a sorting on ability where larger establishments hire more talented managers and high-skill workers or a match-specific return where more talented managers and high-skill workers receive returns in larger establishments that are not present in smaller establishments.

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Appendix

Table 1: Descriptive statistics of sample major variables

	Management mean (std. dev.)	Non-management mean (std. dev.)
Firm size (by number of employees)		
1 to 19 employees	0.15 (0.35)	0.21 (0.41)
20 to 99 employees	0.19 (0.39)	0.20 (0.40)
100 to 499 employees	0.18 (0.38)	0.17 (0.37)
500+ employees	0.48 (0.49)	0.41 (0.49)
Hourly earning	43.77 (19.47)	26.45 (12.50)
Male	0.63 (0.48)	0.59 (0.49)
Age	43.84 (10.47)	40.48 (12.31)
Age squared	2,032.00 (924.33)	1,790.59 (1030.92)
Married	0.60 (0.49)	0.45 (0.49)
Immigrant	0.27 (0.44)	0.30 (0.45)
High school dropout	0.03 (0.15)	0.07 (0.26)
High school degree	0.13 (0.33)	0.21 (0.40)
Some postsecondary	0.34 (0.47)	0.44 (0.49)
Bachelor's degree	0.33 (0.47)	0.20 (0.39)
Graduate degree	0.17 (0.37)	0.07 (0.26)
Union	0.02 (0.14)	0.17 (0.37)
Tenure	118.78 (110.92)	88.77 (99.81)
Tenure squared	26,414.66 (44,195.33)	17,842.00 (37,182.39)
Observations	146,763	1,882,773

Notes: Standard deviations are in parentheses.

Source: *Labour Force Survey (LFS)* from 2016 to 2022.

Table 2: Average hourly earnings by firm size and hierarchical level

	Firm size (by number of employees)				
	1 to 19 employees	20 to 99 employees	100 to 499 employees	500+ employees	(Large-small)/small
All paid workers	23.75 (10.81)	26.31 (12.63)	28.53 (14.13)	30.42 (15.46)	28.1%
Managers	34.50 (17.04)	41.71 (18.51)	45.78 (19.55)	46.75 (19.52)	35.5%
Non-managers	23.07 (9.90)	25.01 (11.06)	26.88 (12.28)	28.71 (13.90)	24.5%
High skill workers	25.43 (10.72)	28.42 (11.96)	31.08 (13.16)	33.62 (14.78)	32.2%
Low skill workers	19.40 (7.02)	20.19 (7.33)	20.87 (7.58)	21.33 (8.04)	10.0%

Notes: Standard deviations are in parentheses.
Source: Labour Force Survey (LFS) from 2016 to 2022.

Table 3: OLS wage differential regressions

	(1)	(2)	(3)	(4)
	Manager	Manager	Non-manager	Non-manager
Firm size (by number of employees)				
20 to 99 employees	0.202*** (0.013)	0.167*** (0.010)	0.0733*** (0.003)	0.0604*** (0.003)
100 to 499 employees	0.286*** (0.012)	0.232*** (0.010)	0.133*** (0.006)	0.0916*** (0.007)
500+ employees	0.299*** (0.011)	0.240*** (0.008)	0.185*** (0.010)	0.133*** (0.008)
Controls				
Male	-	0.124*** (0.009)	-	0.146*** (0.007)
Age	-	0.0474*** (0.002)	-	0.0352*** (0.002)
Age squared	-	-0.000462*** (0.000)	-	-0.000395*** (0.000)
Married	-	0.0414*** (0.008)	-	0.0445*** (0.007)
Immigrant	-	-0.1000*** (0.010)	-	-0.136*** (0.010)
High school degree	-	0.0679*** (0.012)	-	0.0520*** (0.005)
Some postsecondary	-	0.121*** (0.013)	-	0.136*** (0.005)
Bachelor's degree	-	0.238*** (0.017)	-	0.260*** (0.008)

<i>Graduate degree</i>	-	0.288*** (0.020)	-	0.373*** (0.015)
<i>Union</i>	-	-0.0803*** (0.019)	-	0.0496*** (0.006)
<i>Tenure</i>	-	0.000310* (0.000)	-	0.00126*** (0.000)
<i>Tenure squared</i>	-	-0.000000361 (0.000)	-	-0.00000177*** (0.000)
CMA FE	Yes	Yes	Yes	Yes
MONTH FE	Yes	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes	Yes
MONTH#YEAR	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes
Observations	146,763	146,763	1,882,773	1,882,773
R-sq	0.110	0.328	0.079	0.391

Notes: The dependent variable is the log hourly earnings. All regressions are weighted using LFS weights. Robust standard errors in parentheses are clustered at the CMA/CA/rural areas levels. Significance levels: *** at 1%, ** at 5%, * at 10%.

Source: *Labour Force Survey (LFS)* from 2016 to 2022.

Table 4: Panel wage differential regressions

	(1)	(2)	(3)	(4)
	PANEL FE Manager	PANEL RE Manager	PANEL FE Non-manager	PANEL RE Non-manager
Firm size (by number of employees)				
<i>20 to 99 employees</i>	0.129*** (0.007)	0.168*** (0.005)	0.0459*** (0.001)	0.0510*** (0.001)
<i>100 to 499 employees</i>	0.148*** (0.007)	0.209*** (0.005)	0.0737*** (0.001)	0.0784*** (0.001)
<i>500+ employees</i>	0.181*** (0.007)	0.227*** (0.004)	0.105*** (0.001)	0.111*** (0.001)
Hausman test	Chi2=1,100.99 p-value=0.000	-	Chi2=17,106.29 p-value= 0.000	-
Observations	146,763	146,763	1,882,773	1,882,773
N. Individuals	43,462	43,462	473,164	473,164

Notes: The dependent variable is the log hourly earnings. Robust standard errors in parentheses: Significance levels: *** at 1%, ** at 5%, * at 10%. All specifications include control for time-varying workers characteristics, industry and year fixed effects.

Source: *Labour Force Survey (LFS)* from 2016 to 2022.

Table 5: OLS and panel wage differential regressions by skill level

	(OLS)	(OLS)	(OLS)	(PANEL FE)	(PANEL FE)	(PANEL FE)
	Manager	High skill	Low skill	Manager	High skill	Low skill
Firm size (by number of employees)						
<i>20 to 99 employees</i>	0.167*** (0.010)	0.0895*** (0.005)	0.0219*** (0.003)	0.129*** (0.016)	0.0634*** (0.003)	0.0210*** (0.004)
<i>100 to 499 employees</i>	0.232*** (0.010)	0.140*** (0.008)	0.0327*** (0.004)	0.148*** (0.017)	0.103*** (0.004)	0.0326*** (0.004)
<i>500+ employees</i>	0.240*** (0.008)	0.195*** (0.010)	0.0599*** (0.007)	0.181*** (0.018)	0.141*** (0.006)	0.0532*** (0.005)
Observations	146,763	1,086,767	796,006	146,763	1,086,767	796,006

Notes: The dependent variable is the log hourly earnings. Robust standard errors in parentheses: Significance levels: *** at 1%, ** at 5%, * at 10%. OLS specifications include control for time-varying and time-invariant workers characteristics, CMA FE, year FE, month time year FE and industry FE. Panel regressions include control for time-varying workers characteristics, industry and year fixed effects.

Source: *Labour Force Survey* (LFS) from 2016 to 2022.