

Glass Ceilings or Glass Doors? The Role of Firms in Male-Female Wage Disparities

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Objectives

- ▶ Do females face a glass ceiling in the labour market?
- ▶ Existence of a glass ceiling implies that females are under-represented in high-wage regions of the wage distribution, and this under-representation becomes more pronounced as we move up the wage distribution.
- ▶ Consequently, women will face larger wage gaps at the top of the wage distribution, than at the middle or bottom (comparing conditional quantiles of men's wage distribution with women's wage distribution using quantile regression method).
- ▶ This is the first study that investigates whether Canadian women face a glass ceiling (thus defined).

Objectives

- ▶ To what extent this economy-wide glass ceiling effect operates:
 - ▶ Within firms (defined as a "**within-firm glass ceiling effect**"): Females face wage disparities within firms with their male counterparts, and these within-firm gender wage disparities become larger as we move up the wage distribution
 - ▶ Between firms (defined as a "**glass door effect**"): Females are under-represented in higher-paying firms, and this under-representation becomes more pronounced as we move up the wage distribution
- ▶ This is the first study that measures the extent to which any observed economy-wide glass ceiling effect faced by females operates between firms versus within firms.

Summary of results (1)

- ▶ I find clear evidence that females face a glass ceiling in Canada.
- ▶ The glass ceiling effect is mainly driven by female's segregation into lower-paying firms (the glass door effect).

Objectives

- ▶ I also investigate some of the potential underlying sources of inter-firm wage differentials and inter-firm sex segregation.
- ▶ Gender differences in preferences, productivity, or discrimination?
- ▶ I empirically test the predictions of two competing theories: theory of compensating differentials versus efficiency wage theory.

Summary of results (2)

- ▶ I find no evidence in support of compensating differentials.
- ▶ However, my results are consistent with predictions of an efficiency wage model where high-paying firms discriminate against females.

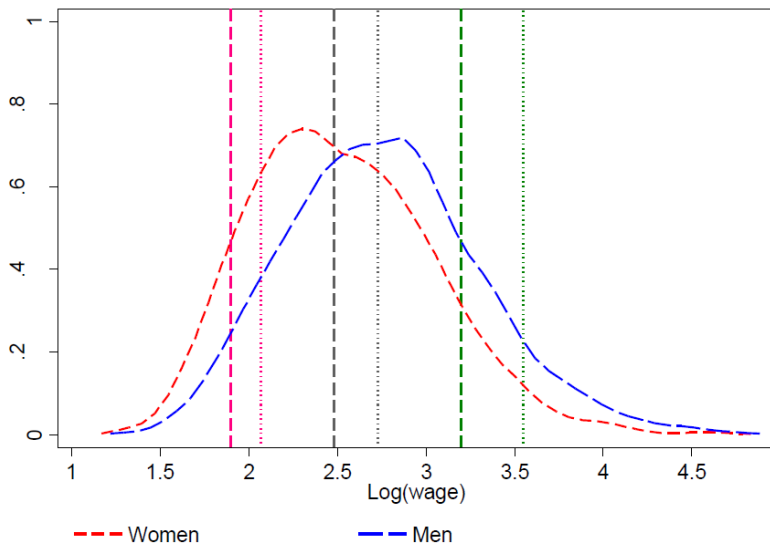
Economy-Wide Glass Ceiling Effect

- ▶ To investigate whether females face an economy-wide glass ceiling, I estimate the gender wage gap at several quantiles of the conditional wage distribution.
- ▶ I measure the gender wage gap at the τ^{th} quantile of the conditional wage distribution using a quantile regression that satisfies

$$(1) \Pr[W_i \leq X_i' \beta^\tau + g_i \delta^\tau | X_i, g_i] = \tau$$

- ▶ β^τ measures the returns to individual characteristics at the τ^{th} quantile.
- ▶ δ^τ measures the difference between the τ^{th} quantile of log wages of males and females, conditional on X_i .
- ▶ If δ^τ gets larger as we move up the wage distribution, this is evidence consistent with the existence of a glass ceiling.

Detecting Economy-Wide Glass Ceiling using Quantile Regression



The Glass Door Effect (Mean Wage Gap Case)

- ▶ The glass door effect arises if women are concentrated into low-paying firms and under-represented in high-paying firms, compared to their male counterparts.
- ▶ To measure the glass door effect, I apply a methodology developed by Pendakur and Woodcock (2010) in the context of native-immigrant wage differentials.

The Glass Door Effect (Mean Wage Gap Case)

- ▶ Pendakur and Woodcock (2010) show that we can measure the glass door effect by comparing the economy-wide and within-firm gender wage gap.
- ▶ Average economy-wide gender wage gap ($\widehat{\delta}$) is estimated using (2) $E[W_i|X_i, g_i] = X_i'\beta + g_i\delta$
- ▶ Average within-firm gender wage gap ($\widetilde{\delta}$) is estimated using (3) $E[W_i|X_i, g_i, f_i] = X_i'\beta + g_i\delta + f_i'\psi$
 - ▶ f_i is a vector of firm indicators and ψ is a vector of firm effects which measure interfirm differences in average wages, conditional on worker characteristics X_i and gender g_i .
- ▶ $(\widehat{\delta} - \widetilde{\delta})$ measures the contribution of gender differences in sorting across firms to the average gender wage gap.

Data: The Workplace and Employee Survey

- ▶ The survey was administered from 1999 to 2005.
- ▶ Statistics Canada collected data from representative sample of workplaces, and random sample of employees of those firms.
- ▶ The employer sample is longitudinal.
- ▶ The sampled employees are only followed for one year, and there is a new sample of employees selected on every odd year (i.e. in 1999, 2001, 2003 and 2005).
- ▶ The analysis sample comprises of 70,345 employees of 6,372 firms.

Variables

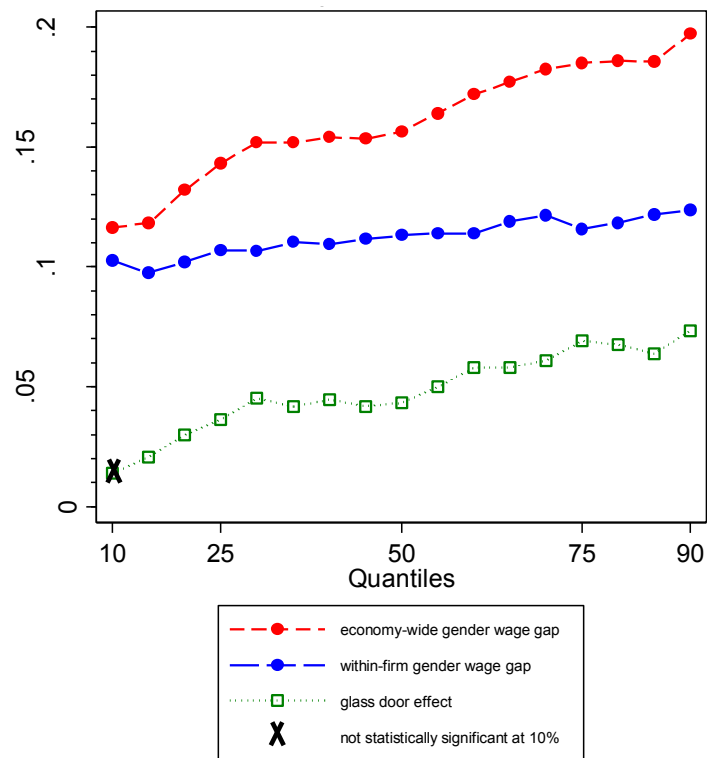
- ▶ **Dependent variable:** $\log(\text{hourly wage})$
- ▶ **Individual characteristics:** education (8 categories), marital status (6 categories), age (9 categories), number of dependent children (5 categories), labor market experience, immigration status
- ▶ **Job characteristics:** seniority with the current employer, an indicator for full-time employment, occupation (6 categories), union coverage

Table 1: Economy-wide and within-firm gender wage gaps, and glass door estimates

	All workers		
	Economy wide (1)	Within firms (2)	Glass door (3)
Mean wage differential	-0.160*** (0.008)	-0.113*** (0.007)	-0.047*** [0.000]
Quantile differential			
10 th percentile	-0.117*** (0.017)	-0.103*** (0.010)	-0.014 [0.335]
Median	-0.156*** (0.011)	-0.113*** (0.006)	-0.043*** [0.000]
90 th percentile	-0.197*** (0.019)	-0.124*** (0.013)	-0.073*** [0.000]
Number of observations	70,345	70,345	

Notes: Standard errors are in parentheses, p-values for glass door test are in brackets. *** indicates statistically significant at 1%, ** indicates statistically significant at 5%, and * indicates statistically significant at 10%. All regressions are based on pooled samples of all males and females. Gender wage gap estimates for different subsamples are generated using interaction between gender and appropriate indicators.

Figure 3: Sample of all workers



Possible Explanations: Compensating Differentials

- ▶ The theory of compensating differentials tries to explain inter-firm wage differentials through
 - ▶ differences in working conditions
 - ▶ gender differences in preferences over working conditions.
- ▶ Men and women value particular features of their jobs differently
 - ▶ Men care more about wages
 - ▶ Women care more about non-pecuniary aspects of a job (flexible/pleasant/less stressful working conditions)
- ▶ Therefore, men sort into higher-paying firms while women choose lower-paying firms

Possible Explanations: Compensating Differentials

- ▶ **Test 1:** adding extra control variables:
 - ▶ possibility to work flexible hours
 - ▶ possibility to carry out work duties at home
 - ▶ indicators of inability to work more hours due to
 - ▶ unavailability of childcare
 - ▶ personal and family responsibilities
 - ▶ going to school
 - ▶ transportation problems
 - ▶ family income from employment and family income from other sources (excluding the worker).
- ▶ **Test 2:** looking at inter-firm job satisfaction

Table 4: OLS regression results, Firm-specific premiums and worker characteristics

	All workers	Male only	Female Only
Very satisfied or satisfied with current job	-0.004 (0.007)	-0.001 (0.011)	-0.008 (0.010)
Indifferent about current job	0.014 (0.053)	0.084 (0.053)	-0.094 (0.077)
Very satisfied with job's pay	0.173*** (0.015)	0.179*** (0.021)	0.160*** (0.017)
Satisfied with job's pay	0.109*** (0.014)	0.106*** (0.020)	0.106*** (0.015)
Dissatisfied with job's pay	0.049*** (0.013)	0.053*** (0.019)	0.043*** (0.015)
Indifferent about job's pay	0.005 (0.051)	-0.002 (0.065)	0.016 (0.080)
Number of observations	70345	40230	30115

Notes: the dependent variable is estimated firm effects after controlling for workers and job characteristics. The regressions also include control for highest level of schooling (8 categories), marital status (6 categories), Age (9 categories), number of dependent children (5 categories), a quartic in years of (actual) full-time labor market experience, a quadratic in years of seniority with the current employer, an indicator for full-time employment, occupation (6 categories), an indicator for membership in a union or collective bargaining agreement, indicators for being a Canadian born visible minority, white immigrant, or a visible minority immigrant

Possible Explanations: Efficiency Wage Theory

- ▶ Efficiency wage theory provides another potential explanation for inter-firm wage differentials [Shapiro and Stiglitz (1984), Stiglitz (1986), Bowles (1985), Bulow and Summers (1986), Yellen (1984)] .
- ▶ Firms might find it profitable to pay above market clearing wages to increase effort, reduce shirking, lower turnover, attract a higher quality workforce, increase productivity, etc.
- ▶ If the conditions necessitating efficiency wage payments differ across firms, then the optimal wage will also differ across firms.
- ▶ Therefore, workers with identical productive characteristics may be paid differently depending on their firm affiliation.

Table 4: Firm specific premium and firms average characteristics

<i>Number of Employees:</i>		
20-99	0.027**	(0.010)
100-499	0.081***	(0.013)
500 or more	0.122***	(0.031)
<i>Number of competing firms</i>		
Zero	- 0.025	(0.025)
1 to 5	- 0.066***	(0.018)
6 to 20	- 0.047***	(0.016)
<i>Foreign ownership</i>		
1 to 49 percent	- 0.008	(0.027)
50 to 90 percent	-0.104	(0.064)
90 to 100 percent	0.028	(0.018)
Existence of any employment equity program	0.007	(0.027)
Existence of any pay equity program	0.052*	(0.028)
Proportion of fulltime workers	0.142***	(0.032)
Proportion of workers covered by a collective bargaining agreement	0.015	(0.023)
Good rating of labor-management relations	- 0.009	(0.012)
Existence of any innovative work practices	- 0.033**	(0.015)
Quit rate	-0.171***	(0.063)
Log of value added per worker (proxy for productivity)	0.066***	(0.007)
Log of training expenditures per worker	0.006***	(0.002)
z-score measure for provision of different benefits	0.006***	(0.001)
Existence of incentive schemes in the compensation system	0.069***	(0.014)
Number of observations	14015	
Adjusted R-squared	0.416	

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 and all the standard errors are computed using 100 sets of bootstrap weights provided by Statistics Canada. For a detailed description of variables included in the regression please refer to the data appendix. The regression also includes control for industry.

Possible Explanations: Efficiency Wage Theory

- ▶ How does efficiency wage theory help us understand the inter-firm gender differences in sorting?
- ▶ It is difficult to think of a supply-side reason that explains why women would avoid firms with higher-wages.
- ▶ Since a central element in efficiency wage theory is wage differentials that are unrelated to productivity differentials across workers, it is natural to think that it can provide the basis for a theory of discrimination.
 - ▶ Yellen (1984) argues that in the context of efficiency wage model, employers can costlessly discriminate against a group of workers with some observable characteristics.
 - ▶ Bulow and Summers (1986) also develop an efficiency wage model that rationalizes discrimination based on group differences that are unrelated to productivity.

Discrimination and Efficiency Wage Theory

- ▶ Why would firms discriminate against females in an efficiency wage model?
- ▶ Firms paying efficiency wages would believe it is not optimal to hire women if they assume that
 - ▶ Females don't alter their behavior in response to higher wages, for instance because they are less career oriented or less productive.
 - ▶ It takes a higher wage increment to deter women's behavior like shirking because they have higher quit rates and as a result the cost of losing their job is less than the cost for men.

Testing for Discrimination against Females

- ▶ Adopt a test proposed by Hellerstein et al. (1997) based on the static prediction of Baker's discrimination theory.
- ▶ I examine the cross-sectional relationship between profitability and the sex composition of the workforce.
- ▶ In the absence of employment discrimination against females, then there should be no relationship between profitability and the sex composition of the workforce.

Testing for Discrimination against Females

- ▶ I find that a 10 percentage point increase in the proportion of females in the firm increases the firm's profit rate by 0.7 percentage points.
- ▶ This is a 4% increase in the average profit rate.
- ▶ This is after controlling for
 - ▶ different characteristics of the workforce within firms
 - ▶ Industry
 - ▶ Firm size
 - ▶ Degree of competition

Conclusions

- ▶ There is clear evidence of the existence of an economy-wide glass ceiling in Canada.
- ▶ The economy-wide glass ceiling effect is mainly driven by the glass door effect.
- ▶ I don't find any evidence in support of compensating differentials.
- ▶ However, my results support the predictions of an efficiency wage model where higher-paying firms discriminate against females.

Conclusions

- ▶ The policy implications of my results are two-fold:
- ▶ First, policies that aim to eliminate the glass ceiling will be more effective if they focus on mechanisms that lead women to sort into lower-paying firms.
- ▶ Second, more general policies that try to improve females' labor market outcomes throughout the wage distribution will be more effective if they focus on practices that improve females' labor market performance within firms.
- ▶ Finally, given the sizable within-firm gender wage gap throughout the wage distribution, further research to identify the sources of within-firm gender wage gap is more important than previously thought.