The Gender Gap in Labour Force Participation in Canada

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Abstract

This paper uses data from the March 2014 Labour Force Survey of Statistics Canada and a logistic model to analyse the marginal effect of various socioeconomic variables on female and male labour force participation rates. It also uses the Blinder-Oaxaca decomposition method to determine the major reasons for the gender gap. One of the crucial findings is that the gender gap in labour force participation between women and men with less than a college-level education is higher than the gap for all men and women. For those with more than a college education the gender gap is less than the gap for all men and women. For those with a master's degree, the gender gap is only 1 percentage point. Additional, the maximum gender gap is 25 percentage points, which occurs when the age of the youngest child is less than 2 years old. The minimum gender gap is only 2 percentage points when the age of the youngest child is more than 18 years. Finally, marital status and a larger family size also negatively affect the female labour force participation rate and widen the gender gap.

Contents

1 Introduction

In 1951, the female Canadian labour force participation rate was only 24.1%.[1] By 1981, there had been a great increase in the female participation rate in Canada to 51.8%, which constitutes a doubling. The main reason for the increase in the female labour force participation rate is that more and more married women, even those with young children, go out to join the labour market (Killingsworth and Heckman, 1986). More recently, over the 20 years from 1993 to 2013, the overall labour force participation rate increased by 1.2 percentage points, from 65.3% in 1993 to 66.5% in 2013. However, as Graph 1 shows, the female Canadian labour force participation rate grew by 4.4 percentage points from 57.7% to 62.1%; that for men fell 2.2 percentage points from 73.3% to 71.1%.

Even though the gender gap (i.e., the difference between Canadian male and female labour force participation rates) fell over this 20 year period, from 15.6 percentage points in 1993 to 9.0 percentage points in 2013, it has remained stable at 9.0 percentage points for the last 5 years. Why does this gender gap persist? What are the major reasons why this gender gap remains? These are the questions that this paper will attempt to answer.

This paper uses data from the March 2014 Labour Force Survey of Statistics Canada and a logistic model to analyse the marginal effect of various socioeconomic variables on female and male labour force participation rates. It also uses the Blinder-Oaxaca decomposition method to explain the major reasons for the gender gap for the following three samples:

[1] According to Statistics Canada, "the employed are persons having a job or business, whereas the unemployed are without work, are available for work, and are actively seeking work. Together the unemployed and the employed constitute the labour force." (Statistics Canada 2008)

a) the full sample;

b) a sub-sample of persons with education levels above the college level and with children aged 16 years and above; and

c) a sub-sample of persons with an education level less than the college level.

The paper is structured as follows. Section 2 consists of a review of the relevant literature regarding the gender gap between female and male labour force participation rates. Although there have been many studies of female labour force participation, fewer researchers have directly examined the gender gap in participation rates. Section 3 presents an econometric model and explains the logistic model and choice of the application of the Blinder-Oaxaca decomposition method. Section 4 discusses the data, variables and their summary statistics. Section 5 provides empirical results and interpretation. Section 6 concludes the paper.

2 Literature Review

Women generally have lower rates of labour force participation than men (Waldfogel 1998). Various studies have empirically examined possible explanations for this result in terms of: a) marital status (i.e., women have more household responsibilities); b) the presence of children (i.e., women have more maternal and child-care responsibilities); and c) long-term absences from the labour market.

Not many studies have looked at gender differences (i.e., the gap) in labour force participation rates. However, there is a considerable literature on gender differences in wages, some of which sheds light on factors likely to influence labour force participation. A few studies use the Blinder-Oaxaca decomposition method to evaluate the gender difference in labour force participation. I consider each of these bodies of literature below.

2.1 Gender Differences in Wages/Earnings

Several studies (Waldfogel 1997; Waldfogel 1998; Budig and England 2001) find that women with children experience a wage penalty. Penalties are larger for married women. The authors believe that the main reason why women have lower wages in the presence of children is that mothers spend more time at home to care for children, which may make them less productive at work. As a result, in mothers lose the chance to gain more work experience, and take absences from work, which reduces their ability to obtain promotions to higher paying positions.

Waldfogel (1997) studies the negative influence of marriage and children on women's wages by considering work experience, age, parental status, and family status. The study applies pooled cross-sectional models, difference models, and fixed-effects models to data drown from the National Longitudinal Survey of Young Women from 1968 to 1988 in the United States. The research finds that married women with one child receive a 4 percent wage penalty, and those with two or more children face a 12 percent wage penalty. Waldfogel finds that the wage gap between married men and women is much bigger than the wage gap between single men and single women. Additionally, Waldfogel observes that married women with children who are employed part-time receive about a 10 percent wage penalty relative to similar women employed full-time. Finally, Waldfogel finds that women's education level has a positive effect on their labour force participation.

Waldfogel (1998) uses data (1980/1991) from the National Longitudinal Survey of Youth for young women to explore the gender wage gap and the wage gap between women with and without children in the United States. The research finds that the ratio of single women's pay to single men's pay was 0.88, but the ratio of married women's pay to married men's pay was 0.57 in 1994 in the United States. This means the gap between these two ratios was 31 percentage points; in another words, married women received less pay relative to men than single women. The same case is mirrored in comparable results for Norway, Sweden, Australia, the United Kingdom and Germany, where the gap between the ratio of single women's pay to single men's pay and the ratio of married women's pay to married men's pay ranges from 22 percentage points to 38 percentage points. The research also shows that the wage gap between women with children and women without children grew over time, despite a decline in the overall gender wage gap in the U.S. Also, women who keep their employment position and title regardless of having children earn higher wages on average (supporting the belief that the effect of children on women's wages is largely from reduced work experience arising from time spent out of the labour force). The author encourages the U.S. government to improve its welfare system to provide mothers with very young children more opportunity to maintain their job status and to reduce the gender wage gap.

Budig and England (2001) analyze National Longitudinal Survey of Youth (NLSY) data on women working from 1982 to 1993. They also find that married women earn less than single women when they control for other effects. Women with young children have a 7 percent wage penalty per child (i.e., child presence effect). Moreover, penalties are larger for married women with more children. The authors believe that the main reason why women have lower wages in the presence of children is that the mothers spend more time at home to care for children, which makes them less productive at work. Secondly, mothers lose the chance to gain more work experience, creating an interruption from work which reduces their ability to get higher paying positions. The study suggests that employers may discriminate against women with children in the labour market.

2.2 Female Labour Force Participation

Numerous studies for Canada and other countries have explored the factors associated with female labour force participation. Several studies (Powell 1997; Bratti 2003; Antecol 2003) find that women with young children have a significantly lower labour force participation rate. Powell also finds significant regional differences in the gender gap for labour force participation among Canadian provinces. Several studies (Powell 1997; Bratti 2003) also find that a higher level of woman's education has a significantly positive effect on the probability of labour force participation and hours of work. Antecol (2003) speculates that the participation rate of women would be higher if the average male attitude was supportive of women working outside of the home.

Powell (1997) examines the relation between the labour supply of married Canadian mothers and their child care costs using data from the 1988 Canadian National Child Care Survey and Labour Market Activity Survey. Her study finds that improving the mother's education level would greatly promote their labour force participation and lengthier working hours. The study also observes that mothers whose youngest child is aged less than 6 years old had a significantly lower labour force participation rate. Furthermore, the research shows that reducing the cost of taking care of children (i.e., if the government pays more benefits to mothers with children) and raising the family income both increase female labour force participation and hours of work.

Bratti (2003) looks at the effect of women's education on the joint outcomes of both a) female labour force participation; and b) marital fertility (at ages 21-39). Using data from the 1993 survey of Household Income and Wealth (Bank of Italy), Bratti applies a logistic model to find out how women's labour force participation depends on their level of education. The research shows that the social and cultural factors of gender roles in Italy have strong influence on female labour force participation. There is a cultural expectation that women pay close attention to and spend a lot of time taking care of their family and children, whereas men earn as much as possible to support their family's spending. This is another reason why male labour force participation is much higher than female labour force participation. The higher a woman's level of education, the higher the probability of her participating in the labour market. This study's results encourage the Italian government to pay more attention to female education and change gender roles in society in order to enhance female labour force participation.

Lastly, Antecol (2003) analyses 1994 data from the International Social Survey Programme (ISSP) including countries from Eastern Europe (EE) and the Former Soviet Union (FSU), Europe, the Middle East, Asia, North America, and Oceania. The study indicates that cultural norms and context play a role in explaining differences in female labour force participation across countries. The report found substantial cross-country variation in female labour force participation after controlling for socio-demographic factors (such as marital status) and human capital characteristics (such as education). There is a significant positive correlation between the cross-country variation in average male attitudes toward women's role in raising children and family responsibilities and the level of female labour force participation. If average male attitudes are supportive of women working instead of remaining at home to do housework, we would expect that women's labour force participation rates would be higher.

2.3 Gender Differences in Labour Force Participation

A few studies (Antecol 2000; Gangl and Ziefle 2009; Chiu and Chen 2012; Gunalp et al. 2013) use the Blinder-Oaxaca decomposition method to evaluate gender differences in labour force participation and decompose them into "explained" (attributable to variation in characteristics) versus "unexplained" (attributable to variation in coefficients) components.

Antecol (2000) examines cross-country differences and the effect of cultural factors on the gender gap in labour force participation for the United States, using the ILO Yearbook of Labour Statistics in 1972–1992 (for home country labour force participation rates) and the U.S. Census for 1990 (for home country labour force participation rates) for immigrants between the ages of 25 and 54 years. The gender gap (between men and women) across home countries varies from 2.2 percentage points for Sweden (the smallest) to 89.4 percentage points for Afghanistan (the largest). For first generation immigrants, over half of the gender gap for labour force participation in the United States can be explained by home country labour force participation and their underlying cultural norms, family structure and women's role in home work. However, for second generation immigrants, these home country factors have much less influence on gender labour force participation rates.

Gangl and Ziefle (2009) investigate women's labour force participation and the wage penalty associated with motherhood using the data for women born between 1960 and 1969. The data were obtained from the U.S. National Longitudinal Survey of Youth (NLSY, 1979-1996), the German Socio-Economic Panel (1984-2001), and the harmonized longitudinal data from the British Household Panel Survey (BHPS, 1991-2001). The study finds a wage penalty, reduced working hours and lower labour force participation associated with motherhood. The research identifies several reasons for these results: a) female work interruptions for child bearing and child-care activities; b) women losing the opportunity to obtain more skills and working experience due to taking care of family and children; and c) employer discrimination against women with children due to traditional attitudes and ideas.

Chiu and Chen (2012) study the determinants of male labour force participation for 51,730 older (55-64 years) married men using the Taiwan Manpower Utilization Surveys from 1988 to 2008. They use the Blinder-Oaxaca decomposition method to explain the reason for the decline in their labour force participation rate from 71.7% (1988) to 62.7% (2008). The results point out a positive relationship between a couple's (husband and wife) labour force participation rates. However, the regional unemployment rate negatively affects both partners' likelihoods of labour force participation. For instance, an increase in the regional unemployment rate of one percentage point is associated with a decrease of 1.5-1.7 percentage points in older men's labour force participation. Higher education levels for older married men and women are associated with higher labour force participation rates. Higher educational attainment for older women is positively correlated with the higher labour force participation of the husband. The above factors can explain about 46% of the variation (i.e., the reduction over time) in older married men's labour force participation; 54% is unexplained by the characteristics of men or women (the coefficient effect).

Gunalp et al. (2013) study gender differences in labour market participation and the extent of gender-based wage discrimination in Turkey using Household Budget Surveys for 2003 and 2010. The study finds evidence to attribute gender wage differences to labour market discrimination against women using two methodologies: a) the Oaxaca–Blinder decomposition method; and b) the Juhn–Murphy–Pierce decomposition method.[2] The Turkish female labour force participation rate was very low at 23.5% in 2009, as compared to EU-19 countries' rates of about 64 percent (World Bank, 2009). Human capital theory suggests that the higher an individual's level of education, the greater his/her probability of participating in the labour force. In Turkey, the effect of education on the probability of women's labour force participation is disproportionally greater than is the case for men. Women who are married or are the mother of a small child are likely to have lower labour force participation rates. By contrast, men who are married have higher labour force participation, and there is no effect for men who are fathers of small children. In traditional Turkish family culture, men are the primary bread-winners, while women have family and child-care roles. If the family size is very large, it has a negative effect on female labour market participation. The research uses Oaxaca–Blinder decompositions to conclude that about 60 percent of the gender earnings gap is attributable to discrimination against women in Turkey.

Kalb et al. (2012) evaluate the difference in labour force participation rates between indigenous and non-indigenous Australians using the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) (for indigenous people) and the 2008 Household, Income and Labour Dynamics Australia (HILDA) Survey (for non-indigenous Australians). They use the Blinder-Oaxaca decomposition method to explain the gap in labour force participation between the two groups in non-remote areas based on techniques presented in Bauer and Sinning (2008) and Powers et al. (2011). They find that the labour force participation rate is increasing with age from 15 years and then decreasing with age after 45 years (both indigenous and non-indigenous). This structure is called a concave profile. Health status and education level have significant

[2] The Juhn-Murphy-Pierce (JMP) method includes the error term and allows one to decompose the wage gap not only at the mean, but also at different points in the wage distribution.

positive effects on both labour force participation and employment for both men and women, whether indigenous or non-indigenous. There is no clear influence of geographic location for non-remote areas. There is a larger negative effect associated with the presence of children for women than for men (both indigenous and non-indigenous). The report uses Oaxaca–Blinder decompositions to show that about 42% of the gap in labour force participation between indigenous and non-indigenous Australians can be explained by differences in health status, lower education level, larger families, and so on. About 58% of the gap is unexplained by individual characteristics but attributable to the coefficient effect for ages 15-64.

2.4 Summary of Literature Findings and Gaps

To summarize the research above, female and male labour force participation rates are primarily the result of: a) age, which affects labour force participation first with an increase from age 20 years to a maximum around age 49 years, and then a decline thereafter (i.e., a concave profile); b) the presence of children (i.e., women have more maternal and child-care responsibilities); c) absences from the labour market, which have a negative effect for both men and women; d) work experience, which has a positive effect for both men and women; e) marital status (i.e., women have more household responsibilities); and f) education level, which has a positive effect for both men and women. This summary will help us select the variables of most interest for an analysis of the gender gap in labour force participation rates. This paper uses the Blinder-Oaxaca decomposition method, which has been used in the literature to decompose the gender gap in both wages and labour force participation into "explained or characteristics “and "unexplained or coefficient" components based on the variables included in the model.

3 Econometric Model

This paper uses a logistic regression model to calculate the marginal effect on labour force participation of each explanatory variable, such as age, education, marriage, geographical location, and so on. Moreover, I use the Blinder-Oaxaca Decomposition to distinguish between the "explained" and "unexplained" components.

3.1 Why use the logistic model?

Given a dummy dependent variable Y_j, it would be very simple to estimate the following linear regression model:

$$Y_j = \sum_{i=1}^{k} x_{ij}\beta_i + \mathcal{E}_j\,, \quad j = 1,2, \dots \dots n, \qquad (1)$$

where j indexes individuals, n is the number of individuals, the x_{ij} are explanatory variables,

the β_i are the coefficients of the explanatory variables, $\mathcal{E}_j$ is the error term, and

$$P(Y_j = 1) = E(Y_j) = \sum_{i=1}^{K} x_{ij}\beta_i \quad .$$

This model is known as a linear probability model. It is easy to interpret. However, one disadvantage of this model is that the predicted probability may be out of the [0, 1] range. Furthermore, since Y_j is a binary variable, $\mathcal{E}_j$ does not have a normal distribution, and it is high heteroscedasticity.

Using a logistic model can resolve these disadvantages, but it is not as easy to interpret the coefficients of the model. Let $Y_j = 1$ indicate that individual j is in the labour force. Then the logistic model can be expressed as follows:

$$\ln \frac{P(Y_j = 1)}{1 - P(Y_j = 1)} = \sum_{i=1}^{k} x_{ij}\beta_i \qquad j = 1,2, \dots \dots n \qquad (2)$$

or

$$\frac{P(Y_j = 1)}{1 - P(Y_j = 1)} = e^{\sum_{i=1}^{k} x_{ij}\beta_i}$$

or

$$P\left(Y_j = 1\right) = \frac{e^{\sum x_{ij}\beta_i}}{1 + e^{\sum_{i=1}^{k} x_{ij}\beta_i}}. \qquad (3)$$

In the linear probability regression model, it is easy to show that $\frac{dP(Y_j=1)}{dx_i} = \beta_i, i = 1,2 \dots \dots k$. In the logistic model, equation (3) defines $\beta\left(Y_j = 1\right)$, so the marginal effect of a change in x_{ij} is

$$\frac{\partial P(Y_j=1)}{\partial x_{ij}} = \beta_i \frac{e^{\sum_{i=1}^{k} x_{ij}\beta_i}}{\left(1+ e^{\sum_{i=1}^{k} x_{ij}\beta_i}\right)^2} \qquad (4)$$

If x_{ij} is a dummy variable, the marginal effect is the discrete change in $P(Y_j = 1)$ as x_{ij} changes from 0 to 1. Because every individual j is different, I use average marginal effects in this paper; i.e. the marginal effects are computed by evaluating (4) for each individual in the sample, and then averaging over these marginal effects in order to generate the estimate of the overall marginal effect.

3.2 The Blinder-Oaxaca Decomposition

The Blinder-Oaxaca Decomposition is widely used to study wage differentials by race, gender and so on. This method was first used by Blinder (1973) and Oaxaca (1973) to examine male-female wage differentials. Their method allows researchers to decompose differences between groups into differences not only in the independent variables, but also in the coefficients. These differences in coefficients are called the "unexplained" part of the differential. Thousands of studies have used this type of method to study outcomes such as wages and college attendance, but very few studies have focused on labour force participation outcomes.

In this paper, I try to use this method to determine what the main reason for the gender gap in labour force participation is. Given two groups, female (*F*) and male (*M*), let Y indicate labour force participation, and *X* indicate a set of predictors such as age, location, education, family size, child age and marital status. The question now is how much each factor contributes to the difference (*R*) in labour force participation rates between females and males, given by

$$R = E(Y_F) - E(Y_M), \qquad (5)$$

where *E(Y)* denotes the expected value of the labour force participation rate.

For example, consider the linear model

$$Y_F = X_F'\beta_F + \varepsilon_F, \qquad E(\varepsilon_F) = 0 \qquad (6)$$

$$Y_M = X_M'\beta_M + \varepsilon_M, \qquad E(\varepsilon_M) = 0 \qquad (7)$$

where *X* is a vector containing the predictors and a constant, β is a vector containing the coefficients and the intercept, and ε is the error term. Putting equations (6) and (7) into equation (5), one obtains

$$R = E(Y_F) - E(Y_M) = E(X_F)'\beta_F - E(X_M)'\beta_M \ . \qquad (8)$$

Now add the term $E(X_M)'(\beta_F) - E(X_M)'(\beta_F)$ to equation (8) to obtain the Blinder-Oaxaca Decomposition:

$$R = [E(X_F) - E(X_M)]'\beta_F + E(X_M)'(\beta_F - \beta_M)\,. \qquad (9)$$

Decomposition (9) was proposed by Blinder (1973) and Oaxaca (1973). The first term, $[E(X_F) - E(X_M)]'\beta_F$, is called the endowment effect (or explained effect); it is the part of the differential caused by group differences in the average values of the predictors. The second term, $C = E(X_M)'(\beta_F - \beta_M)$, is known as the coefficients effect (or unexplained effect). Equation (9) has since been modified by various authors. For example, Oaxaca and Ransom (1994) use the counterfactual coefficient vector β^* from a pooled model as the reference coefficient vector.

Alternatively, one can add the term $[E(X_F)]'\beta_M + E(X_M)'(\beta_F) - E(X_F)'\beta_M - [E(X_M)]'(\beta_F)$ to equation (8), as do Jones and Kelley (1984) and Daymont and Andrisani (1984). In this case, I obtain

$$R = [E(X_F) - E(X_M)]'\beta_M + E(X_M)'(\beta_F - \beta_M) + [E(X_F) - E(X_M)]'(\beta_F - \beta_M) \quad . \qquad (10).$$

Thus, R can be written as the sum of three terms:

$$R = E + C + I.$$

The first term, $E = [E(X_F) - E(X_M)]'\beta_M$, is called the endowment effect described above. The second term, $C = E(X_M)'(\beta_F - \beta_M)$, is the coefficients effect, also described above. It is a weighted sum of group differences in the coefficients. The third term, $I = [E(X_F) - E(X_M)]'(\beta_F - \beta_M)$, is called an interaction effect because it depends on both endowments and coefficients.

Note that the procedures outlined above apply to linear models such as the linear probability model. In this paper I use a logistic model, which is more difficult to decompose than the linear probability model; however, the idea is the same as the Oaxaca decomposition for the linear regression model. It involves estimating the value of $E(X_F)$ and $E(X_M)$ by calculating average predicted values after the logistic regression has been estimated.

Following Fairlie (2005), the decomposition for a nonlinear equation is based on

$$Y_F = \sum_{j=1}^{N^F} \frac{F(X_{Fj}'\beta_F)}{N^F}; \quad Y_M = \sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_M)}{N^M} \quad ; \quad R = Y_F - Y_M \qquad (11).$$

where $F(X_j'\beta) = \frac{e^{\sum_{i=1}^{k} x_{ij}\beta_i}}{1+e^{\sum_{i=1}^{k} x_{ij}\beta_i}}$. and j indexes individuals. If one adds

$\sum_{j=1}^{N^M} \frac{F(X_M'\beta_F)}{N^M} - \sum_{i=1}^{N^M} \frac{F(X_M'\beta_F)}{N^M}$ to the right-hand side of R in (11), the equivalent of equation (9) in the nonlinear case can be written as

$$R = Y_F - Y_M = \left[\sum_{j=1}^{N^F} \frac{F(X_{Fj}'\beta_F)}{N^F} - \sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_F)}{N^M}\right] + \left[\sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_F)}{N^M} - \sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_M)}{N^M}\right], \qquad (12)$$

where N^F the sample is size for females and N^M is the sample size for males.

Now add $\left[\sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_F)}{N^M} - \sum_{j=1}^{N^M} \frac{F\left(X_{Mj}'\beta_F\right)}{N^M} + \sum_{j=1}^{N^F} \frac{F\left(X_{Fj}'M\right)}{N^F} - \sum_{j=1}^{N^F} \frac{F(X_{Fj}'M)}{N^F}\right]$ to equation (11). Then the equivalent of equation (10) for a non-linear equation can be expressed as

$$R = Y_F - Y_M = \left[\sum_{j=1}^{N^F} \frac{F(X_{Fj}'M)}{N^F} - \sum_{j=1}^{N^M} \frac{F(X_{Mj}'M)}{N^M}\right] + \left[\sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_F)}{N^M} - \sum_{j=1}^{N^M} \frac{F(X_{Mj}'\beta_M)}{N^M}\right] +$$

$$\left[\sum_{j=1}^{N^F} \frac{F(X_{Fj}'\beta_F)}{N^F} - \sum_{j=1}^{N^M} \frac{F\left(X_{Mj}'\beta_F\right)}{N^M} + \sum_{j=1}^{N^M} \frac{F\left(X_{Mj}'M\right)}{N^M} - \sum_{j=1}^{N^F} \frac{F(X_{Fj}'M)}{N^F}\right] = E + C + I \qquad (13)$$

where $E, C,$ and I are defined as for equation (10).

4 Data, Variables, and descriptive Analysis

My aim is to assess the differences between females and males in the Canadian labour market and identify the personal characteristics that are significantly related to those differences. Therefore, I need data on individuals' labour market activities. In this section I will provide an overview of the data used, and define the dependent and independent variables that will be included in the logit models

4.1 Data

I use data from the March 2014 Labour Force Survey (LFS) of Canada. The LFS is a monthly survey of Canadian households that focuses on the employment status of households and other employment related variables. I want to evaluate the most recent information about the Canadian labour force, so I selected data for the month of March 2014. Other possible data sources such as the Census or the Survey of Labour and Income Dynamics are less up-to-date than the LFS. The LFS also provides information on the personal characteristics of the working-age population, such as a person's age, location of residence, highest education level attained, marital status, sex, age of the youngest child from 0 to 24 years old, and labour force status of the spouse.

The total sample size of the March 2014 LFS is 104,323. Of these individuals, 66,594 were in the labour force. The labour force participation rate is equal to the labour force divided by the total sample size of the LFS (as long as only working-age individuals are sampled), which is 66,594/104,323 or 63.8%. The male and female labour force participation rates are 68.5% and 59.4% respectively. There are no missing observations for the dependent variable, labour force participation. But for the student status variable, there are missing values. This analysis includes both full-time and part-time students and some are missing student status.

4.2 Dependent variable

In order to analyse labour force participation, I use a binary dependent variable: *labour force participation*. The label of this variable in the LFS is "LFSSTAT". This variable indicates whether the respondent is in the labour force or not. It is defined using the survey information on the labour market activity of the population aged 15 and older in March 2014. Respondents were classified as "Employed, at work;" "Employed, not at work;" "Unemployed, on temporary layoff"; "Unemployed, job searcher;" or "Not in the labour force". The labour force consists of both the employed and the unemployed. The variable *labour force participation* is equal to one if a person is in the labour force, and it is equal to zero otherwise (Table 1 and A1).

4.3 Independent variables

After reviewing the literature, I know which independent variables to include in my models, including age, education level, marital status, province, big city, family size, youngest child age, spouse status, and so on. The age variable in the public use LFS file is a categorical variable. Therefore I cannot easily create a work experience variable using the age of the respondents. Instead I created dummy variables representing the different age groups, which are 15 to 19 (*age15_19*), 20 to 24 (*age20_24*), 25 to 29 (*age25_29*), 30 to 34 (*age30_34*), 40 to 44 (*age40_44*), age of 45 to 49 (*age45_49*), 50 to 54 (*age50_54*), 55 to 59 (*age55_59*), 60 to 64 (*age60_64*), and age 65 and above (*age65_up*). The 35 to 39 age group is the reference age group.

In order to investigate the effect of geographical location on female and male labour force participation, indicator variables for large cities and the province where the current residence is located are included. The urban area variable has been separated into four categories; they are

Montreal, Vancouver, Toronto and other (rest of Canada). The city of Toronto is the reference. The provinces have been divided into Newfoundland, Prince Edward Island (PEI), Nova Scotia (NS), New Brunswick (NB), Manitoba, Saskatchewan, Alberta, British Columbia (BC), and Quebec; Ontario is the reference province.

Family structure is vital to the labour force participation decisions of married women, as the studies reviewed earlier have shown. Furthermore, if one's spouse earns much more than the average level, one will be more likely to be out of the labour force. Therefore, both the event of being married as well as the variable spousal income is expected to be negatively related to the labour supply of married women and men. Unfortunately, there is no information about spousal income in the LFS, so I cannot include this variable in my research.

To analyze the role of these variables, marital status has been grouped into two classes: married or living in common-law, denoted *MAR1_2*; and widowed, separated or divorced, denoted *MAR3_5*. People who are single and never wed are the reference group. Since spousal income is not provided in the data set, but spousal labour force status is, two variables related to spousal labour force status are included. If the spouse has a job, it is denoted as "*Spouse Job*" and no response is denoted as "*Spouse_no*" (this includes widowed, separated or divorced, single and never wed); the reference is spouse has no job no matter what the reason, denoted as "*Spouse_noJob*". This category is created in order to avoid dropping those observations for which this information is not available.

The age of the youngest child also has a strong effect on female (maybe male also) labour force participation, because mothers often tend to spend more time with children (recently males share more house work than before, but females still do more). In the LFS, the age of the youngest child in the family is categorized into six groups: aged under 2, aged 3 to 5, aged 6 to 12, aged 13 to 15, aged 16 to 17, and no children. The corresponding variables are denoted *youngest0_2, youngest3_5, youngest6_12, youngest13_15, youngest16_17, and youngest_no* respectively. I decided to use aged 18 to 24 as the reference because at this age, children are considered to be adults and therefore they will not need to be taken care of by the parents; as result, they may not have an impact on the parents' labour force participation.

Another family-related variable included in the model is the number of family members. When the family is large, women would normally take more responsibility for staying home. The number of family members is divided into four groups and coded as a set of dummy variables: two family members, three family members, four family members, and five family members, denoted EFAMSIZE2, *EFAMSIZE3, EFAMSIZE4, and EFAMSIZE5* respectively. The reference group is a family with only one member.

Generally speaking, education is related to both labour supply and labour demand and has a strong positive effect on female and male labour force participation rates. I generate a set of dummy variables indicating one's education level, which are based on the highest certificate, diploma or degree that an individual obtained. With the available data, I classify the highest degree into six levels. They are Grade 9 to 10 (*Grade9_10*), Grade11 to 13 (*Grade11_13*), some post-secondary schooling (*some_post_secondary*), college (*College*), Bachelors (*Bachelors*), and Master and above (*Master*); The reference level of education is grade 0 to 8.[3]

For convenience, a complete list of all the independent variables and their definitions can be found in Table 1.

[3] A list of the variables downloaded from the LFS can be found in Table A1 at the end of paper.

4.4 Descriptive analysis

Table 2 presents labour force participation rates for the full sample and the female and male subsamples cross-tabulated by characteristic. The full sample contains 104,323 observations; females account for 53,596 (51.38 % of the full sample), while males account for 50,727 (48.62 % of the full sample). The total labour force participation rate is 64%; the female and male labour force participation rates are 59% and 68% respectively. The gender gap in labour force participation is thus 9 percentage points.

Table 2 suggests that the relationship between the rate of labour force participation and age group resembles an inverse U shape. The highest labour force participation rate is found for the 30 to 44 years of age group. The female and male labour force participation rates have the same relationship with age is the case with the full sample.

With respect to education, the rate of labour force participation increases as the education level increases. For those with a master's degree, the male and female labour force participation rates are 76% and 77% respectively. Although normally the male participation rate is higher than the female labour force participation rate, at the master's level the female rate is a little higher than the male rate. This observation has inspired my interest in finding the reason behind it. For those with a college diploma or less, the female labour force participation rate is 6-16 percentage points less than the male labour force participation rate. I will also investigate this finding further.

For those whose youngest child is aged 0-2 years, the female labour force participation rate is 68%. However, the female labour force participation rate increases along with the age of the youngest child in the household. The female labour force participation rate is 76% if the child is between 3 and 5 years of age, 83% if the child is between 6 and 12 years of age, and 85% if the child is between 13 and 15 years of age. However, the male labour force participation rate is not correlated with age of the youngest child up to 15 years of age; it is always 93-94%. Female and male labour force participation rates are almost the same when the youngest child is over 16 years of age.

5 Empirical Results and Interpretation

I analyze the labour force participation marginal effects and Blinder-Oaxaca decomposition for following three samples: a) the full sample; b) a sample restricted to those whose education level is above college and whose youngest child is over 16 years old; and c) a sample restricted to those whose education level less than college.

For females, the pseudo R^2 of the full sample, the first restricted sample and the second restricted sample are 0.3168, 0.0586, and 0.2728 respectively. Furthermore, the p-value of the LR Chi^2 test that the slope coefficients are jointly equal to zero indicates that we can reject the null hypothesis at the 1% level of significance. This means that the models do have explanatory power. For the male logistic regression models, the overall fit is similar to that of the female equations. Overall, the three logistic regression models fit fairly well, except for females in the first restricted sample.

5.1 The full sample labour force participation

In this section, I analyze the labour force participation marginal effects for the full sample separately for males and females, and then examine the Blinder-Oaxaca decomposition. Table 3 presents the marginal effects for logistic models of labour force participation for men and women.

The table indicates that the female and male labour force participation rates of those aged 25-34 are not significantly different from those of the 35 to 39 age group (omitted reference group). This suggests that ages 25 to 39 are the prime ages of labour force participation for males and females. Female and male labour force participation rates for the age group 40 to 44 are 1.7 and 2.1 percentage points respectively lower than those of the 35 to 39 age group, with weak significance. The labour force participation rate seems to decline dramatically after age 45 relative to that of 35-39 year-olds for both males (by 4.5 percentage points to 60 percentage points) and females (by 5.5 percentage points to 64.3 percentage points). This suggests that from the age of 45, people are starting to leave the labour force, perhaps due to declines in physical health. Most of them have retired and have definitely left the labour market by the age of 65 (standard retirement age is 65 years).

Table 3 also implies that the highest labour force participation rates are observed between the ages of 25 to 44; those between the ages of 15 and 24 might still be in school in order to acquire as much knowledge and skills as possible. In addition, young people may not have much work experience compared to those aged 25 to 44. Those 15 to 19 are 14.5 percentage points (for females) and 19.2 percentage points (for males) less likely to participate in the labour force than those who are between the ages of 35 and 39. Their ability to work tends to be low as many of them are still in high school, so their desire to be in the labour force is relatively low. Those in the age group 20 to 24 are 5.7 percentage points and 6.4 percentage points less likely to participate in the labour force than the population who are between the ages of 35 and 39, for females and males respectively, but they are more likely to participate than 15-19 year-olds. This suggests that a large portion of this age group has entered the labour force after high school, and small portion of them kept on pursuing school. This may be the reason why 20 to 24 year-olds have a higher labour force participation rate than 15 to 19 year-olds, but still lower than 35 to 39 year-olds.

According to Table 3, all other factors held constant, the labour force participation rate of males in Vancouver is 3.6 percentage points lower than that in Toronto, but there is no significant difference between the marginal effects for Toronto and Montreal. Holding all else constant, however, the female labour force participation rates in "other" areas is different from that of Toronto. The cause of these results might be that Vancouver is less industrialized than Toronto; in other words, jobs requiring heavy manual labour are less common in Vancouver than in Toronto. However, the labour force participation rates for Montreal and other cities are not significantly different from that of Toronto for both males and females.

Holding all else constant, labour force participation rates for Newfoundland are 2.6 percentage points and 3.0 percentage points lower than in Ontario for females and males respectively. This may be because job opportunities in Newfoundland are much less than in Ontario. The labour force participation rates for Manitoba are 2.4 percentage points and 3.0 percentage points greater than those of Ontario for females and males respectively, while the labour force participation rates for Saskatchewan are 3.4 percentage points and 6.3 percentage points higher than that of Ontario for females and males. Male labour force participation rates for Alberta and BC are 7.0 percentage points and 2.3 percentage points greater than that of Ontario. However, female labour force participation rates in these two provinces are not significantly different than those in Ontario. The male and female labour force participation rates for PEI are about 2.2 percentage points greater than those of Ontario. The female labour force participation rate for Nova Scotia is 2.0 percentage points less than those of Ontario; on the other hand, the male labour force participation rate in Nova Scotia is almost the same as it is for Ontario. Labour force participation rates in Quebec and New Brunswick are not significantly different from that of Ontario. It is not surprising that participation rates in Manitoba, Saskatchewan, Alberta and BC are higher than in Ontario; this may be due to the fact that their labour markets are relatively strong due to the natural resources boom. However, despite the recent growth of its oil industry, Newfoundland's economy is not well diversified, so it is understandable that its labour force participation rate is lower than that of Ontario.

The labour force participation rate for males who are married or living in common-law is a statistically significant 6.3 percentage points higher than that of males who are single and have never wed, which suggests that males who are married or living common-law have a stronger preference to be in the labour force than males who are single and have never wed, perhaps because they have greater family responsibilities. However, there is no statistically significant difference between women who are married or living common-law and women who are single and never wed. The labour force participation rates of people who are widowed, separated, or divorced, whether female or male, are statistically significantly higher than those of people who are single and never wed, by 3.2 percentage points and 2.5 percentage points respectively for females and males. In other words, although they have been separated or divorced, they may still take on certain family-related responsibilities, such as supporting their children, parents etc. The female labour force participation rate for widowed, separated, or divorced individuals is higher than those of both females who are single and never wed, as well as for those who are married or living in common-law, which supports this view. It is also notable those that the labour force participation rate of males who are married or living in common-law is higher than that for males who are widowed, separated or divorced; the cause of this finding might be that men who are married or living in common-law relationships carry more responsibilities on their shoulders than men who are no longer married. For example, they may need to take care of their children and do more house work to a greater extent than unmarried men.

Overall, the labour force participation rate tends to increase with the level of education. Labour force participation and the marginal effect for each education level are all statistically significantly higher than the point estimate for the of grade 0 to 8 group. Overall, the higher the level of education, the higher the labour force participation rate. An interesting finding is that it appears that the labour force participation rate for those with a college diploma is almost the same as that of those with a bachelor's degree, for both males and females, even though a college diploma requires fewer years of study. One might conclude from this result that acquiring a college diploma is a more efficient way of encouraging participation than a bachelor's degree. Those with a master's degree or above have labour force participation rates that are 25.8 percentage points and 15.2 percentage points higher than those who have completed only grade 0 to 8 for females and males respectively. Females and males who have a college diploma, a bachelor's degree, or a master's degree are much more likely to be participating in the labour force compared to the base category; for example, females who have a college diploma are 26 percentage points more likely than females who have only grades zero to eight to enter the labour force. At the same time, males who hold a college diploma are only 13.9 percentage points more likely to enter than males who have only a grades zero to eight education. In conclusion, females who have a higher level of education will experience a greater increase in their probability of labour force participation relative to the base category than males. Holding all else constant, females who have a college or bachelor's or master's degree have almost the same labour force participation rate. Those results further support the argument that investment in a college diploma is the most cost-effective way to increase labour force participation on average.

I use age 18 to 24 be the reference category for age of youngest child because at this age, children are considered to be adults; therefore they will not need to be taken care of by their parents. As a result, their presence in the home may not have an impact on the parents' labour force participation. Indeed, the results show that having a child who is zero to five years old will have a large negative impact on a woman's probability of participating in the labour force, but only a small negative impact on the father's probability of participating in the labour force. A woman whose youngest child is zero to two years old is 23.4 percentage points less likely to participate in the labour market than one whose youngest child is 18 to 24, which means this variable has the largest negative impact on female labour force participation in this sample. Men whose youngest child is over six years old are more likely to participate in the labour force than men who have no children or whose youngest child is zero to five years old. On the other hand, the results show that having any children 15 or younger will have a significant negative impact on the labour force participation rate of women, relative to women whose youngest child is at least 18. This may be explained by the fact that for most families, the mother is the one who takes care of children, while the father often devotes more time to labour market activities. Holding all else constant, the highest labour force participation rates for men are for the group whose youngest child who is from 6 to 24 years old, and for the group whose youngest child is 16 to 24 years old for women. The age of the father might be mostly between ages 40 to 54 at this period; they tend to have relatively high levels of education and work experience, and therefore a high desire to participate in the labour force. This result is consistent with the result of the age group analysis.

For males, the labour force participation rate is highest when family size is one person; holding all else constant, the male labour force participation rate for a family size of two is the smallest, at about 3.5 percentage points less than that for a family size of one. From these results, I conclude that a family size of two to five does not seem to have much impact on the male labour force participation rate. However, a family size of four or five or more is associated with a lower female labour force participation rate, namely 2.3 percentage points and 6.9 percentage points lower than that for the reference category (a family of size one). These results suggest that women are more likely than men to stay at home to take care of their family if they have a larger family.

Finally, the results in Table 3 show that the labour force participation rate of an individual whose spouse has a job will be 15.4 and 14 percentage points higher than that of those whose spouse does not have a job, for males and females respectively. An explanation for this finding could be that the fact that one spouse has a job will encourage a man to participate in the labour force as well; the same appears to be true for women. People who have an employed spouse will be more likely to participate in the labour force than people who do not have a spouse.

Further insight into the importance of these differences between men and women is provided by Table 4, the first column of which presents the decomposition of the gender gap in labour force participation rates. It shows that the sample average female and male labour force participation rates are 59.4% and 68.5%, respectively. In other words, the male labour force participation rate exceeds the female labour force participation rate by 9.1 percentage points. Considering the Blinder-Oaxaca decomposition of this discrepancy, only 0.8 percentage points of the difference in rates of labour force participation between females and males is due to endowments (i.e., the explained component), while the remaining 8.3 percentage points are due to differences in coefficients and interactions (i.e., the unexplained components). This means that only 8.8% (0.8/9.1) of the difference in labour force participation rates between males and females can be explained by differences in age, education level, age of the youngest child, size of family, marital status, province and spouse's employment status; and 91.2% (8.3/9.1) of the gender gap is unexplained.

Table 5 provides a detailed breakdown of the decomposition by variable. There are no significant differences in the column for the explained component; but in the column for the unexplained component, differences in the coefficient of marriage (MAR1_2) can explain 3 percentage points of the unexplained gap. Similarly provincial differences account for 1.3 percentage points and the constant for 13.3 percentage points of the lower labour force participation of women.[4] However, education raises the female participation rate by 6.5 percentage points.

5.2 Education level above college and youngest children over 16 years old

From Tables 3, 4, and 5, I observe that having an education level above college will have a large positive impact on the labour force participation rate of women; Furthermore, women often spend more time than their spouse does nurturing their children who are under 15 years old, which tends to have a negative impact on their labour force participation. Therefore, I will also examine a subsample of males and females whose level of education is above college and whose children are 16 and above. I expect that male and female labour force participation rates

[4] The provincial effect is obtained by summing over provinces.

will be similar under these conditions.

Of the 104,323 individuals in the March 2014 Labour Force Service, 4,967 have at least a college education and a youngest child who is 16 years old and above. Females and males account for 2,700 and 2,267 observations of this subsample respectively. Moreover female and male labour force participation rates for this subsample are 87.1% and 89.5% respectively, with a difference of only 2.4 percentage points. This discrepancy is much less than the difference in labour force participation rates (9.1 percentage points) in the full sample.

The marginal effects presented in Table 6 show that the labour force participation rate of females aged between 40 and 59 is not significantly different than that of females aged between 35 and 39. After 60 years of age, female labour force participation will decline significantly. The male labour force participation from age 35 will increase until 54 years of age and then gradually decline. The female labour force participation rates in Manitoba and Saskatchewan are both greater than the labour force participation rate in Ontario by 4.6 and 5.8 percentage points respectively. Holding all else constant, the male labour force participation rate in Nova Scotia is lower than the labour force participation rate in Ontario by 9.3 percentage points. Male labour force participation in British Columbia is greater than in Ontario, by 3.9 percentage points. The married male labour force participation rate is 13.8 percentage points greater than that of unmarried males. The female and male labour force participation rates for those who have master's degrees are 6 and 3.4 percentage points higher than those who have a college diploma respectively. The female and male labour force participation rates of those whose spouse has a job is higher than that of those whose spouse does not have a job.

From the Oaxaca decompositions presented in Table 4 and Table 7, I note that the explained effect is about 2.1 percentage points; the unexplained effect is -6 percentage points;

and the interaction effect is 1.5 percentage points. The primary source of the negative unexplained effect is marital status, which alone accounts for 14.1 percentage points; this indicates that females will tend to leave the labour market after they get married, because they take on more responsibility for caring for the family. Male and female labour force participation rates would be almost the same if I ignored the negative impact on female labour force participation caused by marriage. The gender gap in labour force participation is primarily due to females taking more responsibility for the family, such as taking care of the children, doing housework, etc.

5.3 Education less than college

From the above analysis, I observe that females who have an education level above college have a much higher labour force participation rate. Does this mean that female labour force participation rates are lower if they do not have a high level of education, i.e. if, their education level is less than college?

To answer this question, I also estimate the model for the sub-sample of individuals with education below the college level (Tables 8, 9 and 4). Of the 104,323 individuals contained in the March 2014 Labour Force Survey, 51,168 have an education level less than college. Females and males account for 25,650 and 25,518 observations of this subsample respectively. Female and male labour force participation rates in this sub-sample are 46.2% and 60.1% respectively; these rates are lower than the full sample labour force participation rates of 59.4% and 68.5%. However, the female labour force participation rate decreases much more than the male labour force participation rate. The female and male labour force participation rates have decreased by 13.2 percentage points and 8.4 percentage points respectively; thus the female labour force participation rate decreased by 57% more than the male labour force participation rate. Furthermore, it is much lower than the labour force participation rates of those who hold at least a college diploma and whose youngest child who is 16 years old or above. The reason for this might be that there are fewer employment opportunities available for those who do not have a high education level. Most such jobs are physically demanding jobs for which females may be a poor match compared to males. Education and marriage both have a positive impact on labour force participation. Female labour force participation is negatively affected by having a youngest child who is under 12 years of age, but there is no impact on male behaviour. For the other variables, the effects are similar to those for the other samples, so I do not need to repeat them again.

For this subsample, of the gender gap (13.9 percentage points) in labour force participation, 3.7 percentage points can be explained by characteristics and 10.2 percentage points by both coefficients and interaction. The gender gap for this subsample is larger than it is for the full sample gender gap (13.9 versus 9.0 percentage points), and much bigger than is the case for the sample of women for whom the education level is above college and the youngest child is over 16 years old subsample (13.9 versus 2.4 percentage points). This also illustrates how the education level and the age of the youngest child affect the gender gap in labour force participation rates (Table 4).

6 Conclusion

This paper uses Labour Force Survey data to explore the reasons for the gender gap between female and male labour force participation rates. The crucial findings are first, that the relationship between the female and male labour force participation rates and age looks like an inverse U shape. The highest labour force participation rate is found within the 30 to 44 years age group for both women and men, and both genders have the same age pattern. However, the gender gap is not constant for all age groups. It is about 9 percentage points for most groups, except the youngest group aged 15 to 24 years where it is only 2 percentage points, perhaps because the labour force participation rate for the youngest group is primarily determined by their school attendance.

Second, with respect to education, the rate of labour force participation increases with the education level for both women and men, but more so for women. The gender gap in labour force participation between women and men with less than a college-level education is higher than the average and is as high as 14 percentage points. For those with more than college education the gender gap is less than the average. For those with a master's degree, the gender gap is only 1 percentage point. Therefore, improving female educational attainment is very important to diminish the gender gap in labour force participation, provided that reducing the gap is deemed to be a policy objective.

Third, the gender gap in labour force participation varies with the age of the youngest child. The maximum gender gap is 25 percentage points, which occurs when the age of the youngest child is less than 2 years old. The minimum gender gap is only 2 percentage points when the age of the youngest child is more than 18 years. One reason is that small children require greater maternal care; another reason may be society's attitudes to females playing a family role or participating in the labour force.

Fourth, marital status and larger family size also negatively affect the female labour force participation rate and widen the gender gap. These factors might be tied to societal attitudes.

Fifth, the fast growing provinces such as Alberta and Saskatchewan have larger gender gaps than the other provinces. Maybe the main reason is that they need more workers in the energy (oil and gas) sector, which relies primarily on male-oriented occupations.

Sixth, the gender gap (13.9 percentage points) in labour force participation for those with an education level less than college is wider than that for the full sample (9.0 percentage points), and much wider than the gap for those with an education level above college whose youngest child is over 16 years old (2.4 percentage points). That also indicates how the education level and youngest child affect the gender gap in labour force participation.

Unfortunately, there are no income and industry class variables (industry is recorded only for those who are employed) in the Labour Force Survey so I cannot analyze the role of these variables. Finally, if one wants to reduce the gender gap in labour force participation further, I can provide some suggestions: our government maybe needs to pay more attention to female post-secondary education and benefits to women with kids. Should we change society's attitudes regarding female roles in the family and the labour market? This is an important question for which there is no clear answer, because both family and jobs are important. Which is more important is always a topic of debate in the world, although my preference would be to reduce the gender gap in labour force participation further.

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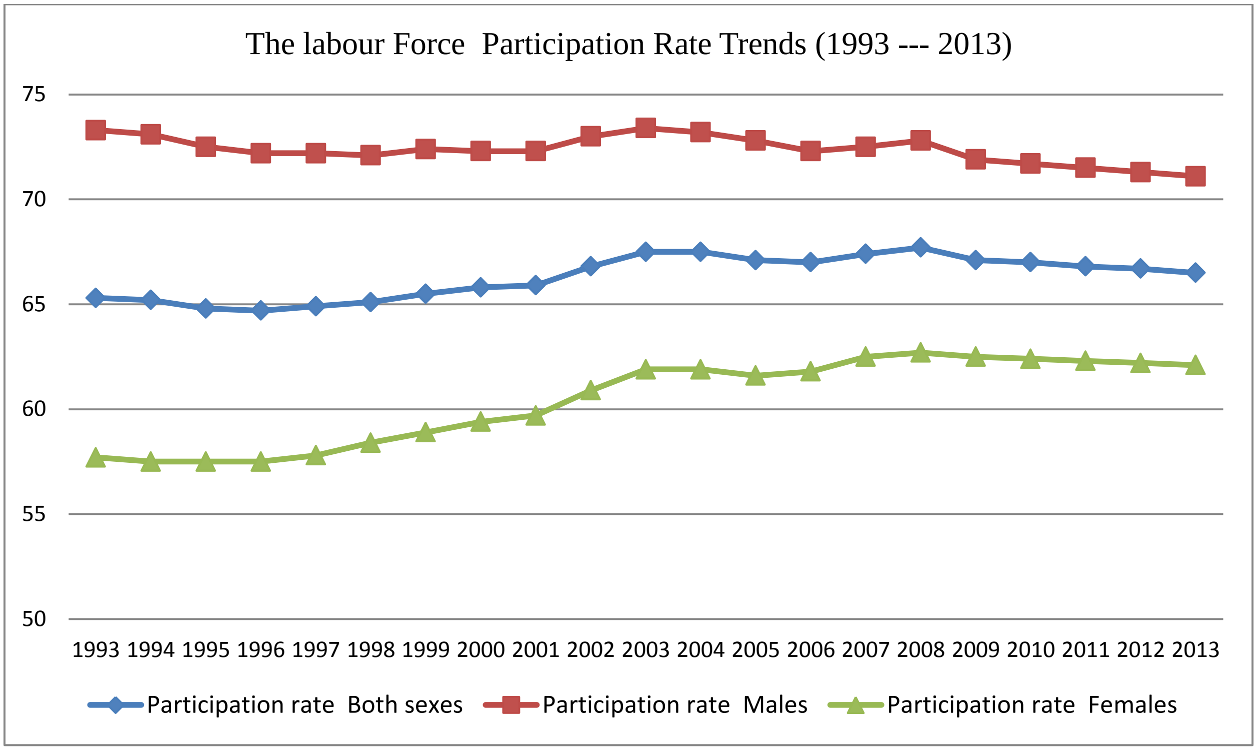
Graph 1: Canadian (Male & Female) Labour Force Participation Rate (1993 -2013)



Source: Statistics Canada. Table 282-0087 - Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted, annual (persons unless otherwise noted), CANSIM (database). (accessed: 2014-08-18)

Table 1: Definition of All independent variables

independent variables	Definition of variables
Age Group	
age15_19	Equal to 1 if aged 15 to 19, 0 otherwise
age20_24	Equal to 1 if aged 20 to 24, 0 otherwise
age25_29	Equal to 1 if aged 25 to 29, 0 otherwise
age30_34	Equal to 1 if aged 30 to 34, 0 otherwise
age35_39	Equal to 1 if aged 35 to 39, 0 otherwise
age40_44	Equal to 1 if aged 40 to 44, 0 otherwise
age45_49	Equal to 1 if aged 45 to 49, 0 otherwise
age50_54	Equal to 1 if aged 50 to 54, 0 otherwise
age55_59	Equal to 1 if aged 55 to 59, 0 otherwise
age60_64	Equal to 1 if aged 60 to 64, 0 otherwise
age65_up	Equal to 1 if aged 65 to up, 0 otherwise
	All remaining variables are defined in the same fashion as the age group variables: Equal to 1 if the condition is satisfied, 0 otherwise.
Large City	
Montreal	Montreal
Vancouver	Vancouver
Toronto	Toronto
Other	Other
Province	
Newfoundland	Newfoundland
PEI	PEI
NS	NS
NB	NB
Manitoba	Manitoba
Saskatchewan	Saskatchewan
Alberta	Alberta
BC	BC
Quebec	Quebec
Ontario	Ontario
Marital status	
MAR1_2	married or living in common-law
MAR3_5	widowed, separated or divorced

MAR0-0	are single and never wed
Education	The highest certificate, diploma or degree
Grade0_8	Grade 0 to 8
Grade9_10	Grade 9 to 10
Grade11_13	Grade 11 to 13
post_secondary	Some post secondary
College	College
Bachelors	Bachelors
Master	Master
Age	
Youngest Child	
youngest0_2	the age of the youngest child is 0 to 2
youngest3_5	the age of the youngest child is 3 to 5
youngest6_12	the age of the youngest child is 6 to 12
youngest13_15	the age of the youngest child is 13 to 15
youngest16_17	the age of the youngest child is 16 to 17
youngest18_24	the age of the youngest child is 18 to 24
youngest_no	No child
Family Size	
EFAMSIZE1	Family size is 1 member
EFAMSIZE2	Family size is 2 member
EFAMSIZE3	Family size is 3 member
EFAMSIZE4	Family size is 4 member
EFAMSIZE5	Family size is 5 member
Spouses	
Spouse_Job	spouse has a job
Spouse_noJob	spouse has not a job or others
Spouse_No	no response

Table 2: Statistics of Labour Force Participation of All independent variables

	Labour Force Survey(LFS)								
	Full Sample			Female			Male		
	N	Sample mean	LFP Rate	N	Sample mean	LFP Rate	N	Sample mean	LFP Rate
Age Group									
age15_19	7825	7.5	0.47	3813	3.65	0.47	4012	3.85	0.46
age20_24	7597	7.28	0.74	3749	3.59	0.72	3848	3.69	0.75
age25_29	7559	7.25	0.83	3765	3.61	0.79	3794	3.64	0.88
age30_34	7947	7.62	0.85	4113	3.94	0.8	3834	3.68	0.91
age35_39	7699	7.38	0.87	3928	3.77	0.82	3771	3.61	0.92
age40_44	8084	7.75	0.87	4191	4.02	0.84	3893	3.73	0.91
age45_49	8861	8.49	0.86	4587	4.4	0.82	4274	4.1	0.9
age50_54	10441	10.01	0.84	5323	5.1	0.81	5118	4.91	0.87
age55_59	9839	9.43	0.73	5007	4.8	0.68	4832	4.63	0.78
age60_64	8280	7.94	0.52	4165	3.99	0.46	4115	3.94	0.59
age65_up	20191	19.35	0.13	10955	10.5	0.09	9236	8.85	0.18
Large City									
Montreal	4596	4.41	0.64	2368	2.27	0.6	2228	2.14	0.68
Vancouver	4679	4.49	0.64	2451	2.35	0.6	2228	2.14	0.68
Toronto	5714	5.48	0.65	2971	2.85	0.61	2743	2.63	0.70
Other	89334	85.63	0.64	45806	43.91	0.59	43528	41.72	0.68
Province									
Newfoundland	3857	3.7	0.59	1991	1.91	0.55	1866	1.79	0.62
PEI	2753	2.64	0.64	1434	1.37	0.61	1319	1.26	0.68
NS	5226	5.01	0.59	2759	2.64	0.56	2467	2.36	0.64
NB	5199	4.98	0.6	2722	2.61	0.57	2477	2.37	0.64
Manitoba	9004	8.63	0.66	4614	4.42	0.61	4390	4.21	0.71
Saskatchewan	7010	6.72	0.69	3574	3.43	0.63	3436	3.29	0.75
Alberta	10809	10.36	0.72	5351	5.13	0.65	5458	5.23	0.79
BC	12243	11.74	0.63	6358	6.09	0.58	5885	5.64	0.68
Quebec	18054	17.31	0.62	9185	8.8	0.58	8869	8.5	0.66
Ontario	30168	28.92	0.63	15608	14.96	0.59	14560	13.96	0.67
Marital Status									
MAR1_2	62589	60	0.68	31379	30.08	0.64	31210	29.92	0.72
MAR3_5	13935	13.36	0.44	9408	9.02	0.4	4527	4.34	0.52
MAR0-0	27799	26.65	0.65	12809	12.28	0.64	14990	14.37	0.67
Education									

Grade0_8	6616	6.34	0.22	3327	3.19	0.14	3289	3.15	0.3
Grade9_10	15038	14.41	0.44	7308	7.01	0.36	7730	7.41	0.52
Grade11_13	22108	21.19	0.65	11186	10.72	0.58	10922	10.47	0.73
post_secondary	7406	7.1	0.62	3829	3.67	0.59	3577	3.43	0.65
College	33309	31.93	0.73	17224	16.51	0.69	16085	15.42	0.77
Bachelors	13833	13.26	0.76	7800	7.48	0.75	6033	5.78	0.78
Master	6013	5.76	0.77	2922	2.8	0.77	3091	2.96	0.76
<u>Age</u>									
<u>Youngest Child</u>									
youngest0_2	6381	6.12	0.8	3387	3.25	0.68	2994	2.87	0.93
youngest3_5	4313	4.13	0.84	2359	2.26	0.76	1954	1.87	0.93
youngest6_12	7806	7.48	0.88	4254	4.08	0.83	3552	3.4	0.94
youngest13_15	3319	3.18	0.89	1794	1.72	0.85	1525	1.46	0.93
youngest16_17	2433	2.33	0.87	1310	1.26	0.85	1123	1.08	0.89
youngest18_24	5575	5.34	0.85	2971	2.85	0.82	2604	2.5	0.87
youngest_no	74496	71.41	0.55	37521	35.97	0.51	36975	35.44	0.6
<u>Family Size</u>									
EFAMSIZE1	19100	18.31	0.55	9945	9.53	0.46	9155	8.78	0.64
EFAMSIZE2	36478	34.97	0.56	18811	18.03	0.54	17667	16.93	0.58
EFAMSIZE3	18365	17.6	0.73	9406	9.02	0.7	8959	8.59	0.76
EFAMSIZE4	18291	17.53	0.77	9249	8.87	0.73	9042	8.67	0.81
EFAMSIZE5	12089	11.59	0.69	6185	5.93	0.62	5904	5.66	0.76
<u>Spouses</u>									
Spouse_Job	38232	36.65	0.83	20130	19.3	0.79	18102	17.35	0.88
Spouse_noJob	21520	20.63	0.41	9800	9.39	0.34	11720	11.23	0.47
Spouse_No	44571	42.72	0.58	23666	22.69	0.54	20905	20.04	0.63
Total	104323	100	0.64	53596	51.38	0.59	50727	48.62	0.68

Notes: N represents the number of individuals for whom the variable equals 1. Sample mean is the sample mean of the associated variable, multiplied by 100, LFP rate is the labour force participation rate of individuals for whom the associated variable is equal to 1.

Table 3: Total Sample: Labour Force Participation Marginal Effects

VARIABLES	(1) Female Model	(2) Male Model
age15_19	-0.145***	-0.192***
	(0.0126)	(0.0134)
age20_24	-0.0567***	-0.0642***
	(0.0107)	(0.0110)
age25_29	-0.0160	-0.00465
	(0.00980)	(0.0108)
age30_34	-0.000854	0.00766
	(0.00921)	(0.0110)
age40_44	-0.0167*	-0.0208*
	(0.00973)	(0.0115)
age45_49	-0.0554***	-0.0447***
	(0.0102)	(0.0114)
age50_54	-0.0683***	-0.0714***
	(0.0103)	(0.0110)
age55_59	-0.168***	-0.147***
	(0.0107)	(0.0114)
age60_64	-0.321***	-0.281***
	(0.0106)	(0.0125)
age65_up	-0.643***	-0.598***
	(0.00468)	(0.0106)
montreal	0.00511	-0.00852
	(0.0124)	(0.0115)
vancouver	-0.00868	-0.0360***
	(0.0129)	(0.0125)
other	0.0133*	-0.00444
	(0.00797)	(0.00748)
newfoundland	-0.0256***	-0.0298***
	(0.00984)	(0.00896)
pei	0.0218**	0.0233**
	(0.0107)	(0.00987)
ns	-0.0199**	-0.00870
	(0.00845)	(0.00775)
nb	-0.00355	0.00356
	(0.00845)	(0.00767)
manitoba	0.0236***	0.0300***
	(0.00660)	(0.00603)

saskatchewan	0.0341***	0.0632***
	(0.00724)	(0.00649)
alberta	0.00428	0.0701***
	(0.00638)	(0.00550)
bc	-0.00393	0.0227***
	(0.00720)	(0.00641)
quebec	0.0103*	0.00456
	(0.00597)	(0.00539)
mar1_2	0.0112	0.0631***
	(0.0114)	(0.0100)
mar3_5	0.0317***	0.0254***
	(0.00674)	(0.00656)
grade9_10	0.0915***	0.0404***
	(0.00847)	(0.00679)
grade11_13	0.183***	0.114***
	(0.00738)	(0.00609)
some_post_secondary	0.152***	0.0597***
	(0.00811)	(0.00754)
college	0.260***	0.139***
	(0.00681)	(0.00580)
bachelors	0.244***	0.135***
	(0.00650)	(0.00634)
master	0.258***	0.152***
	(0.00665)	(0.00681)
youngest0_2	-0.234***	-0.0275*
	(0.0125)	(0.0144)
youngest3_5	-0.156***	-0.0420***
	(0.0135)	(0.0161)
youngest6_12	-0.0761***	0.00457
	(0.0117)	(0.0131)
youngest13_15	-0.0267*	0.00985
	(0.0138)	(0.0156)
youngest16_17	-0.0147	-0.0221
	(0.0148)	(0.0163)
youngest_no	-0.0439***	-0.0598***
	(0.00942)	(0.00998)
efamsize2	-0.00191	-0.0345***
	(0.00650)	(0.00638)
efamsize3	-0.00678	-0.0318***
	(0.00742)	(0.00663)
efamsize4	-0.0225***	-0.0189***
	(0.00798)	(0.00719)
efamsize5	-0.0691***	-0.0338***
	(0.00865)	(0.00772)
spouse_job	0.147***	0.154***

	(0.00529)	(0.00471)
spouse_no	-0.0853***	-0.116***
	(0.0119)	(0.0120)
Observations	53,596	50,727
LR Chi^2	22,930	20,729
Prob > chi2	0.000	0.000
Pseudo R^2	0.3168	0.3279

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level. The dependent variable is a dummy variable equal to 1 if the individual is in the labour force. The reference individual is aged 35 to 39, lives in Toronto in the province of Ontario, is single and never wed, whose level of education is Grades 0-8, whose youngest child is aged 18-24; whose family size is one person, and whose spouse has no job.

Table 4: Blinder-Oaxaca Decomposition of Labour Force Participation for Three Samples

	Full Sample	Education College-level and above and Youngest Child over 16 years old	Education below College level
Female LFPR	0.594***	0.871***	0.462***
	(-0.00201)	(-0.00638)	(-0.0031)
Male LFPR	0.685***	0.895***	0.601***
	(-0.00191)	(-0.00624)	(-0.00295)
Gender Gap	-0.0906***	-0.0240***	-0.139***
	(-0.00277)	(-0.00892)	(-0.00428)
endowments	-0.00847***	0.0209***	-0.0370***
	(-0.00154)	(-0.00487)	(-0.00249)
coefficients	-0.0885***	-0.0601***	-0.106***
	(-0.00248)	(-0.0111)	(-0.00389)
interaction	0.00637***	0.0152**	0.00320*
	(-0.001)	(-0.00751)	(-0.00172)

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table 5: Blinder-Oaxaca Decomposition, Full Sample, by variable

VARIABLES	(2) Explained	(3) Unexplained	(4) Intersection
age15_19	0.0173	0.00415***	0.00595
	(0.0380)	(0.00101)	(0.0123)
age20_24	0.00474	0.00109	0.00121
	(0.0102)	(0.000925)	(0.00275)
age25_29	0.000270	-0.000604	-0.000524
	(0.000836)	(0.000921)	(0.00132)
age30_34	0.000114	-0.000582	0.000128
	(0.000366)	(0.000939)	(0.000357)
age40_44	-0.000383	0.000456	-0.000123
	(0.00104)	(0.000968)	(0.000384)
age45_49	-0.000746	-0.000169	3.81e-05
	(0.00205)	(0.00104)	(0.000252)
age50_54	0.00141	0.00120	0.000268
	(0.00319)	(0.00121)	(0.000680)
age55_59	0.00330	0.000440	0.000121
	(0.00766)	(0.00112)	(0.000416)
age60_64	0.0109	0.000219	0.000132
	(0.0245)	(0.000960)	(0.000647)
age65_up	-0.128	-0.00855***	0.0150
	(0.264)	(0.00218)	(0.0304)
montreal	-2.83e-05	0.000515	-4.38e-05
	(0.000155)	(0.000626)	(0.000240)
vancouver	-0.000814	0.00112*	-0.000657
	(0.00185)	(0.000647)	(0.00148)
other	0.000196	0.0123	0.000704
	(0.000546)	(0.00793)	(0.00158)
newfoundland	-0.000136	0.000264	-3.73e-05
	(0.000516)	(0.000396)	(0.000155)
pei	0.000229	-0.000118	4.89e-05
	(0.000585)	(0.000331)	(0.000181)
ns	-0.000315	-0.000359	0.000300
	(0.000738)	(0.000461)	(0.000731)
nb	8.96e-05	-0.000294	0.000168
	(0.000279)	(0.000469)	(0.000449)
manitoba	-0.000177	-0.000805	-6.03e-05
	(0.000774)	(0.000678)	(0.000267)
saskatchewan	-0.000892	-0.00226***	-0.000502
	(0.00225)	(0.000601)	(0.00130)
alberta	-0.00728	-0.00685***	-0.00706

	(0.0155)	(0.000814)	(0.0148)
bc	0.000772	-0.00280***	0.000902
	(0.00177)	(0.000956)	(0.00199)
quebec	-0.000203	0.000675	0.000191
	(0.000520)	(0.00120)	(0.000527)
mar1_2	-0.0240	-0.0300***	-0.0207
	(0.0510)	(0.00807)	(0.0432)
mar3_5	0.0287	0.000129	-0.00178
	(0.0637)	(0.000744)	(0.0126)
grade9_10	-0.00858	0.00602***	0.00905
	(0.0188)	(0.00155)	(0.0187)
grade11_13	-0.0101	0.0103***	0.00451
	(0.0219)	(0.00213)	(0.00954)
some_post_secondary	0.000738	0.00538***	-0.00101
	(0.00198)	(0.000791)	(0.00282)
college	0.00780	0.0268***	-0.00517
	(0.0185)	(0.00309)	(0.0113)
bachelors	0.0499	0.0104***	-0.0334
	(0.108)	(0.00130)	(0.0690)
master	-0.0143	0.00599***	0.00902
	(0.0305)	(0.000792)	(0.0185)
youngest0_2	-0.00144	-0.00850***	0.00859
	(0.00332)	(0.000932)	(0.0168)
youngest3_5	-0.00288	-0.00291***	0.00594
	(0.00637)	(0.000651)	(0.0120)
youngest6_12	0.000550	-0.00430***	0.00821
	(0.00202)	(0.00103)	(0.0166)
youngest13_15	0.000434	-0.000886*	0.00144
	(0.00119)	(0.000535)	(0.00305)
youngest16_17	-0.000644	0.000191	-0.000284
	(0.00150)	(0.000405)	(0.000852)
youngest_no	0.0221	0.0151*	0.00852
	(0.0488)	(0.00814)	(0.0173)
efamsize2	-0.00118	0.0103***	-0.00114
	(0.00256)	(0.00262)	(0.00279)
efamsize3	0.000449	0.00415***	0.000374
	(0.00126)	(0.00145)	(0.00112)
efamsize4	0.00137	-3.53e-05	-1.61e-05
	(0.00287)	(0.00158)	(0.000716)
efamsize5	0.000420	-0.00250**	-0.000303
	(0.00117)	(0.00107)	(0.000926)
spouse_job	0.0852	-0.0171***	0.0154
	(0.185)	(0.00458)	(0.0308)
spouse_no	-0.0437	0.0166***	-0.0169
	(0.0924)	(0.00539)	(0.0361)

group_age_	-0.0908	-0.00236	0.0222
	(0.184)	(0.00914)	(0.0450)
Large city	-0.000647	0.0140	2.85e-06
	(0.00149)	(0.00876)	(0.000507)
province	-0.00791	-0.0126***	-0.00605
	(0.0167)	(0.00340)	(0.0129)
marries	0.00476	-0.0299***	-0.0225
	(0.0147)	(0.00828)	(0.0528)
edu	0.0255	0.0649***	-0.0170
	(0.0567)	(0.00858)	(0.0358)
child	0.0181	-0.00134	0.0324
	(0.0402)	(0.0102)	(0.0640)
family	0.00106	0.0119**	-0.00109
	(0.00247)	(0.00570)	(0.00293)
spouse	0.0415	-0.000556	-0.00159
	(0.0925)	(0.00639)	(0.00799)
Constant		-0.133***	
		(0.0237)	
Observations	104,323	104,323	104,323

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table 6: Marginal Effects for Labour Force Participation for Subsample with Education above College and Youngest Child over 16 year old

VARIABLES	(1) Female Model	(2) Male Model
age40_44	0.0368	0.0971***
	(0.0365)	(0.00798)
age45_49	0.0311	0.0786***
	(0.0366)	(0.0197)
age50_54	0.0273	0.0709***
	(0.0379)	(0.0245)
age55_59	-0.0756	0.0303
	(0.0562)	(0.0306)
age60_64	-0.178**	-0.0632
	(0.0875)	(0.0581)
age65_up	-0.507***	-0.249**
	(0.174)	(0.108)
montreal	0.0454	0.00449
	(0.0354)	(0.0351)
vancouver	0.0371	-0.0621
	(0.0359)	(0.0629)
other	0.0193	-0.00820
	(0.0265)	(0.0222)
newfoundland	0.0554*	-0.0389
	(0.0301)	(0.0360)
pei	0.00137	0.0113
	(0.0380)	(0.0342)
ns	-0.0326	-0.0931**
	(0.0340)	(0.0390)
nb	-0.0529	0.0360
	(0.0372)	(0.0235)
manitoba	0.0460**	-0.00551
	(0.0233)	(0.0237)
saskatchewan	0.0575**	0.0110
	(0.0259)	(0.0257)
alberta	0.0175	0.0329*
	(0.0252)	(0.0172)
bc	-0.0409	0.0387**
	(0.0317)	(0.0191)
quebec	0.0125	-0.00158
	(0.0229)	(0.0195)
mar1_2	-0.0409	0.138***
	(0.0444)	(0.0409)

mar3_5	-0.0125	0.0212
	(0.0406)	(0.0361)
bachelors	-0.00432	0.0173
	(0.0157)	(0.0122)
master	0.0591***	0.0340***
	(0.0181)	(0.0127)
youngest16_17	-0.00920	-0.00194
	(0.0163)	(0.0136)
efamsize2	-0.0416	0.0411
	(0.0461)	(0.0252)
efamsize3	-0.00714	0.00261
	(0.0244)	(0.0183)
efamsize4	0.0137	0.0171
	(0.0236)	(0.0172)
spouse_job	0.0753***	0.0413***
	(0.0174)	(0.0129)
Observations	2700	2,267
LR Chi^2	121	195
Prob > chi2	0.000	0.000
Pseudo R^2	0.0586	0.1289

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level. The dependent variable is a dummy variable equal to 1 if the individual is in the labour force. The reference individual is aged 35 to 39, lives in Toronto in the province of Ontario, is single and never wed, whose level of education is a college diploma, whose youngest child is aged 18-24; whose family size is one person, and whose spouse has no job.

Table 7: Blinder-Oaxaca Decomposition, level of Education above College and Youngest Child over 16 years old, by variable

VARIABLES	(2) component Explained	(3) component Unexplained	(4) component Intersection
age40_44	0.0145***	-0.0112**	-0.107
	(0.00369)	(0.00457)	(0.397)
age45_49	0.0115**	-0.0168	-0.0753
	(0.00511)	(0.0114)	(0.268)
age50_54	-0.000727	-0.0238	0.00467
	(0.00131)	(0.0203)	(0.0186)
age55_59	-0.00321	-0.0233	0.0673
	(0.00381)	(0.0145)	(0.231)
age60_64	0.00392	-0.00394	0.0240
	(0.00313)	(0.00557)	(0.0840)
age65_up	0.00388**	-0.00182	0.0142
	(0.00156)	(0.00236)	(0.0488)
montreal	-4.94e-06	0.00185	-0.000281
	(5.33e-05)	(0.00300)	(0.00231)
vancouver	6.00e-05	0.00462	-0.000798
	(0.000390)	(0.00311)	(0.00584)
other	-0.000142	0.0203	0.00303
	(0.000387)	(0.0277)	(0.0115)
newfoundland	-3.41e-05	0.00361*	0.000678
	(0.000234)	(0.00194)	(0.00503)
pei	8.64e-05	-0.000369	-0.000686
	(0.000287)	(0.00154)	(0.00384)
ns	-0.000772	0.00261	0.00472
	(0.000601)	(0.00160)	(0.0166)
nb	0.000264	-0.00385*	-0.00394
	(0.000386)	(0.00213)	(0.0150)
manitoba	-2.70e-05	0.00346	0.00174
	(0.000124)	(0.00269)	(0.00676)
saskatchewan	-2.83e-05	0.00220	-0.000722
	(0.000115)	(0.00250)	(0.00357)
alberta	-0.000521	-0.00289	0.00305
	(0.000519)	(0.00339)	(0.0111)
bc	-1.77e-05	-0.00967**	0.000238
	(0.000511)	(0.00466)	(0.00685)
quebec	5.38e-06	0.00211	-0.000301
	(6.94e-05)	(0.00525)	(0.00178)
mar1_2	-0.0155**	-0.141**	0.173
	(0.00718)	(0.0597)	(0.589)
mar3_5	0.00250	-0.00261	-0.0293

	(0.00471)	(0.00424)	(0.109)
bachelors	0.000773	-0.00567	-0.00772
	(0.000659)	(0.00470)	(0.0287)
master	-0.00157*	0.00110	-0.00246
	(0.000891)	(0.00392)	(0.0122)
youngest16_17	-3.86e-05	-0.00153	-0.000716
	(0.000270)	(0.00628)	(0.00367)
efamsize2	0.00471	-0.00560	-0.0622
	(0.00367)	(0.00351)	(0.219)
efamsize3	-4.82e-05	-0.00398	0.00118
	(0.000346)	(0.0132)	(0.00588)
efamsize4	-0.000987	-0.00361	0.00402
	(0.00112)	(0.0110)	(0.0187)
spouse_job	0.00248**	0.00754	0.00445
	(0.00109)	(0.0184)	(0.0184)
Constant		0.153	
		(0.0930)	
Observations	4,967	4,967	4,967

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table 8: Marginal Effects of Labour Force Participation, Education level Less Than College

VARIABLES	(1) Female	(2) Model Male
age15_19	-0.0834***	-0.169***
	(0.0169)	(0.0174)
age20_24	-0.00188	-0.0448***
	(0.0161)	(0.0160)
age25_29	0.0131	0.00236
	(0.0166)	(0.0170)
age30_34	0.0195	0.00369
	(0.0163)	(0.0176)
age40_44	0.0139	-0.0207
	(0.0168)	(0.0180)
age45_49	-0.0164	-0.0277
	(0.0166)	(0.0176)
age50_54	-0.0352**	-0.0558***
	(0.0163)	(0.0168)
age55_59	-0.113***	-0.130***
	(0.0161)	(0.0166)
age60_64	-0.238***	-0.244***
	(0.0150)	(0.0166)
age65_up	-0.545***	-0.568***
	(0.00571)	(0.0121)
montreal	0.00728	0.00386
	(0.0201)	(0.0183)
vancouver	-0.00789	-0.0478**
	(0.0200)	(0.0194)
other	0.0356***	0.0159
	(0.0126)	(0.0118)
newfoundland	-0.0494***	-0.0676***
	(0.0151)	(0.0140)
pei	0.0113	0.0372**
	(0.0173)	(0.0147)
ns	-0.0343**	0.000467
	(0.0136)	(0.0122)
nb	-0.0117	-0.0133
	(0.0131)	(0.0118)
manitoba	0.0193*	0.0441***
	(0.0100)	(0.00908)
saskatchewan	0.0431***	0.0699***
	(0.0112)	(0.00991)
alberta	0.000976	0.0869***

	(0.00968)	(0.00870)
bc	-0.00105	0.0316***
	(0.0110)	(0.0101)
quebec	-0.00269	0.0163*
	(0.00964)	(0.00850)
mar1_2	0.0756***	0.0953***
	(0.0172)	(0.0156)
mar3_5	0.0528***	0.0448***
	(0.0111)	(0.0104)
grade9_10	0.108***	0.0539***
	(0.0102)	(0.00827)
grade11_13	0.231***	0.154***
	(0.00984)	(0.00801)
some_post_secondary	0.193***	0.0853***
	(0.0103)	(0.00937)
youngest0_2	-0.262***	-0.0438*
	(0.0159)	(0.0240)
youngest3_5	-0.198***	-0.0363
	(0.0187)	(0.0274)
youngest6_12	-0.0708***	-0.0270
	(0.0184)	(0.0226)
youngest13_15	-0.0359	-0.000652
	(0.0224)	(0.0276)
youngest16_17	-0.0181	-0.0434
	(0.0243)	(0.0282)
youngest_no	-0.0448***	-0.0753***
	(0.0147)	(0.0172)
efamsize2	0.00573	-0.0368***
	(0.0102)	(0.00955)
efamsize3	0.00346	-0.0290***
	(0.0112)	(0.00975)
efamsize4	-0.0183	-0.0216**
	(0.0118)	(0.0104)
efamsize5	-0.0669***	-0.0381***
	(0.0122)	(0.0108)
spouse_job	0.148***	0.180***
	(0.00884)	(0.00838)
spouse_no	-0.0651***	-0.144***
	(0.0176)	(0.0184)
Observations	25650	25518
LR Chi^2	9658.27	9727.56
Prob > chi2	0	0
Pseudo R^2	0.2728	0.2834

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level. The dependent variable is a dummy variable equal to 1 if the individual is in the labour force. The reference individual is aged 35 to 39, lives in Toronto in the province of Ontario, is single and never wed, whose level of education is a grades 0-8, whose youngest child is aged 18-24; whose family size is one person, and whose spouse has no job.

Table 9: Blinder-Oaxaca Decomposition, Education Level less than College, by variable

VARIABLES	(2) explained	(3) unexplained	(4) intersection
age15_19	0.00177**	0.0120***	0.000731
	(0.000714)	(0.00295)	(0.000818)
age20_24	0.000908**	0.00394**	0.000660
	(0.000355)	(0.00195)	(0.000816)
age25_29	-5.08e-05	0.000531	0.000152
	(0.000367)	(0.00129)	(0.000410)
age30_34	-5.75e-05	0.000700	0.000162
	(0.000276)	(0.00117)	(0.000326)
age40_44	0.000263	0.00169	0.000318
	(0.000233)	(0.00119)	(0.000416)
age45_49	0.000196	0.000776	6.96e-05
	(0.000148)	(0.00137)	(0.000150)
age50_54	0.000223	0.00194	7.33e-05
	(0.000199)	(0.00176)	(0.000124)
age55_59	-0.000530	0.00221	-8.82e-05
	(0.000448)	(0.00168)	(0.000144)
age60_64	-0.00224***	0.00168	-0.000189
	(0.000766)	(0.00138)	(0.000281)
age65_up	-0.0449***	-0.00618	0.00238
	(0.00234)	(0.00395)	(0.00264)
montreal	1.13e-05	8.73e-05	-5.82e-06
	(5.43e-05)	(0.000850)	(5.71e-05)
vancouver	-0.000264*	0.00143	-0.000170
	(0.000155)	(0.000926)	(0.000227)
other	-0.000250	0.0123	0.000189
	(0.000198)	(0.0128)	(0.000282)
newfoundland	-0.000141	0.000730	-3.64e-05
	(0.000152)	(0.000609)	(6.47e-05)
pei	-0.000191*	-0.000711	-0.000106
	(0.000106)	(0.000558)	(0.000149)
ns	2.93e-07	-0.00128*	1.47e-05
	(7.78e-06)	(0.000707)	(6.15e-05)
nb	9.10e-06	0.000133	1.46e-06
	(3.64e-05)	(0.000781)	(1.04e-05)
manitoba	-0.000208	-0.00239**	-9.64e-05
	(0.000164)	(0.00114)	(0.000137)
saskatchewan	- 0.000660***	-0.00223**	-0.000228
	(0.000243)	(0.00100)	(0.000282)

alberta	-0.000344	-0.00835***	-0.000257
	(0.000328)	(0.00122)	(0.000393)
bc	0.000276*	-0.00329**	0.000214
	(0.000152)	(0.00143)	(0.000267)
quebec	3.11e-05	-0.00269	2.69e-05
	(7.41e-05)	(0.00174)	(7.07e-05)
mar1_2	-0.00174***	-0.0127	-0.000383
	(0.000638)	(0.0104)	(0.000544)
mar3_5	0.00650***	0.000181	-0.000228
	(0.00161)	(0.00127)	(0.00175)
grade9_10	-0.00135***	0.0128***	0.000873
	(0.000375)	(0.00357)	(0.000990)
grade11_13	0.00164*	0.0208***	-0.000451
	(0.000910)	(0.00491)	(0.000556)
some_post_secondary	0.00107***	0.0119***	-0.000891
	(0.000390)	(0.00184)	(0.00107)
youngest0_2	-1.75e-05	-0.00717***	6.03e-05
	(0.000103)	(0.00108)	(0.000341)
youngest3_5	-0.000155	-0.00327***	0.000462
	(0.000136)	(0.000756)	(0.000507)
youngest6_12	-8.75e-05	-0.00152	8.90e-05
	(0.000101)	(0.00116)	(0.000129)
youngest13_15	-7.32e-07	-0.000583	2.64e-05
	(3.10e-05)	(0.000636)	(5.61e-05)
youngest16_17	-1.77e-05	0.000396	-8.35e-06
	(6.69e-05)	(0.000517)	(3.41e-05)
youngest_no	0.00113**	0.0253*	0.000400
	(0.000450)	(0.0151)	(0.000459)
efamsize2	-0.000801***	0.0124***	-0.000690
	(0.000289)	(0.00392)	(0.000841)
efamsize3	0.000357**	0.00505**	0.000298
	(0.000176)	(0.00220)	(0.000377)
efamsize4	0.000427*	0.000814	7.84e-05
	(0.000224)	(0.00228)	(0.000246)
efamsize5	-0.000116	-0.00246	4.88e-05
	(0.000157)	(0.00175)	(8.45e-05)
spouse_job	0.00518***	-0.0298***	0.000985
	(0.000930)	(0.00793)	(0.00110)
spouse_no	-0.00282***	0.0402***	-0.00128
	(0.000920)	(0.0106)	(0.00161)
		-0.191***	

Constant			
		(0.0369)	
Observations	51,168	51,168	51,168

Note: Standard errors are in parentheses * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A1 Variables retrieved from Labour Force survey.

Variable Name	Definition
LFSSTAT	Labour force status
PROV	Province
CMA	3 largest CMAs
AGE_12	Age of respondent (5yr age gaps)
SEX	Sex of respondent
MARSTAT	Marital status of respondent
EDUC90	Highest education attained (1990 onward)
EFAMSIZE	# of individuals in economic family
SP_LFSST	Spouse - Labour Force Status
AGYOWNKN	Age of youngest own child