

**The Quebec-Ontario Earnings Gap: Investigating 1980-2005
Earnings Patterns and Possible Explanations**

by

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1 Introduction

Income distribution and earnings inequality have generated a lot of attention and concern in the past decades, especially recently, during and following the last financial crisis. Even though most of the discussions have focused on the case of the United States, we also know, thanks to a significant accumulation of studies, that Canada has not been spared by the recent trend of growing inequality.

In the United States, some influential papers have established a wide consensus that earnings inequality had been growing sharply in the 1980s, and that the main factors behind this growth operated through the increase in the relative demand for skilled workers (Bound and Johnson, 1992; Katz and Murphy, 1992; Levy and Murnane, 1992; Juhn *et al.*, 1993). In Canada, analogous studies conclude that earnings inequality, particularly among men, became more pronounced in Canada throughout the 1980s (Myles *et al.*, 1988; Morissette *et al.*, 1994; Burbidge *et al.*, 1993; Beach and Slotsve, 1994; Richardson, 1997). According to Breau (2007), however, more recent evidence suggests that the pace of growth of income inequality (measured by the Gini coefficient) among Canadian households accelerated in the 1990s from a 2.9 percent increase over the 1981 to 1989 period to a 6.5 percent increase from 1990 to 1999.

In Canada, while studies have emerged about the overall level in income inequality, some of its sub-group patterns and its shifts over time, very little attention has been paid to provincial level empirical evidence.¹ In particular, no study has been made on the comparison of two particular provinces' earnings inequality even though provincial-level data such as the Gini coefficient reveal obvious discrepancies.²

The purpose of this paper is to provide results on this subject that has been largely

¹Sharpe and Zyblock (1997) look briefly at family income inequality across provinces as opposed to Finnie (2001) who focuses on individuals' earnings at the provincial level.

²Statistics Canada. Table 202-0705 - Gini coefficients of market, total and after-tax income, by economic family type, annual (number), CANSIM (database).

overlooked by researchers. In particular, the goal of this paper is to do a comparison of the annual wage and salary (henceforth “wage”) differentials between men and women living in the provinces of Quebec and Ontario using the public censuses micro data from 1980 to 2005 (that represent approximately 2 to 2.7% of the total Canadian population). This analysis will be done in terms of both the wage levels and the wage distribution. After this descriptive part, possible factors are investigated to explain the recent wage patterns and differences in both provinces. The distinctive feature of this study is therefore to focus the analysis on two provinces only, which should improve the understanding of the Canadian labour market in general, and of this region specifically. A secondary contribution of this paper is to expand our knowledge of wages patterns for women as well as men in this market.

The first part of this paper begins with a contrast of the overall level of the wage and salary gap between Quebec and Ontario throughout the years. Following that is a comparison of the wage distribution by sex across the same two provinces in order to uncover the main differences. The analysis is done using tables of wage deciles for each census and sex, figures representing ratios of inequality measures, and Gini coefficients. To conclude this stage of inquiry, comparison of the two provinces’ major patterns within wage distributions is made. A particular attention is put on the specific shifts in the respective two halves of the wages distribution over time.

The second part of this paper studies the role of demographic and education variables in the change of inequality in both provinces. In the first place, Oaxaca decompositions are implemented to investigate the main possible factors influencing the 1980-2005 wage differentials in Quebec and the possible main variables “explaining” the Quebec-Ontario 2005 wage gap. Following, Unconditional Quantile Regressions (UQRs), a recent methodology based on Firpo *et al.* (2009), are used to study the major effects identified previously with the Oaxaca decompositions. This technique allows characterizing the impact of a change in the distribution of any single variable

on the marginal distribution of the wage variable. The model implemented also includes other variables such as the size of the municipal area of residence, the marital status of workers and if the worker had a part-time job during the previous year —to control for other significant factors affecting the wages. This stage of the paper should provide possible explanations for the key features of the findings of the previous part.

These two most populous provinces of Canada provide a particularly interesting framework of study because of the economic similarities they have. Close geographically, these two biggest provinces represent more than a half of the Canadian economy³, and they constitute the traditional manufacturing heartland of the country. These two provinces, having language and cultural differences, have also been subject to major transformations in the past decades. Most notably, the 1985-2005 period has been characterised by a constant increase of the population with a post-secondary education as well as an increase of female labour force participation, which had climbed from 50 percent in 1980 to reach a plateau around 60 percent in the early to mid-1990s (Fortin and Schirle, 2006). Moreover, these provinces had highly uneven regional growth rates and relatively distinctive economic sectors. It is hence not obvious to expect any strong pattern. On the one hand, one could hypothesize that the province of Quebec, generally considered as having a stronger “social democratic” tradition, might be less unequal than Ontario that has had a growing financial sector; on the other hand, the province of Quebec has a bigger resource-based economic sector that could have the opposite effect on the wage distribution.

There are many reasons why this research is worth pursuing. For instance, excessive inequality can threaten social cohesion (Neckerman and Torche, 2007) and social mobility (Andrews and Leigh, 2009). Moreover, it can lead to a less productive economy and a smaller rate of economic growth (Persson and Tabellini, 1994). When the income distribution becomes different among different regions of a same

³Statistics Canada, CANSIM, table 384-0038

country, it has potentially important public policy implications for both provincial and federal governments. The latter plays a role to decrease the consequences of the disparities (through individual taxes and transfers) and also possibly to reduce the income differences across provinces. Great imbalance can create serious consequences which is why it is important to observe them and to try to better understand what cause them. This study should hence provide useful information for issues related to social programs, public finance and other public policy questions.

This paper is organized as follows. The next section presents a review of the relevant literature. Section 3 focuses on the description of the data used in this study. Section 4 provides the empirical findings for the first part of the study, whereas section 5 provides the ones for the second part. Finally, section 6 summarizes and concludes.

2 Literature Review

So far, few papers have focused their attention on the dynamics of income distribution across Canadian provinces. There are, however, two contributions that are worth to be mentioned in this area, namely the ones of Finnie (2001) and Breau (2007). The latter investigates possible factors influencing recent trends in income inequality across Canadian provinces by looking at the period from 1981 to 1999, while the former, having a more limited scope, provides inequality outcomes at the provincial level for the 1982-1994 period. Before describing the main findings of these two papers, this section presents a short review of the literature on the main possible explanations of the recent rise in income inequality in industrialized countries. These explanations provide an important support for the findings presented in the second part of this paper.

2.1 Explanations of the rise in income inequality

According to MacPhail (2000), possible factors contributing to rising income inequality in various industrialised countries, such as the U.S., the U.K. and Canada are, namely: (i) macroeconomic conditions; (ii) deunionisation; (iii) the decline in minimum wages; (iv) deindustrialisation; (v) increased trade; (vi) technological change; (vii) increased relative supply of university educated workers; and (viii) increased relative supply of female workers. Following the popular categorisation of Breau (2007), these explanations can be grouped into three categories: (i) the demand for or (ii) the supply of certain goods and skills, and (iii) institutional factors that affect wages and incomes. These arguments are covered briefly below.

2.1.1 Demand-side explanations

Most researchers agree that the overall rise in inequality has been largely driven by demand-side shift explanations. The next discussion highlights the main arguments of this category.

The best known explanation for the rise in inequality is skill-biased technological change. This theory argues that the demand for skilled workers has increased due to advances in information and computer technologies (Krueger, 1993; Berman *et al.*, 1994). According to this explanation, the technology improvement stimulates the demand for highly educated workers, increasing their wages, and reduces the demand for the less skilled workers. Moreover, the new communications technology has also facilitated the outsourcing of production for firms to low wage countries. Many years later, this explanation still remains central in the research on inequality. For example, Acemoglu (2002) still concludes that inequality growth in the United States throughout the 1970s, 1980s and 1990s was largely due to technological change, or possibly, endogenous technological change.

A second well-known explanation is globalization (i.e., the increased quantity of

international trade). The basic premise behind this argument mainly follows the traditional Heckscher-Ohlin framework that affirms that changes of factors of production prices should happen between different countries' industries and hence affects the distribution of income. However, the empirical evidence for this explanation is mixed. Berman *et al.* (1994), for instance, dismiss the trade explanation on the basis that most of the increase in the use of skilled labour happens within industries.

An alternative explanation is deindustrialization. This theory argues that the employment in the manufacturing sectors has declined in the last decades in many industrialized countries. For example, the manufacturing sector in Canada employed 14.4% of the female workers in 1981 and 26.5% of the male workers in the same year. However, between 1980 and 1989, these percentages dropped to, respectively, 11.2% and 24.6% (MacPhail, 2000). According to Harrison and Bluestone (1990), this shift of workers from relatively high paying, largely unionised, full-time jobs of the manufacturing sector to the on average lower-paying, largely non-unionised, often part-time, service sector have increased earnings inequality. Richardson (1997) and Morissette (1995) find similar evidence.

2.1.2 Supply-side explanations

On the supply side, one of the arguments is that the decline of the relative supply of university-educated workers has increased the education premium and consequently, the inequality of earnings. For example, Blackburn *et al.* (1990) show that the slower growth in the supply of college-educated workers can explain about 50% of the rise of the education premium throughout the 1980s in the United States. In Canada, however, this explanation is less convincing since the growth of post-secondary enrollment, especially university graduates, was higher than in the United States (Freeman and Needels, 1991).

Another argument is that the increasing of female participation in the labour

market could have increased this inequality. The idea behind this explanation is that the growth in women's earnings during the 1980s was concentrated among those in high-income families (Karoly and Burtless, 1995). However, different empirical results show that this theory is ambiguous. Richardson (1997) concludes that, based upon decomposition analysis, the increase in the proportion of female workers accounts for only 6% of the increase in weekly earnings inequality of the Canadian population. For the United States, for instance, Harrison and Bluestone (1990) conclude, on the other hand, that the increased of female labour participation did not have an impact on the change in inequality.

2.1.3 Institutional explanations

Another possible explanation for the increase in earnings inequality is the de-unionization. The premise of this explanation is that members of unions generically have higher wage rates than non-unionized workers. Without the representation of a union for the workers, Kuhn (1998), for example, reports a 15 percent lower average wage rate in North America. Therefore, according to this theory, the decrease of the unionization rate has led to a higher number of lower-paid workers than otherwise, which has in turn, increased income disparity. Similar evidence for Canada is found as well in Lemieux (1998) and Card *et al.* (2004). The latter study shows evidence of a correlation between the magnitude of the decline in unionization and the growth in inequality in Canada, the U.S. over 1970-1990 and 1980-1990 for the U.K. and Canada.

The decline in the minimum wages could also play an important role in the inequality. This argument, similar to the one above, argues that the distribution of income became more unequal due to the larger quantity of low-paid workers. For instance, DiNardo *et al.* (1996) provide evidence that the decline in the real value of the minimum wage had a large impact on wage inequality among women, and

a smaller but still significant impact among men. Lee (1999) later confirmed this finding. However, Morissette (1995) has a different conclusion for Canada. In fact, the paper reports that the decline in the real minimum wage is unlikely to explain a substantial fraction of the decrease in youth real wages, and, hence, the age premium in this country.

The business cycles could also be one of the factors since a higher unemployment rates is said to exacerbate wage inequality. In the United States, Burtless (1990) finds for the 1954-1986 period that the change in the unemployment rate accounts for about one-fifth of the rise in annual earnings inequality for men and almost no increase for women. The rationale behind this explanation is that lower demand for workers decrease the wages more, proportionality, at the lower end of the wage distribution. Erksøy (1994) and Johnson (1995) also show similar evidence for Canada.

Finally, in addition to the factors mentioned in MacPhail (2000), the issue of the growing inequality at the top end of the distribution has also been mentioned recently by Piketty and Saez (2003) for the United States. This paper explains that one of the reason for the growth in top-end inequality is the improvement of technology that makes managerial skills more general and less specific to companies, hence increasing global competition for top managers. The second reason mentioned is that changes in pay-setting institutions and social norms have removed some barriers to higher wages in countries like the United States. For Canada, Saez and Veall (2005) and Veall (2012) used tax-filer data to document and describe the surge of top incomes in Canada beginning in the mid-1980s. Veall (2012) shows that the rise is more important in Alberta, British Columbia and Ontario.

2.2 Main findings of Finnie (2001) and Breau (2007)

The paper of Finnie (2001) reports the results of an empirical analysis of earnings inequality at the provincial level in Canada over the 1982-1994 period based on the Longitudinal Administrative Database (“LAD”). The inequality measure employed in this analysis is the Gini coefficient. At the national level, Finnie (2001) finds that most of the increases in earnings inequality occurred from the late 1980s to the early/mid-90s. This period was characterized by a recession and a subsequent slow recovery. Most interestingly, this paper shows that Newfoundland had the greatest degree of overall earnings inequality, followed by Prince Edward Island, New Brunswick and Nova Scotia. Therefore, the Atlantic provinces clearly distinguish themselves from the rest of the country in terms of overall level of earnings inequality. On the other hand, Manitoba, Quebec, Ontario and Saskatchewan were consistently the provinces with the lowest levels of earnings inequality, whereas Alberta and British Columbia generally had Ginis near the national levels. Finnie (2001) therefore rejects the link between general income level and inequality, as well as the one with “resource-based” provinces. In fact, the results show that provincial trends seem to defy any simple categorisation. The study also reveals that, when the inequality is measured by sex, the smaller gender earnings gap in Quebec makes the inequality of the province similar to the national level (i.e., the inequality increases). This fact implies that the low inequality measured in this province when all workers are considered is driven by below-average between-group inequality (the gender earnings gap). Finally, another interesting feature of the research is that provincial inequality was also measured by age-sex groups. This part confirms already well-known findings, that is, that earnings inequality is generally greater for the youngest and oldest groups of all workers (including part-time workers) than for those in their middle years. The most important findings of this stage, however, is that the provincial patterns seen at the aggregate levels largely hold for the specific age-sex groups as well.

In Breau's paper (2007), on the other hand, the relationship between rising income inequality across Canadian provinces and the various causal explanations offered in the literature are explored. In order to reflect a broader measure of economic well-being, Breau (2007) uses total household income data and uses two different measures of inequality based on Statistics Canada's Survey of Consumer Finances (SCF) and Survey of Labour and Income Dynamics (SLID), namely the simple ratio of the share of total income received by the top quintile (or top 20% of households) to that received by the bottom quintile (Q5/Q1) and the Gini coefficient. Panel data for the period 1981-1999 are used with various independent variables accounting for many of the possible explanations of income inequality exposed above. The results provide clear evidence for the three categories of explanations above. The most interesting factors for the present study are the following: the percentage of workers employed in manufacturing industries has a strong negative influence on income inequality; greater educational heterogeneity across provinces strongly increases income inequality; female labour force participation rates have a strong negative relation with inequality—contradicting Karoly and Burtless (1995); concerning the age structure, the estimate for the percentage of the province's population aged 65 years and over is not statistically significant whereas the ones for the percentage of the population under the age of 15 shows a strong negative effect on inequality—a result, according to the author, not consistent with the typical interpretation of this variable; cutbacks in social programs at both levels of government (i.e., federal and provincial) seem to have contributed to inequality as well. To conclude, all the inferences of Breau(2007) are done with provincial-level data. Hence, most of the explanations proposed by this latter paper should be consistent at smaller scale, that is, the one chosen for this present study.

3 Data Used in Present Study

In this section, I provide a description of the data source used in this study and I present the choice of the dependent and the independent variables of the empirical analysis.

3.1 Data source

The data bases used in this analysis are the 1981 to 2006 Canadian Census Public Use Microdata Files (PUMF) on individuals. The PUMFs contain samples of anonymous responses to the Census questionnaires representing approximately 2% to 2.7% of the Canadian population.

Many reasons justify choosing this data base. One of the main advantages is that the Censuses provide large sample sizes which are crucial when focusing on smaller sub-samples such as the two provinces of interest in this study. Moreover, the Census is said to be less affected by a problem that has been identified in the Survey of Consumer Finance (SCF) —another popular source in previous Canadian research—that is, the non-reporting of earnings and other information at the bottom of the income distribution (Frenette *et al.*, 2006). Another advantage of the Census is the rich information on educational attainment throughout the years (except in 2006) and other key variables.

It is, however, important to note that a few changes in the 2006 Census create some comparability problem with the 1981-2001 data. First, the number of years of schooling is not available in the 2006 Census. Therefore, it is not possible to create precise numbers for the years of potential work experience. Furthermore, respondents who were required to fill in the “long form” of the Census had the opportunity of allowing Statistics Canada to access their income tax records instead of self-reporting the income, as was the case with the previous Censuses. Consequently, the infor-

mation on wages is not strictly comparable with earlier Census data. Finally, the variable of the highest diploma or degree has three more values in the 2006 Census to specifically include certification by a type of educational institution found only in Quebec. This change also limits the comparison of educational attainment with previous years.

3.2 Dependent variable

Social scientists may study inequality both for an interest in equity and as a form of evidence on how the economy functions. Since my primary interest is the latter, I choose to focus on an income measure that is closely related to factor prices and supplies, that is, earnings from wages and salaries (for conciseness, only the term “wages” will be used in this paper). This dependent variable was chosen rather than earnings for a reason of interpretability. In fact, the only difference between these two variables is the inclusion of the net self-employment incomes which are partly a return on capital and entrepreneurship and partly a form of earnings. Representing a small proportion of the total earnings, this source of income is extremely heterogeneous and can be manipulated due to the incentive to declare deductions in order to reduce tax payable. Hence, because of all the shortcomings of this variable, using only the wages variable provides a much clearer representation of the income outcomes of the Canadian labour market.

The following restrictions are also imposed on the samples used in this analysis. First, the person had to have at least \$1,000 (in 2002 constant dollar) of wage. This restriction was made in order to exclude individuals with very little marginal attachment to the labour force. Secondly, only adults aged 25 to 59 are kept in order to exclude students and other younger workers who generally have a looser attachment to the labour force, while the older workers were dropped to avoid issues relating to the transition to retirement. The estimation samples of this paper also involve a

breakdown by gender. This allows one to examine particular wages patterns for each sex.

In the second empirical stage of the paper, a logarithmic transformation is applied to the values of the wages as the dependent variable in a regression analysis. The main reason is to avoid possible problems related to the most likely positive skewness of the wage distribution in my samples. Using a log transformation makes positively skewed distribution “more normal” which, in this particular case, reduces the influence of the very high income individuals in my regressions. This technique, therefore, allows reducing potential problems of extreme heteroskedasticity. Moreover, this transformation makes the interpretation of the unconditional quantile regression (or UQR) coefficients easier. When a dependent variable is in its log-transformed state and the predictors are not, a one-unit change in the independent variable is associated with a percent change in the dependent variable.

3.3 Independent variables

In the second empirical stage of this paper, UQRs are used to study the role of demographic and education variables in the change of inequality in Quebec and Ontario. The next lines present the choice of these variables.

On the one hand, the variable of the individuals’ highest level of completed education (using dummy variables) is used as the education measure. The decile UQR coefficients for these variables provide information on the role of the education on the overall wages dispersion. The UQR coefficients, by construction, capture both within-group and an inequality enhancing between-group effect. Therefore, the analysis of the impact of education on the dispersion of wages will take into account both the evolution of the level of educational attainment and the changes of its premium over the years 1980-2005.

On the other hand, the relationship between demographic shifts and changes in

income inequality is examined using the variables age and age squared. These variables are included in the model since returns to education tend to grow as function of age due to the concavity of earnings-experience profiles (Mincer, 1974). Therefore, in the context of a rapid ageing of the Canadian population, experience —through the close proxy of age —must be controlled to avoid spurious changes in the returns to education. Most importantly, beyond this control, the UQR coefficients of these variables allow one to examine the role of the premium associated to the age and the impact of its composition on Quebec and Ontario’s wages distribution.

Other variables are also included in the regressions to control for observed differences other than education and age groups. The first one is a variable for individuals that had a part-time job during the previous year (i.e. less than 30 hours per week), since obviously, workers working part-time weeks have a much smaller annual wages than full-time workers. The other variables included in the model are dummies for the marital status that capture the difference in wages between married, divorced (or widowed), and non-married people, and the size of the area of residence that may affect occupational employment and types of industries present.

4 Empirical Findings - Part 1, Descriptive Evidence

This section begins by a descriptive comparison of the overall wage level and some aspect of the wage distribution of Quebec and Ontario over time. In the second part, the relationship between wage distributions in the two provinces and education and age variables using Unconditional Quantile Regressions over time is examined.

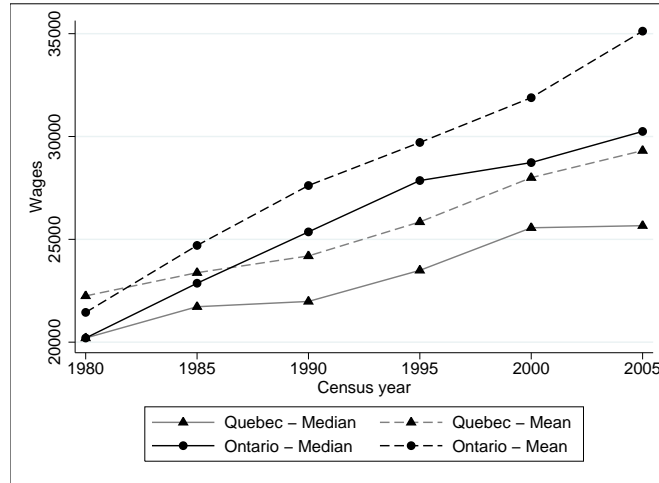
4.1 Overall comparison of earnings levels over time

Figure 1a shows the evolution over the 1980-2005 period of the median and the mean of annual wages among females living in Quebec and Ontario, while Figure 1b shows the same values for males. The two tables below represent deciles of wages by gender for the year 1980 and the year 2005. Differences of wages expressed as percentages are also provided in these tables. ⁴

Concerning the two measures of central tendency presented in the figures, for both sexes and the two provinces, the lines of the means always lie above the lines of the medians. Moreover, the differences between the means and the medians are increasing over time, particularly between 2000 and 2005. This observation is consistent with the growth of wages in the very top of the earnings distribution mentioned in Saez and Veall (2005) and Veall (2012).

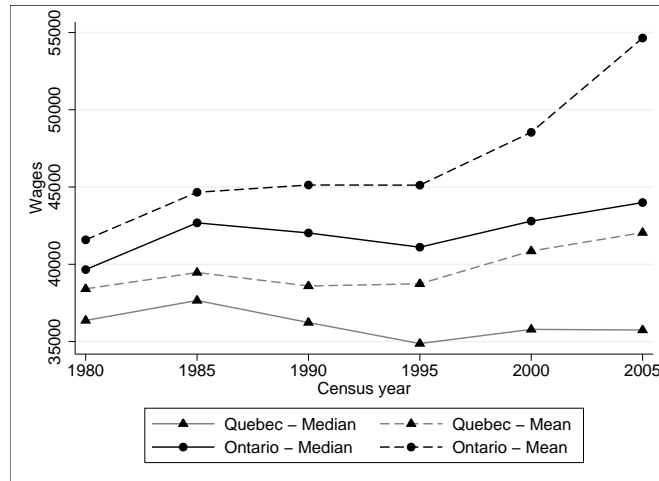
⁴The tables of the other Census years are presented in the Appendix.

Figure 1a: MEDIANS AND MEANS OF ANNUAL WAGES(IN 2002 DOLLARS) OVER TIME; FEMALES



Source: Author's calculations from the Census PUMF files.

Figure 1b: MEDIANS AND MEANS ANNUAL OF WAGES(IN 2002 DOLLARS) OVER TIME; MALES



Source: Author's calculations from the Census PUMF files.

Tables 1 and 2 show that the median wages among females were identical between Quebec and Ontario in 1980, but 17.86% superior in Ontario than in Quebec in 2005.⁵ For the men’s wages, this difference increased from 9.06% in 1980 to 23.08% in 2005. Concerning the differences in the means, it rose among females from -3.60% in 1980 to 19.82% in 2005 (i.e., the females’ wages were higher in 1980 in Quebec than in Ontario). Analogously, the ones for males increased from a 8.26% in 1980 to a 29.95% in 2005. These numbers reveal a sheer increase of wages among women living in Ontario, especially in the 1980s (see Tables 12-15 in the appendix). In fact, most of the augmentation in the differences occurred in the same period for both sex. Again, these results are consistent with the evidence of Veall (2012). Indeed, since these gaps are more pronounced for the means (e.g., 29.95% compared to 23.08% for the median of men’s wages in 2005) starting from the 2001 Census for females and from the 2006 Census for males (except in the 1991 Census for men), it confirms the evidence of a sharper surge of top incomes in Ontario. This surge in the latter province have created larger differences in the means as opposed to the ones in the medians.

Table 1: WAGES BY DECILE FOR THE 2006 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	7,333	12,832	9,166	7,333	10,999	8,249	0.00	16.67	11.11
2	13,749	22,915	16,499	11,916	18,332	14,665	15.38	25.00	12.50
3	19,248	31,164	23,831	16,499	24,748	20,165	16.67	25.93	18.18
4	24,748	37,580	30,247	21,082	30,247	25,665	17.39	24.24	17.86
5	30,247	43,996	36,664	25,665	35,747	30,247	17.86	23.08	21.21
6	35,747	51,329	43,080	30,247	41,247	35,747	18.18	24.44	20.51
7	42,163	59,578	51,329	35,747	48,579	42,163	17.95	22.64	21.74
8	50,412	70,577	62,328	43,080	57,745	50,412	17.02	22.22	23.64
9	65,995	88,909	77,910	54,079	73,327	65,078	22.03	21.25	19.72
Mean	35,123	54,644	44,972	29,314	42,051	35,915	19.82	29.95	25.22

Source: Author’s calculations from the Census PUMF files.

⁵The calculations of the deciles were made using the command *pctile* in Stata 12.

Table 2: WAGES BY DECILE FOR THE 1981 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	4,040	16,077	7,273	4,255	13,446	7,556	-5.03	19.56	-3.74
2	8,081	24,883	14,141	8,081	21,212	14,141	0.00	17.30	0.00
3	12,121	30,303	20,202	12,121	26,869	20,202	0.00	12.78	0.00
4	16,162	35,539	25,657	16,162	31,919	24,499	0.00	11.34	4.73
5	20,202	39,657	30,303	20,202	36,364	30,248	0.00	9.06	0.18
6	23,838	43,279	36,364	24,242	40,404	34,604	-1.67	7.12	5.06
7	27,000	48,485	40,404	28,283	45,426	40,404	-4.54	6.73	0.00
8	32,121	54,568	48,200	34,288	51,778	46,465	-6.32	5.39	3.74
9	40,404	66,667	58,722	42,828	62,626	56,566	-5.66	6.45	3.81
Mean	21,448	41,584	33,024	22,249	38,413	32,064	-3.60	8.26	2.99

Source: Author's calculations from the Census PUMF files.

Interestingly, the tables above also demonstrate that women's wages increased from 1980 to 2005 over the whole distribution in both provinces. For men, however, the wages decreased over the lower half of the distribution in Quebec, and over the lower 20% of the distribution in Ontario. This implies that the increase of men's wages over the period is mostly attributed to a growth in the wages of the upper side of the wage distribution, and this is especially so in Quebec.

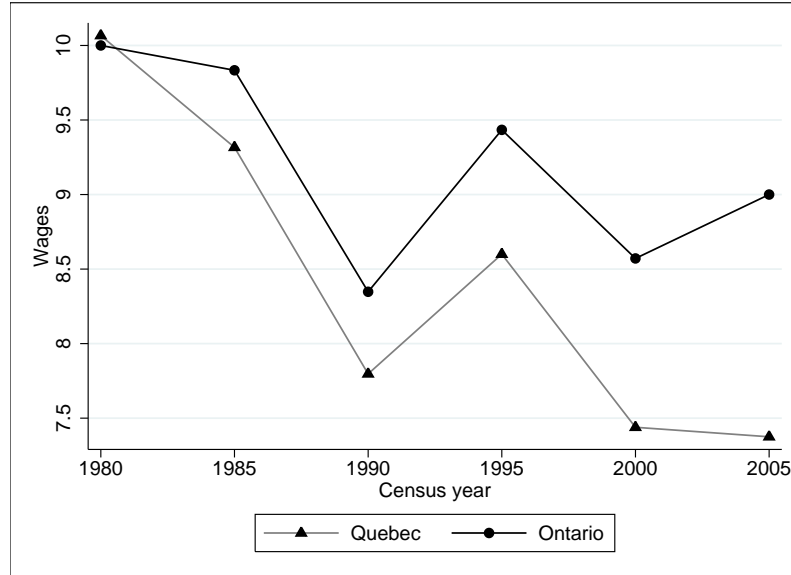
Concerning the males and females wage gap, the latter on average declined in both Ontario and Quebec. In percentage terms, the ratio of the mean of women's wages to that of males increased from 51.58% in Ontario and 57.92% in Quebec in 1980 to respectively 64.28% and 69.71% in 2005. This means that wages among females have risen more than among men and that this growth, as said above, was stronger, relatively to men, in Ontario.

4.2 Comparison of the earnings distributions

The figures below provide different measures of income inequality. The first is a ratio of the top decile to that of the bottom decile ($D9/D1$). The second set of figures represents similar ratios for the lower half of the wage distribution ($D5/D1$), while the last set shows ratios of the upper half of the distribution ($D9/D5$).

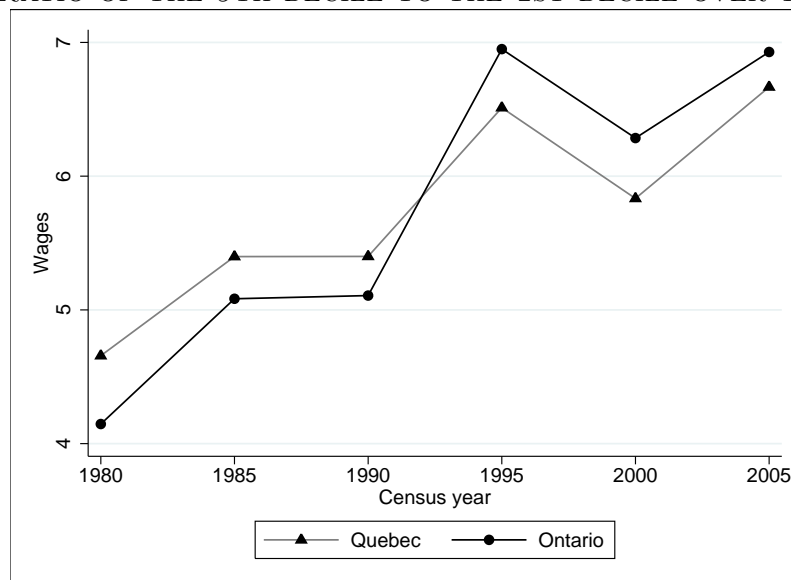
Figures 2a and 2b highlight important results on inequality of the overall wage distribution. These two figures show that wage inequality in Ontario is higher than in Quebec, and much more so among females than males. Moreover, from 1980 to 2005, the $D9/D1$ ratios largely declined among women in both provinces, albeit more markedly in Quebec. From a value of approximately 10 in both provinces in 1980, the ratio dropped to 9.00 in Ontario and 7.37 in Quebec in 2005. This shows an important drop of overall wage inequality among females in Quebec. This may possibly reflect a growing proportion of full-time workers. Conversely, among males during the same period, the ratios rose greatly from 4.66 to 6.93 in Ontario and from 4.15 to 6.67 in Quebec. These may indicate widening wage inequality for the various reasons reviewed in Section 2. Interestingly, these opposite patterns by sex, similar in both provinces, made the overall wage inequality much more similar across genders. The figures also demonstrate that wage inequality has always been higher in Ontario than in Quebec among women (except in 1980), but higher for men only starting in the mid-90s.

Figure 2a: RATIO OF THE 9TH DECILE TO THE 1ST DECILE OVER TIME; FEMALES



Source: Author's calculations from the Census PUMF files.

Figure 2b: RATIO OF THE 9TH DECILE TO THE 1ST DECILE OVER TIME; MALES



Source: Author's calculations from the Census PUMF files.

The results in Figures 2a and 2b can be compared to Gini coefficients as well; Table 3 presents these coefficients. Looking at the coefficients among females, the picture is now somewhat different than the one described above with the D9/D1 ratio. While the Gini coefficient decreased slightly in Quebec from 37.68% to 37.27%, it increased in Ontario from 36.82% to 39.68%. The two measures' discrepancy can undoubtedly be explained by the broader coverage of the Gini coefficient. In fact, while the D9/D1 ratio is based only on two points of the wage distribution, the Gini coefficient is influenced by all wage values across the distribution, including the ones above the 9th decile. This result is, therefore, consistent with the surge of top incomes observed in Veall (2012). For the Gini coefficients among males, the patterns are now much more similar to the ones observed with the D9/D1 ratio. Indeed, the Gini coefficients increased greatly in both provinces (i.e., from 29.91% to 37.58% in Quebec and from 28.47% to 41.25% in Ontario). These results demonstrate clearly that the wage inequality across genders rose more in Ontario than in Quebec. Finally, one could observe the Gini coefficients including workers of both sexes also captures the between group inequality, that is, the gender wage gap. Once again, the growth of wage inequality is more important in Ontario. From 35.39% in 1980, the Gini coefficient increased to 41.95% in Ontario in 2005, and from 35.01% in Quebec, it rose to 38.54% over the same period.

Table 3: GINI COEFFICIENTS OF ANNUAL WAGES (IN 2002 DOLLAR)

Census Year	Ontario			Quebec		
	Female	Male	Total	Female	Male	Total
2006	.3968	.4125	.4195	.3727	.3758	.3854
2001	.3684	.3478	.3725	.3607	.3410	.3622
1996	.3676	.3432	.3697	.3673	.3465	.3698
1991	.3594	.3156	.3566	.3626	.3255	.3604
1986	.3754	.3071	.3651	.3665	.3163	.3591
1981	.3682	.2847	.3539	.3768	.2991	.3501
Mean	.3726	.3352	.3729	.3678	.3341	.3645

Source: Author's calculations from the Census PUMF files.

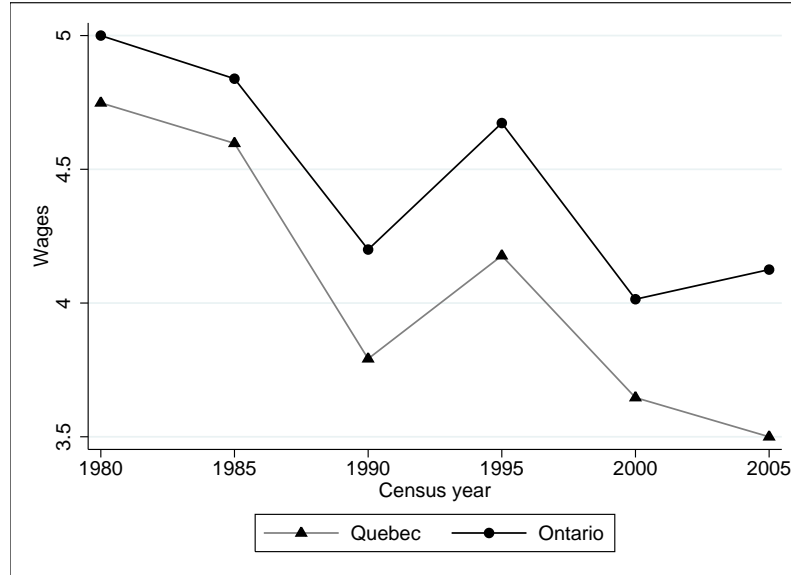
Figures 3a and 3b covering the lower half of the wage distribution tell two contrasting stories. The former figure shows a great decline in wage inequality among females over the lower half of the wage distribution, whereas the latter figure reveals a tremendous rise in wage inequality among males over the same part of the distribution. Patterns across Quebec and Ontario are once again similar, although at somewhat different scale. On the one hand, the ratios of the 5th decile over the 1st among females change from 5.00 to 4.12 in Ontario over the 1980-2005 period and more significantly, from 4.75 to 3.50 in Quebec. This larger reduction in Quebec implies a larger decrease of wage inequality over the lower half of the wage distribution in this province. On the other hand, for males, the ratios increase from 2.70 to 3.43 in Ontario and from 2.47 to 3.25 in Quebec over the same period. Therefore, in both provinces the rises in wage inequality over the lower half of the distribution were major. Moreover, as with the D9/D1 ratios, the inequality in Ontario became more important than in Quebec from 1995 on. Once again, the inequality across genders converged over this lower part of the distribution from 1980 to 2005.

Figures 4a and 4b present the ratios of the upper half of the wage distribution. This time, patterns across genders are less distinct. For females the ratio of the 9th decile to the 5th decile is barely changing. In fact, the ratios always stay in the range of 2.0 and 2.2. More precisely, after shifting up and down a little, they increased slightly in 1995 and 2000 in Ontario and in 2000 in Quebec to respectively finish at values of 2.18 and 2.11 in the last Census. For males, both ratios followed a quite similar pattern. Starting from a ratio of respectively 1.68 and 1.72 for Ontario and Quebec, they increased to 2.05 and 2.02. Therefore, wage inequality over the upper half of the distribution has risen across genders, but much more so for males. A few remarks can be made on this result. Firstly, the ratios across sex are almost identical which indicates that wage inequality —not levels— in this part of the distribution, is similar. Furthermore, the results for males could again indicate, to a certain extent,

a contradiction of Veall's (2012) evidence. A comment, however, could to be made on this matter. Veall's results are made with respect to the top 1%, top 0.1% and top 0.01% of income recipients. Therefore, the measure of income inequality used in this paper, that is, the 9th decile, does not capture the surge of income in the extreme top of the income distribution on which Veall is focused. This could explain why this ratio is not higher in Ontario than in Quebec.

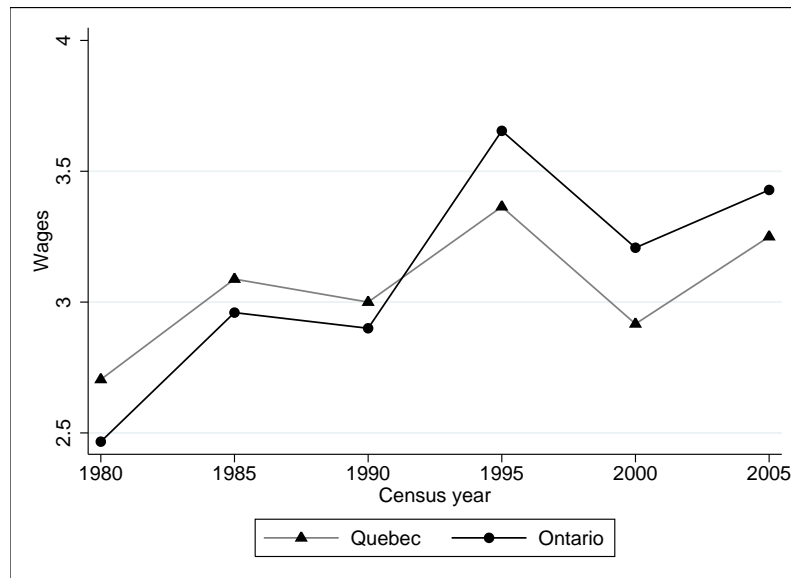
To conclude this section, when the two decile ratio measures of inequality used are taken together, we find that the decline in wage inequality among females has occurred over the lower half of the wage distribution —with a slight raise in the upper part of the distribution —whereas the rise in wage inequality among males has occurred over the full wage distribution, but predominantly in the lower half of the wage distribution. These opposite patterns have made the wage distribution across genders much more similar. Moreover, the results show that patterns across Ontario and Quebec were quite comparable as well. However, since the difference in inequality over the lower half of the wage distribution is much higher than the difference the upper half, Ontario has, overall, greater wage inequality than in Quebec.

Figure 3a: RATIO OF THE 5TH DECILE TO THE 1ST DECILE OVER TIME; FEMALES



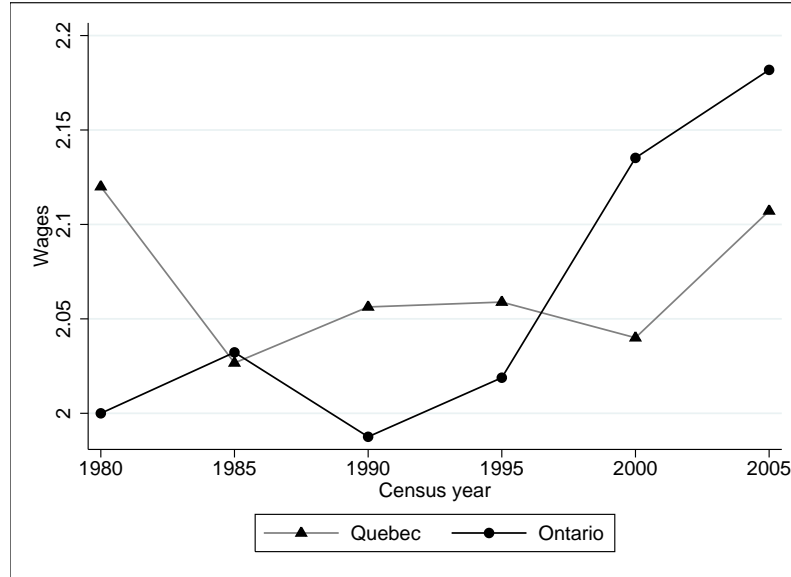
Source: Author's calculations from the Census PUMF files.

Figure 3b: RATIO OF THE 5TH DECILE OVER THE 1ST DECILE OVER TIME; MALES



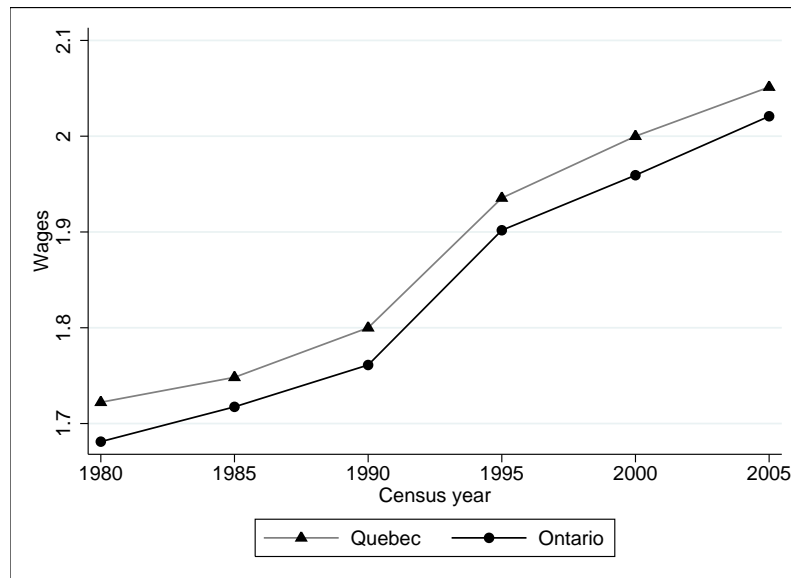
Source: Author's calculations from the Census PUMF files.

Figure 4a: RATIO OF THE 9TH DECILE TO THE 5TH DECILE OVER TIME; FEMALES



Source: Author's calculations from the Census PUMF files.

Figure 4b: RATIO OF THE 9TH DECILE TO THE 5TH DECILE OVER TIME; MALES



Source: Author's calculations from the Census PUMF files.

5 Empirical Evidence - Part 2, Regression Evidence

In this second part of the paper, Oaxaca decompositions are used to identify the main variables “explaining” the wage differences through time within the province of Quebec and to investigate the main possible determinants of the 2005 wage gap between Quebec and Ontario. Following this identification stage, unconditional quantile regressions are estimated to evaluate the contribution of individual variables to the deciles of the wage distribution; the regression estimates are then used to analyse the change in the contribution of the major covariates of the explained differentials—identified previously with the Oaxaca decompositions—with respect to the deciles of the wage distribution.

In the first place, the two methodological approaches used in this part of the study are briefly presented.

5.1 Methodological approaches

5.1.1 Oaxaca decomposition

This paper uses the popular procedure of Oaxaca (1973) and Blinder (1973), usually simply referred to as a Oaxaca decomposition. The objective of this technique is to decompose the difference in mean earnings between two groups, or its change over time, into an explained component and an unexplained component. This method also allows further decomposition of the two components into various individual covariates. While the Oaxaca decomposition has been importantly refined and expanded, this study uses the methodology of the original work of Oaxaca and Blinder, that is, the one using the sample mean evaluations. In fact, although this basic technique has some limitations—beyond the scope of this paper to discuss—it provides a convenient way to identify the most important variables to be analysed as part of the comparisons

between provinces (Quebec and Ontario) and over time (Quebec in 2005 and Quebec in 1980). The next lines present an overview of the Oaxaca decomposition expositied in terms of the difference in the means of wages in Quebec between 1980 and 2005.

First of all, one should know that the standard assumption used in the Oaxaca decomposition is that the outcome variable Y is linearly related to the covariates, X , and that the error term U is conditionally independent of X . The sample mean of the variable Y can be expressed as follows:

$$\bar{Y}_t = \sum_{k=1}^K \bar{X}_{t,k} \hat{\beta}_{t,k}, \quad t = 1981, 2006$$

where the $\hat{\beta}$'s are OLS estimates of the regression coefficients (including the intercept) obtained by running separate regressions over the two periods, and K is the number of regressors in each sample.

The overall difference in the sample means of the wages between the workers of the 1981 Census and the 2006 Census, $\bar{Y}_{1981} - \bar{Y}_{2006}$, can therefore be written as:

$$\bar{Y}_{1981} - \bar{Y}_{2006} = \sum_{k=1}^K \bar{X}_{1981,k} \hat{\beta}_{1981,k} - \sum_{k=1}^K \bar{X}_{2006,k} \hat{\beta}_{2006,k} .$$

Adding $\sum_{k=1}^K \bar{X}_{2006,k} \hat{\beta}_{1981,k} - \sum_{k=1}^K \bar{X}_{2006,k} \hat{\beta}_{1981,k}$, and reassembling terms, the formula above becomes:

$$\bar{Y}_{1981} - \bar{Y}_{2006} = \sum_{k=1}^K (\bar{X}_{1981,k} - \bar{X}_{2006,k}) \hat{\beta}_{1981,k} + \sum_{k=1}^K \bar{X}_{2006,k} (\hat{\beta}_{1981,k} - \hat{\beta}_{2006,k}) .$$

The first term on the right-hand side is generally known as the “explained” or the “composition effect” or “endowment effect”, that this, the difference in the covariates. The second component on the right-hand side represents, on the other hand, the “unexplained” effect or the difference in outcome means due to changed labour market evaluations of or returns to given worker endowments.

In this paper, another decomposition is also made for the mean of wages differential between Ontario and Quebec for the 2006 Census. The formula will analogously be the following:

$$\bar{Y}_{Qc.} - \bar{Y}_{On.} = \sum_{k=1}^K (\bar{X}_{Qc.,k} - \bar{X}_{On.,k}) \hat{\beta}_{Qc.,k} + \sum_{k=1}^K \bar{X}_{On.,k} (\hat{\beta}_{Qc.,k} - \hat{\beta}_{On.,k})$$

where Qc. and On. represent, respectively, the provinces of Quebec and Ontario, and K is the number of regressors in each sample. In this case, the regression coefficients, $\hat{\beta}$, come from running separate OLS regressions for Quebec and Ontario.

5.1.2 Unconditional quantile regressions

One of the limitation of the Oaxaca decomposition is that it can only be used to decompose the sample mean of the wage income variable. Unconditional quantile regression (UQR), on the other hand, allows one to consider the direct effect of changes in the distribution of individual covariates of the unconditional distribution of the dependent variable on quantiles of the wages distribution. The direct effects of these covariates are likely to differ at different points of the wage distribution, which should allow a better understanding of the impact of different variables on the wage distribution in Quebec. Quantiles are values which divide the cumulative distribution function (CDF) of a random variable such that there is a given proportion of observations below the quantile. In this paper, deciles of the wage distribution are used.

The UQR technique, introduced by Firpo *et al.* (2009), is based on a recentered influence function (RIF) that captures a change in the statistic of interest (i.e., the deciles in this paper) in response to a change in the underlying distribution of covariates or explanatory variables. To compute the RIF, one has to firstly calculate the influence function, a tool used in robust estimation of econometrical models. The

next lines explain briefly the RIF function. For more technical details please refer to Firpo *et al.* (2009).

Let Y be a random variable with cumulative distribution function (CDF) $F_Y(y)$, and let $v(F_Y)$ be any functional of the distributions. The influence function (IF) of v at point y is defined as:

$$IF(y; v, F_Y) = \partial v(F_{Y,t,\Delta y}) / \partial t |_{t=0}$$

$F_{Y,t,\Delta y}$ is the marginal density of random variable Y evaluated at point y . The re-centered influence function is obtained by adding back the statistic $v(F_Y)$ to the influence function. Let $v(F_Y) = d_\tau$ denote the τ th decile of $F_Y(\cdot)$; then the RIF($y; d_\tau, F_Y$) is therefore equal to $d_\tau + IF(y; d_\tau, F_Y)$.

More specifically, in practice, the first step in the calculation process consists of evaluating the RIF. This is done using the sample decile, d_τ , and an estimate of $F_Y(d_\tau)$ obtained, say, by using standard nonparametric kernel methods in the literature. The second step involves doing an OLS regression of this new dependent variable on the covariates to calculate the marginal effects. Firpo *et al.* (2009) also suggest two other methods to estimate the latter (i.e., logit and nonparametric approaches), but they find that the different methods' results change very little across both methodologies. Given these results, the OLS approach is used in this paper.⁶

⁶The calculations are done using the *rifreg* ado program in Stata. This program is offered on the website of Nicole Fortin, one of the authors of Firpo *et al.* (2009).

5.2 Empirical results using Oaxaca decompositions

Table 4 presents the Oaxaca decomposition by gender of the natural logarithm of the wage differentials within Quebec between the years 1981 and 2006.⁷ Due to an inconsistency in the variables of educational attainment between Census files, the number of variables of the highest diploma or degree had to be reduced to four to allow a comparison between years. The results in Table 4 show that the wage gap between 1981 and 2006 was 32.87% for women and 1.79% for men. The wage differentials over the period for both gender are statistically significant at the 0.01 level. This is consistent with the decline of the males-females wage gap mentioned in the first part of this study. Interestingly, a major part of the large increase of wages among females over this period was explained by the change of worker endowments or covariates (30.08% compared to 2.79%). On the other hand, for the men, the pattern was the opposite, that is, most of the small increase in wages was unexplained by changes in worker endowments over the period, (2.76% versus 0.97% which is “explained” in this case) —in fact, the explained part is not even significant at the 0.05 level for this group. These results indicate that the increase of wages among women was largely due to a change of productive endowments over the period and that the one for males, albeit much smaller, was caused by a change of market returns to the labour characteristics of male workers in the labour market. Concerning the change of productive endowments among women, one should keep in mind that this component includes the effect of more females working longer hours in the labour market.

Concerning the explained component of the Oaxaca decomposition, all variables are significant at the 0.01 level except the “Divorced, widowed or separated” covariate for the decomposition of women. For both sexes, the variables of “Age” and “Age squared” are by far the ones that have the biggest values. That is, the amount

⁷The command *oaxaca* was used in Stata to make the calculations. The full OLS regression estimates for 1981 and 2006 are in the appendix. The OLS regressions for the other Census years are included as well.

Table 4: OAXACA-BLINDER DECOMPOSITION OF 1980-2005 ANNUAL WAGE DIFFERENCES FOR QUEBEC (NATURAL LOG OF WAGES IN 2002 DOLLAR)

	Females	Males
Overall		
1981	9.7044***	10.3648***
2006	10.0331***	10.3826***
Difference	-0.3287***	-0.0179**
Explained	-0.3008***	0.0097
Unexplained	-0.0279**	-0.0276***
Explained		
Age	-0.1778***	-0.2347***
Age squared	0.1461***	0.1995***
Single	-0.0371***	0.1159***
Divorced, widowed or separated	-0.0032*	0.0175***
Small urban and rural area	-0.0064***	-0.0078***
High school diploma	0.0196***	0.0068***
Post-secondary degree	-0.0834***	-0.0500***
Bachelor's degree	-0.0760***	-0.0308***
Postgraduate degree	-0.0397***	-0.0119***
Part-time work	-0.0430***	0.0053***
Unexplained		
Age	-2.0201***	-0.2725
Age squared	0.8520***	0.0801
Single	0.0458***	-0.0990***
Divorced, widowed or separated	0.0073	-0.0214***
Rural area	-0.0054	-0.0193***
High school diploma	-0.0106*	0.0077*
Post-secondary degree	0.0172	-0.0121
Bachelor's degree	-0.0230***	-0.0029
Postgraduate degree	0.0046	0.0029
Part-time work	-0.0014	0.0199***
Constant	1.1059***	0.2889**
Observations	51922	63440

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

of labour market experience is a major factor affecting the changes in the mean wages over this period. However, taken together these variables balance themselves as their signs are opposite, which implies that their combined contribution in the explained part is not that high. This is true only at the mean of Age since the Oaxaca decomposition is estimated using the sample means of the independent variables. Secondly, the education variables have also a large impact. The combined education effects account for 55 percent (-0.1795/-0.3287) of the total wage gap for women and 408 percent (-0.0859/-0.01799) of the men's gap. It is noteworthy to remember here that the high relative importance of those coefficients for men are balanced by the size of the major unexplained component. Another interesting result is the opposite signs of the coefficient of the marital status "Single". Negative and relatively small for women, this coefficient is particularly high and positive for men.

On the side of the unexplained component, the age variables, once again, play an important role to explain the wages gap, and this, is particularly so for women. However, this variable is not significant for men at the 0.05 level, which means that we can not reject the hypothesis of a change in the market premium of this characteristic. This time, the education variable coefficients are much lower for men than for women. This means that the change in those covariates' premiums could have been much more important for the latter gender. Looking at the statistical significance, the "Post-secondary degree" and the "Postgraduate degree" variables are not significant at standards levels, which indicates a similar return over time associated with these levels of educational attainment. Moreover, the effects of "Single" workers are, similarly with the explained component effect, high and have opposite signs for men and women.

Table 5 presents the Oaxaca decomposition results for the wage differentials between the provinces of Quebec and Ontario in 2005 (see Table 16 in the appendix for the results of the OLS regressions used in the decomposition). In this table, all the

variables of the highest diploma or degree education categories are included since the same Census file is used for both OLS regressions. The numbers show that the mean wage gap between Quebeckers and Ontarians in 2005 was 19.92% among males and 13.84% among females. Of the total 13.78% wage difference between Quebeckers and Ontarian females, we can attribute 13.78% to the unexplained component and 0.07% to the difference in endowments. Consequently, different market returns to endowments can explain almost all the female wage gap between the two provinces. Concerning men, however, the situation is somewhat different. Of the 19.92% wage gap, 6.17% is attributed to the explained component and 13.75% to the unexplained one. These numbers represent respectively 30.98% and 69.02% of the total wage differential compared to 99.71% and 0.29% for the analogous females numbers. Unsurprisingly, the latter number is not significant at standard levels.

The explained component of this table reveals that the variables of age have relative importance taken separately but cancel each other when taken together (evaluated at the mean of “Age” and “Age squared”). Once again, the “Single” marital status of workers has opposite signs for men and women, but their difference, this time, is much smaller. Concerning the education attainment variables, most of them are significant at the 0.01 level. The ones that seem to contribute less to the Quebec-Ontario wage gaps are the university certificate, the medical degrees and the doctorate degree. The most important, on the other hand, are the trades certificate, the CEGEP, and the bachelor’s degree effects. Concerning the geography, the “Small urban” area variable can explain almost nothing of the wage gap between Quebec and Ontario among men, but has a relatively high explanatory power for women.

Focusing on the unexplained component, the age variables have really large effects, but again, counter-balance themselves when they are evaluated at their mean. This implies that the returns on the market for experience might be slightly different across Quebec and Ontario. Otherwise, the results of this component are really interesting.

Table 5: OAXACA-BLINDER DECOMPOSITION OF ONTARIO-QUEBEC WAGE DIFFERENCES IN 2005 (NATURAL LOG OF WAGES IN 2002 DOLLAR)

	Females	Males
Overall		
Quebec	10.0331***	10.3826***
Ontario	10.1715***	10.5819***
Difference	-0.1384***	-0.1992***
Explained	-0.0007	-0.0617***
Unexplained	-0.1378***	-0.1375***
Explained		
Age	0.0160**	0.0203***
Age squared	-0.0142**	-0.0205***
Single	0.0092***	-0.0286***
Divorced, widowed or separated	0.0003	-0.0015***
Small urban area	0.0168***	0.0049
Rural area	-0.0148***	-0.0062***
High school	-0.0114***	-0.0118***
Trades certificate	0.0251***	0.0274***
Apprenticeship certificate	0.0027***	0.0010**
College, CEGEP (<1 year)	-0.0112***	-0.0018***
College, CEGEP (<2 years)	-0.0288***	-0.0102***
College, CEGEP (>2 years)	0.0301***	0.0061***
University certificate	0.0093***	0.0004
Bachelor's degree	-0.0116***	-0.0170***
Diploma above bachelor level	-0.0181***	-0.0061***
Degree in medicine and others	-0.0006*	-0.0004**
Master's degree	-0.0071***	-0.0096***
Earned doctorate degree	0.0003	-0.0013*
Part-time work	0.0072***	-0.0068***
Unexplained		
Age	0.3222	0.4066*
Age squared	-0.2022*	-0.2261*
Single	0.0021	0.0221***
Divorced, widowed or separated	0.0022	0.0072***
Small urban area	-0.0119*	-0.0208***
Rural area	-0.0085***	-0.0075***
High school	0.0171***	0.0101*
Trades certificate	0.0047***	0.0040***
Apprenticeship certificate	0.0011*	-0.0073***
College, CEGEP (<1 year)	0.0044**	-0.0011
College, CEGEP (<2 years)	-0.0005	-0.0056**
College, CEGEP (>2 years)	0.0081***	0.0096***
University certificate	0.0108***	0.0061***
Bachelor's degree	0.0359***	0.0109***
Diploma above bachelor level	0.0067***	0.0011
Degree in medicine and others	0.0002	-0.0005
Master's degree	0.0083***	0.0057***
Earned doctorate degree	0.0005	0.0019***
Part-time work	0.0262***	0.0099***
Constant	-0.3651***	-0.3641***
Observations	95961	100803

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

In fact, most of the numbers of this category of the decomposition are really small and positive. The latter characteristic indicates that changes in the market premiums between Quebec and Ontario do not seem to be a possible explanations of the wage gap.

The Oaxaca decomposition analysis at the mean indicates the key or most important regressors to explain the Quebec wage differentials over the 1980-2005 period and the Quebec-Ontario wage gap in 2005. These independent variables are used in the following part of the empirical work to do an UQR analysis.

5.3 Empirical results using unconditional quantile regressions

As mentioned earlier, the Oaxaca decomposition can be used only to decompose the differentials of the means of the wages. Therefore, the descriptions above do not take into account the distribution of the covariates and the distribution of the dependent variable. In this part of the empirical analysis, unconditional quantile regressions are run to investigate the impact of the distribution of the individual covariates on the unconditional distribution of the log of wages. This part of the analysis should hence provide a clearer picture of the possible variables explaining the evolution of the wages in Quebec over the years 1980 to 2005 and the wage gap between Quebec and Ontario in 2005.

The following tables report the decile-specific regression estimated coefficients of the log wages in Quebec for each deciles by gender. The first two tables are for the 1981 Census, whereas the the last two are for the 2006 Census. The same specification for the decile regressions is used as for the mean regressions in the previous section (The UQR results for the other Census years are provided in the Appendix).

Table 6: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 1981

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0263	0.0290*	0.0330**	0.0238**	0.0298***	0.0369***	0.0519***	0.0682***	0.0774***
Age squared	-0.0002	-0.0003	-0.0003**	-0.0002*	-0.0003***	-0.0004***	-0.0006***	-0.0007***	-0.0008***
Marital Status									
Single	0.1464***	0.1082**	0.1542***	0.1757***	0.1553***	0.1565***	0.1505***	0.1594***	0.1104***
Divorced, widowed or separated	0.0067	0.0328	0.0622	0.0637*	0.0733**	0.0699***	0.0443*	0.0027	0.0020
Geography									
Small urban or rural area	-0.3187***	-0.3013***	-0.2325***	-0.1762***	-0.1456***	-0.1099***	-0.0714***	-0.0043	0.0481***
Education									
High school	0.2916***	0.3469***	0.3783***	0.3813***	0.3735***	0.3139***	0.2545***	0.1705***	0.0760***
Trades certificate	0.4426***	0.5201***	0.5064***	0.4711***	0.4494***	0.3772***	0.3370***	0.2579***	0.1403***
College certificate	0.5925***	0.6522***	0.6558***	0.6551***	0.6349***	0.5975***	0.5878***	0.5723***	0.3651***
University certificate	0.6244***	0.7181***	0.7516***	0.7766***	0.7895***	0.7607***	0.8710***	1.0498***	0.9065***
Bachelor's degree	0.5099***	0.6012***	0.6446***	0.6750***	0.7266***	0.7577***	0.8450***	1.0212***	0.9267***
Diploma above bachelor level	0.7165***	0.9007***	0.7798***	0.8079***	0.8239***	0.8793***	0.9949***	1.1917***	1.2766***
Medical degree	0.8604***	0.8561***	0.9860***	1.0418***	0.9132***	0.9470***	1.1210***	1.5134***	1.5704***
Master's degree	0.6223***	0.6973***	0.7250***	0.7982***	0.8284***	0.8224***	0.9540***	1.2138***	1.3974***
Earned doctorate	0.7805***	0.9353***	0.7076**	0.7193***	0.7351***	0.8362***	1.0499***	1.4956***	1.8222***
Labour market activity									
Part-time work	-1.3214***	-1.3454***	-1.2564***	-1.0092***	-0.7645***	-0.6012***	-0.4877***	-0.4104***	-0.2663***
Observations	15505	15505	15505	15505	15505	15505	15505	15505	15505

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Table 7: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 1981

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1242***	0.0894***	0.0812***	0.0736***	0.0699***	0.0696***	0.0778***	0.0746***	0.0697***
Age squared	-0.0014***	-0.0010***	-0.0009***	-0.0008***	-0.0008***	-0.0008***	-0.0008***	-0.0008***	-0.0007***
Marital Status									
Single	-0.9052***	-0.5718***	-0.4306***	-0.3229***	-0.2513***	-0.2013***	-0.1800***	-0.1465***	-0.1378***
Divorced, widowed or separated	-0.5245***	-0.3267***	-0.2256***	-0.1726***	-0.1321***	-0.1173***	-0.0891***	-0.0700***	-0.0736***
Geography									
Small urban or rural area	-0.2487***	-0.1557***	-0.1374***	-0.1059***	-0.0773***	-0.0634***	-0.0554***	-0.0459***	-0.0463***
Education									
High school	0.3296***	0.3445***	0.3115***	0.2768***	0.2515***	0.2292***	0.2196***	0.1788***	0.1661***
Trades certificate	0.3207***	0.3053***	0.2821***	0.2606***	0.2264***	0.1880***	0.1696***	0.1172***	0.0975***
College certificate	0.4775***	0.4921***	0.4685***	0.4456***	0.4043***	0.3771***	0.3816***	0.3240***	0.2742***
University certificate	0.4071***	0.4896***	0.4965***	0.4723***	0.4679***	0.4686***	0.5038***	0.4589***	0.4152***
Bachelor's degree	0.4436***	0.4930***	0.5362***	0.5309***	0.5274***	0.5296***	0.5984***	0.5781***	0.6470***
Diploma above bachelor level	0.4760***	0.4847***	0.5345***	0.5462***	0.5448***	0.5699***	0.6802***	0.7136***	0.8812***
Medical degree	0.0879	0.3341***	0.4585***	0.4964***	0.4621***	0.4930***	0.6415***	0.7172***	1.2600***
Master's degree	0.3940***	0.4336***	0.4863***	0.5204***	0.5333***	0.5678***	0.7285***	0.8125***	1.1311***
Earned doctorate	0.6798***	0.5924***	0.6248***	0.6146***	0.6148***	0.6667***	0.8617***	1.0586***	1.6196***
Labour market activity									
Part-time work	-2.3561***	-1.1920***	-0.7459***	-0.4714***	-0.3426***	-0.2583***	-0.2080***	-0.1610***	-0.1283***
Observations	23973	23973	23973	23973	23973	23973	23973	23973	23973

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Table 8: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 2006

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0869***	0.0888***	0.0943***	0.0977***	0.0834***	0.0907***	0.1016***	0.1015***	0.0869***
Age squared	-0.0008***	-0.0009***	-0.0009***	-0.0010***	-0.0008***	-0.0009***	-0.0010***	-0.0010***	-0.0009***
Marital Status									
Single	0.0612*	0.0544***	0.0461***	0.0520***	0.0489***	0.0374***	0.0487***	0.0437***	0.0354***
Divorced, widowed or separated	0.0005	-0.0077	0.0119	0.0279*	0.0207*	0.0153	0.0264*	0.0135	0.0298*
Geography									
Small urban area	0.0198	-0.0420	-0.0784**	-0.0972***	-0.1141***	-0.1185***	-0.1211***	-0.1019***	-0.0839***
Rural area	-0.1184***	-0.1693***	-0.1579***	-0.1577***	-0.1426***	-0.1268***	-0.1159***	-0.0840***	-0.0692***
Education									
High school	0.4539***	0.5069***	0.5382***	0.4972***	0.3525***	0.2776***	0.2217***	0.1447***	0.0716***
Trades certificate	0.4838***	0.4840***	0.5025***	0.4475***	0.2884***	0.2226***	0.1535***	0.1057***	0.0700***
Apprenticeship certificate	0.4104***	0.4666***	0.4891***	0.4330***	0.2480***	0.1921***	0.1336***	0.0888***	0.0553***
College, CEGEP (<1 year)	0.5787***	0.5850***	0.6441***	0.6694***	0.5182***	0.4209***	0.3157***	0.1929***	0.0629*
College, CEGEP (<2 years)	0.5134***	0.5978***	0.6598***	0.6389***	0.4704***	0.3998***	0.3190***	0.2360***	0.1420***
College, CEGEP (>2 years)	0.8562***	0.8669***	0.9371***	0.9157***	0.7052***	0.6357***	0.5624***	0.4073***	0.2310***
University certificate	0.7202***	0.8253***	0.8960***	0.9009***	0.7237***	0.6970***	0.6680***	0.5520***	0.3886***
Bachelor's degree	0.8688***	0.9055***	0.9906***	1.0128***	0.8565***	0.8539***	0.8754***	0.7957***	0.6861***
Diploma above bachelor level	0.7908***	0.8772***	0.9615***	0.9989***	0.8501***	0.8738***	0.9460***	0.9125***	0.8683***
Degree in medicine and others	0.3036	0.6720***	0.6975***	0.7971***	0.7414***	0.7787***	0.8668***	0.9001***	0.9068***
Master's degree	0.7065***	0.8653***	0.9720***	0.9953***	0.8654***	0.8850***	0.9581***	0.9677***	1.0074***
Earned doctorate degree	0.7416***	0.8314***	0.9608***	0.9920***	0.8389***	0.8737***	0.9447***	0.9822***	1.2611***
Labour market activity									
Part-time work	-1.4952***	-1.3255***	-1.0611***	-0.8517***	-0.6165***	-0.4923***	-0.4290***	-0.3459***	-0.2723***
Observations	36417	36417	36417	36417	36417	36417	36417	36417	36417

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Table 9: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 2006

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1357***	0.1138***	0.0945***	0.0865***	0.0856***	0.0805***	0.0773***	0.0690***	0.0552***
Age squared	-0.0015***	-0.0012***	-0.0010***	-0.0009***	-0.0009***	-0.0008***	-0.0008***	-0.0007***	-0.0005***
Marital Status									
Single	-0.1266***	-0.1392***	-0.1249***	-0.1299***	-0.1281***	-0.1262***	-0.1370***	-0.1370***	-0.1532***
Divorced, widowed or separated	-0.0948**	-0.0676***	-0.0426**	-0.0421***	-0.0300**	-0.0367**	-0.0461***	-0.0570***	-0.0624***
Geography									
Small urban area	0.0839	0.0441	-0.0024	-0.0298	-0.0566**	-0.0631***	-0.0388*	-0.0421*	-0.0890***
Rural area	-0.0058	-0.0450**	-0.0422***	-0.0499***	-0.0532***	-0.0547***	-0.0437***	-0.0374***	-0.0708***
Education									
High school	0.3276***	0.2778***	0.2373***	0.2211***	0.2148***	0.2005***	0.1911***	0.1517***	0.1074***
Trades certificate	0.3894***	0.3375***	0.3017***	0.2772***	0.2503***	0.2139***	0.1968***	0.1337***	0.0813***
Apprenticeship certificate	0.3112***	0.2821***	0.2403***	0.2332***	0.2257***	0.2041***	0.1909***	0.1233***	0.0609***
College, CEGEP (<1 year)	-0.2342	0.1202	0.2530***	0.3017***	0.3016***	0.2974***	0.2841***	0.1989***	0.1177**
College, CEGEP (<2 years)	0.2811***	0.2773***	0.2611***	0.2723***	0.2899***	0.2673***	0.2707***	0.2294***	0.1856***
College, CEGEP (>2 years)	0.5875***	0.5422***	0.5364***	0.5467***	0.5455***	0.5111***	0.4977***	0.4233***	0.3019***
University certificate	0.3892***	0.4137***	0.4196***	0.4439***	0.4727***	0.4715***	0.4928***	0.4643***	0.4168***
Bachelor's degree	0.3880***	0.4626***	0.4991***	0.5333***	0.5788***	0.5925***	0.6310***	0.6035***	0.5822***
Diploma above bachelor level	0.3421***	0.3528***	0.4317***	0.4986***	0.5519***	0.5920***	0.6602***	0.6603***	0.7053***
Degree in medicine and others	-0.3104	-0.0013	0.2158*	0.2785**	0.2980***	0.2556**	0.3521***	0.4905***	0.6827***
Master's degree	0.3273***	0.4264***	0.4844***	0.5582***	0.6341***	0.6941***	0.7829***	0.7941***	0.8568***
Earned doctorate degree	0.5404***	0.5345***	0.5820***	0.6142***	0.6708***	0.7623***	0.8957***	1.0234***	1.2894***
Labour market activity									
Part-time work	-3.0436***	-1.7587***	-1.1137***	-0.8518***	-0.6665***	-0.5221***	-0.4471***	-0.3485***	-0.2904***
Observations	39467	39467	39467	39467	39467	39467	39467	39467	39467

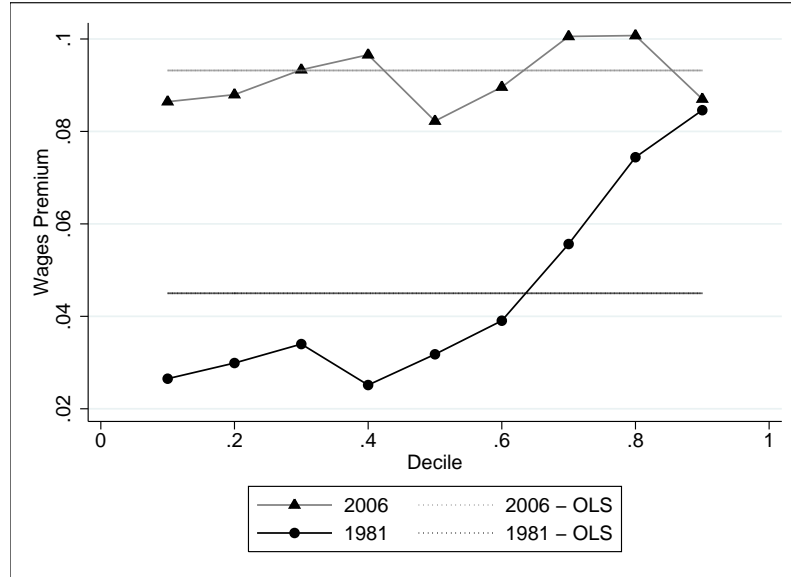
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Firstly, an analysis of the evolution of the coefficients over the deciles of the wage distribution between the 1981 and the 2006 period is made. Following then is a comparison of the Quebec-Ontario coefficients over the two provincial wage distributions. The interpretation of the estimated coefficients is the same as for the above mean regressions, but is applied to workers at each specific decile level across the wage distribution.

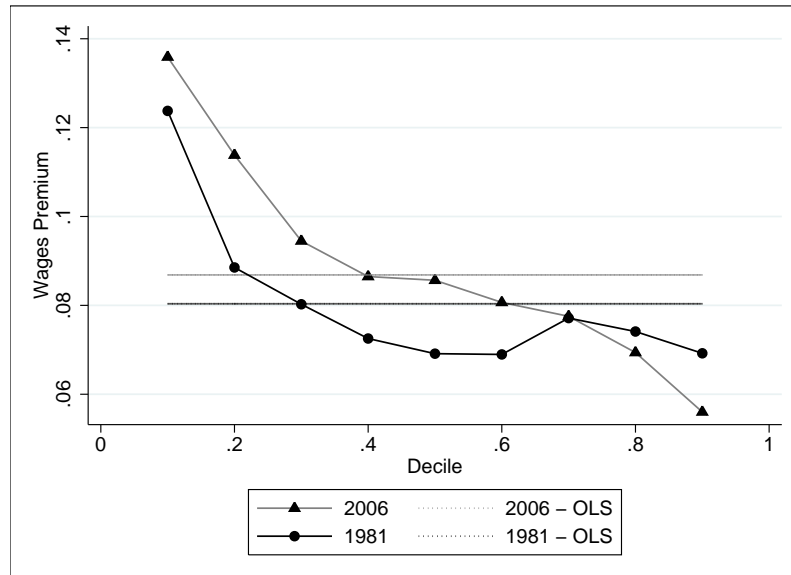
The evolution of the coefficients of the “Age” variable is particularly interesting in these two tables. It is shown in Figures 5a and 5b. In 1980, while the coefficients decline along the wage distribution for males, the pattern was the opposite for females. In 2005, the evolution of these coefficients along the distribution is the same for men, but is quite different for women; instead of increasing along the distribution, the coefficients are now much similar throughout the wage distribution. This important change for females is certainly due to increases in the labour force participation and in the number of hours worked that compensate the experience of the lower wages female workers. In both cases, the age coefficients are higher in 2006, which indicates that this labour force characteristic is more rewarded than before. The similar coefficients over the distribution also contribute to reducing the between-group inequality among females. Moreover, the “Age squared” coefficients are low for all deciles in both Censuses for women. For males, however, they decrease (in absolute value) from low to top deciles. Therefore, it seems that the concavity does not play an important role to explain the changes of wage for the two periods analysed for females, but has a somewhat important role for males that is stronger among lower-skilled workers than among higher-skilled workers.

Figure 5a: WAGE PREMIUM ACROSS DECILES FOR AGE; FEMALES, QUEBEC, 1981 AND 2006



Source: Author's calculations from the Census PUMF files.

Figure 5b: WAGE PREMIUM ACROSS DECILES FOR AGE; MALES, QUEBEC, 1981 AND 2006



Source: Author's calculations from the Census PUMF files.

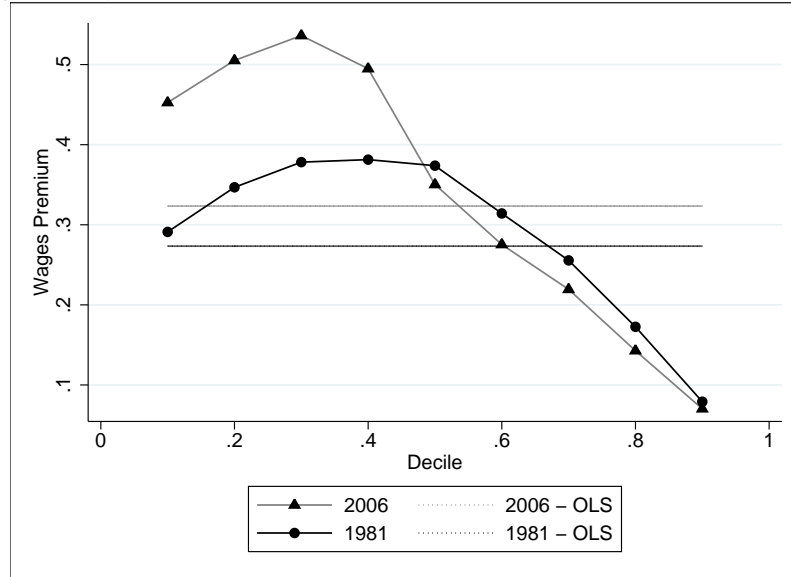
The marital status variable for “Single” systematically contributes to higher wages for female over the wage distribution and the importance of this variable has decreased for this sex-group in 2005. On the other hand, the same variable has the opposite effect on males workers, that is, the coefficients of this variable are negative. This suggests that single females tend to have higher wages than their married female colleagues, whereas the opposite is true in the case of males in the labour market.

The major covariates that contribute to a higher wages are unsurprisingly the educational attainment variables. Starting with the “High school” variable presented in Figures 6a and 6b, its coefficients are really similar across genders and between years. For both years, its values are high at the lower end of the distribution (and slightly larger for women) and they decline along the wage distribution. Among men, the coefficients are a bit lower in the early-2000s, while it is the opposite for women. For the bachelor’s degree, the patterns are exhibited in Figures 7a and 7b. Concerning the men, the patterns of the two years are really similar (i.e., the coefficients increase along the wage distribution). However, the story is slightly different for women. While the female’s pattern is similar in 2005 to the ones of males, the coefficients in 1980 have a slightly inverted-U shape. Lower at both ends of the distribution, the coefficients were higher in the middle of the latter. Interestingly, it seems hence that in the early-80s, bachelor’s degrees were having a small impact on the wages among females at the higher deciles. However, overall, the OLS estimates indicate that a bachelor’s degree was more recompensed by the labour market in the mid-2000s than in the early-1980s. Finally, the coefficients of the doctorate degree are presented in Figures 8a and 8b. The latter are increasing, for both genders along the wage distribution. We can note here, that the coefficient for females are much higher than the ones for males. Moreover, the coefficients for females in 1981 are much higher at the top of the wage distribution than in 2006. This indicates that the premium attached to this educational level is less high than 35 years ago for females earning

high wages.

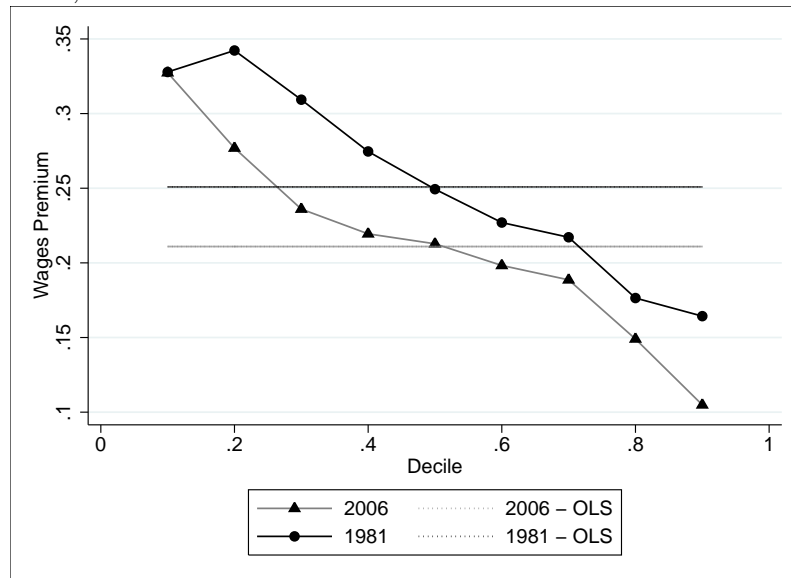
In short, for the three educational levels studied, females have lower coefficients only for the variable of the doctoral level. For men, on the other hand, the education coefficients are lower except for the bachelor's degree. The lower premiums for the high school level is not surprising. As mentioned earlier, this change is probably due to the declining manufacturing sector that generally employed more workers without a university degree. For women, however, the surge of the service sector seems to have benefited them. Their educational studies are more highly compensated than before.

Figure 6a: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: HIGH SCHOOL; FEMALES, QUEBEC, 1981 AND 2006



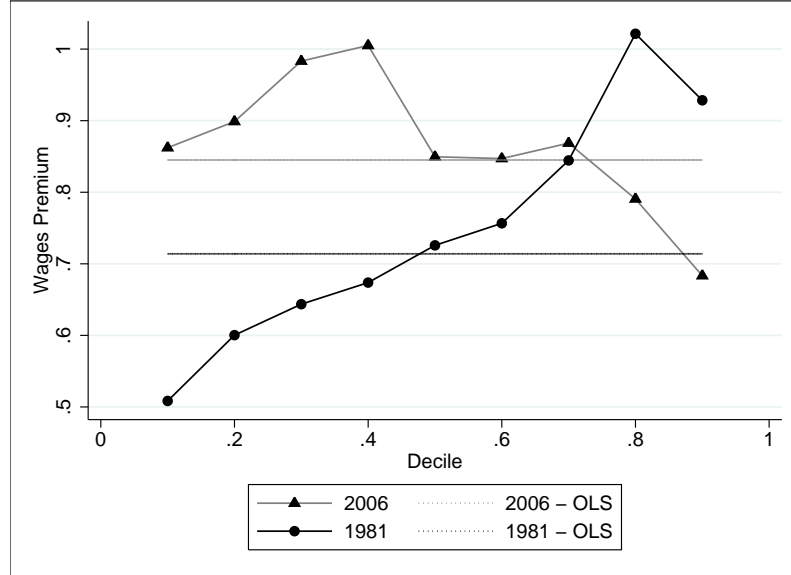
Source: Author's calculations from the Census PUMF files.

Figure 6b: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: HIGH SCHOOL; MALES, QUEBEC, 1981 AND 2006



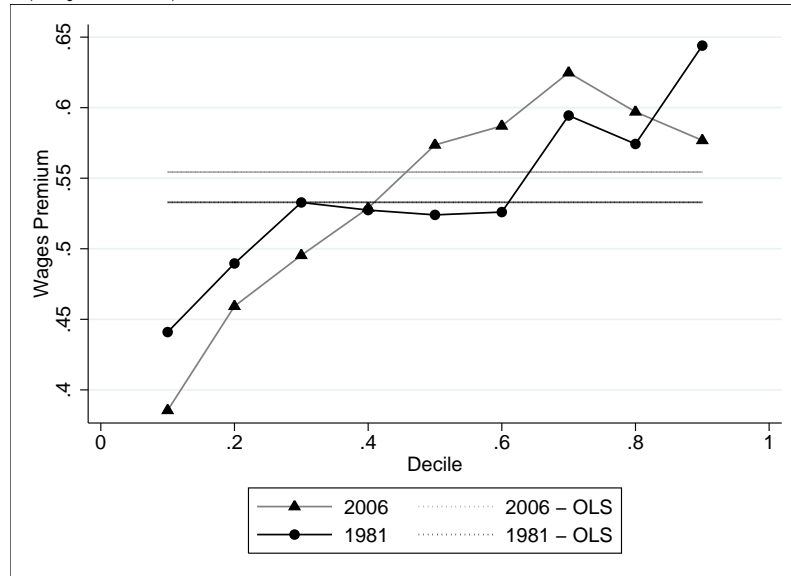
Source: Author's calculations from the Census PUMF files.

Figure 7a: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: BACHELOR'S DEGREE; FEMALES, QUEBEC, 1981 AND 2006



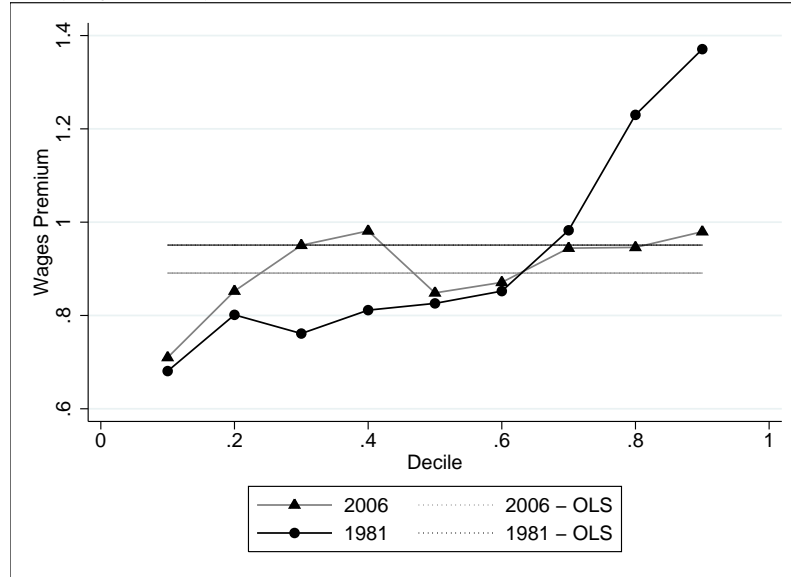
Source: Author's calculations from the Census PUMF files.

Figure 7b: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: BACHELOR'S DEGREE; MALES, QUEBEC, 1981 AND 2006



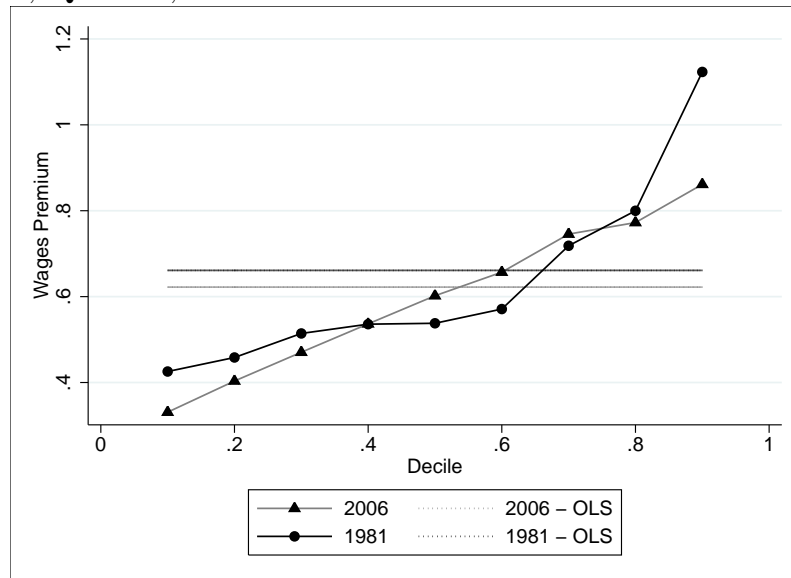
Source: Author's calculations from the Census PUMF files.

Figure 8a: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: DOCTORATE DEGREE; FEMALES, QUEBEC, 1981 AND 2006



Source: Author's calculations from the Census PUMF files.

Figure 8b: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: DOCTORATE DEGREE; MALES, QUEBEC, 1981 AND 2006



Source: Author's calculations from the Census PUMF files.

The following discussion focuses on the Quebec-Ontario wage gap. Tables 10 and 11 report the 2006 decile-specific UQR coefficients by gender for Ontario (results for Quebec appear in Tables 8 and 9 above). Corresponding coefficient patterns for the major highlighted effects appear in Figures 9-13.

Table 10: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 2006

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0988***	0.1013***	0.0934***	0.0804***	0.0758***	0.0743***	0.0821***	0.0901***	0.0772***
Age squared	-0.0009***	-0.0010***	-0.0009***	-0.0008***	-0.0007***	-0.0007***	-0.0008***	-0.0009***	-0.0007***
Marital Status									
Single	0.0657**	0.0470**	0.0320*	0.0305**	0.0355***	0.0384***	0.0455***	0.0302***	0.0226*
Divorced, widowed or separated	-0.0245	-0.0299	-0.0210	0.0039	0.0155	0.0182*	0.0253**	0.0204*	0.0006
Geography									
Small urban area	0.0063	0.0038	-0.0032	-0.0224*	-0.0185*	-0.0330***	-0.0504***	-0.0434***	-0.0555***
Rural area	-0.0428	-0.0713***	-0.0940***	-0.0887***	-0.0787***	-0.0734***	-0.0676***	-0.0546***	-0.0475***
Education									
High school	0.3156***	0.3466***	0.3563***	0.3406***	0.2920***	0.2325***	0.1947***	0.1529***	0.0881***
Trades certificate	0.2766***	0.2809***	0.3159***	0.2693***	0.1939***	0.1311***	0.0990***	0.0660***	0.0460***
Apprenticeship certificate	0.3506***	0.3006***	0.2641***	0.2029***	0.1762***	0.1227***	0.0908***	0.1091***	0.0758***
College, CEGEP (<1 year)	0.3959***	0.4629***	0.4788***	0.4204***	0.3318***	0.2613***	0.2140***	0.1547***	0.1059***
College, CEGEP (<2 years)	0.5069***	0.5835***	0.6322***	0.5588***	0.4686***	0.3870***	0.3196***	0.2710***	0.1629***
College, CEGEP (>2 years)	0.5964***	0.7287***	0.7379***	0.6864***	0.6132***	0.5398***	0.4985***	0.4882***	0.3019***
University certificate	0.4117***	0.5337***	0.5880***	0.5534***	0.5153***	0.4619***	0.4632***	0.4708***	0.3134***
Bachelor's degree	0.5528***	0.6695***	0.7447***	0.7321***	0.6994***	0.6603***	0.6798***	0.7105***	0.5363***
Diploma above bachelor level	0.6566***	0.7363***	0.8003***	0.7751***	0.7488***	0.7277***	0.7601***	0.8391***	0.6744***
Degree in medicine and others	0.3695**	0.6632***	0.7253***	0.6687***	0.6420***	0.6514***	0.6703***	0.7517***	0.7051***
Master's degree	0.4966***	0.6032***	0.7103***	0.7313***	0.7229***	0.7225***	0.8138***	0.9595***	0.8326***
Earned doctorate degree	0.6059***	0.6955***	0.8130***	0.7932***	0.7603***	0.7451***	0.8550***	1.0921***	1.0538***
Labour market activity									
Part-time work	-1.7387***	-1.7004***	-1.3225***	-0.9602***	-0.7395***	-0.5564***	-0.4644***	-0.4042***	-0.2738***
Observations	59544	59544	59544	59544	59544	59544	59544	59544	59544

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Table 11: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 2006

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0962***	0.1078***	0.0973***	0.0897***	0.0791***	0.0761***	0.0665***	0.0529***	0.0441***
Age squared	-0.0010***	-0.0012***	-0.0010***	-0.0009***	-0.0008***	-0.0008***	-0.0006***	-0.0005***	-0.0004***
Marital Status									
Single	-0.3460***	-0.3478***	-0.2573***	-0.2239***	-0.1934***	-0.1845***	-0.1686***	-0.1430***	-0.1453***
Divorced, widowed or separated	-0.1599***	-0.1583***	-0.1179***	-0.1069***	-0.1073***	-0.1072***	-0.1112***	-0.1001***	-0.1141***
Geography									
Small urban area	0.1498***	0.1204***	0.1100***	0.0942***	0.0752***	0.0745***	0.0562***	0.0202**	-0.0279**
Rural area	0.0803**	0.0305*	0.0264*	0.0134	0.0072	0.0095	-0.0010	-0.0251***	-0.0719**
Education									
High school	0.2622***	0.2067***	0.1679***	0.1663***	0.1468***	0.1415***	0.1456***	0.1315***	0.1167***
Trades certificate	0.2427***	0.2821***	0.2304***	0.2242***	0.1855***	0.1669***	0.1409***	0.0771***	0.0604***
Apprenticeship certificate	0.5083***	0.4657***	0.3852***	0.3867***	0.3708***	0.3452***	0.3075***	0.2248***	0.1641***
College, CEGEP (<1 year)	0.2457**	0.2391***	0.2164***	0.1910***	0.1659***	0.1979***	0.1961***	0.1897***	0.1490***
College, CEGEP (<2 years)	0.4415***	0.3984***	0.3406***	0.3361***	0.3199***	0.3247***	0.2985***	0.2383***	0.1948***
College, CEGEP (>2 years)	0.5087***	0.4510***	0.4025***	0.4094***	0.3872***	0.3929***	0.3760***	0.2991***	0.2749***
University certificate	0.2945***	0.2599***	0.2500***	0.2898***	0.2912***	0.3224***	0.3320***	0.2786***	0.2581***
Bachelor's degree	0.4021***	0.4400***	0.4197***	0.4497***	0.4685***	0.5130***	0.5426***	0.5002***	0.5262***
Diploma above bachelor level	0.4133***	0.4281***	0.4384***	0.4877***	0.5120***	0.5797***	0.5878***	0.5224***	0.4815***
Degree in medicine and others	-0.1106	-0.0354	0.1292	0.2349***	0.3441***	0.4030***	0.3988***	0.5135***	0.7992***
Master's degree	0.1945***	0.3353***	0.3763***	0.4594***	0.4995***	0.5733***	0.6487***	0.6297***	0.7008***
Earned doctorate degree	0.4325***	0.4512***	0.4643***	0.5300***	0.5729***	0.6742***	0.7611***	0.8035***	0.9325***
Labour market activity									
Part-time work	-4.2198***	-2.2506***	-1.2886***	-0.8715***	-0.6052***	-0.4992***	-0.3852***	-0.2826***	-0.2438***
Observations	61336	61336	61336	61336	61336	61336	61336	61336	61336

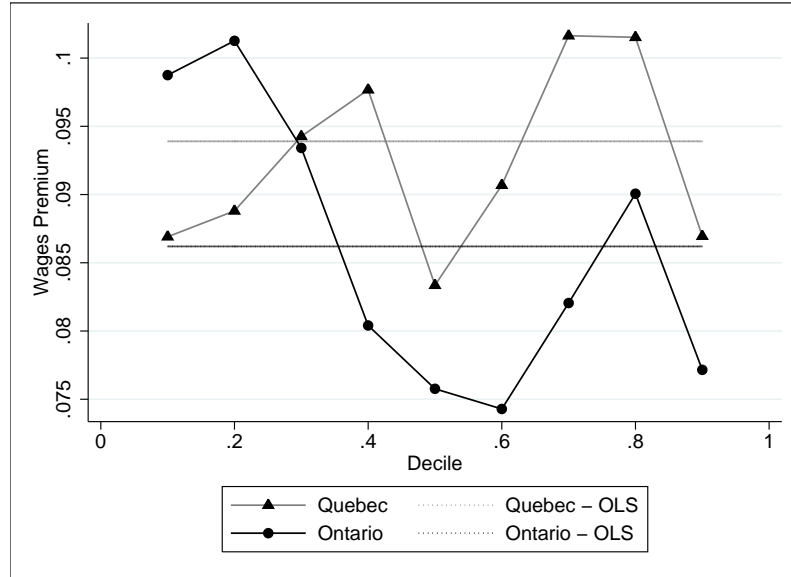
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's calculations from the Census PUMF files.

Figures 9a and 9b below report the evolution of the age coefficient over the deciles for both genders. The patterns for the “Age” coefficients are quite similar between the two provinces, and particularly so for men. For females, both provinces report U-shaped coefficients over the wage distribution, with the ones of Quebec slightly higher than the ones of Ontario. In both cases, however, the range of change stays pretty small, going from 0.075 to 0.10. In the case of males, the situation is even more similar between provinces. The only difference arises over the first two deciles where the coefficients are higher for Quebec than Ontario workers. Concerning the “age squared” variable, its coefficients are again really low, suggesting only relatively weak presence of concavity.

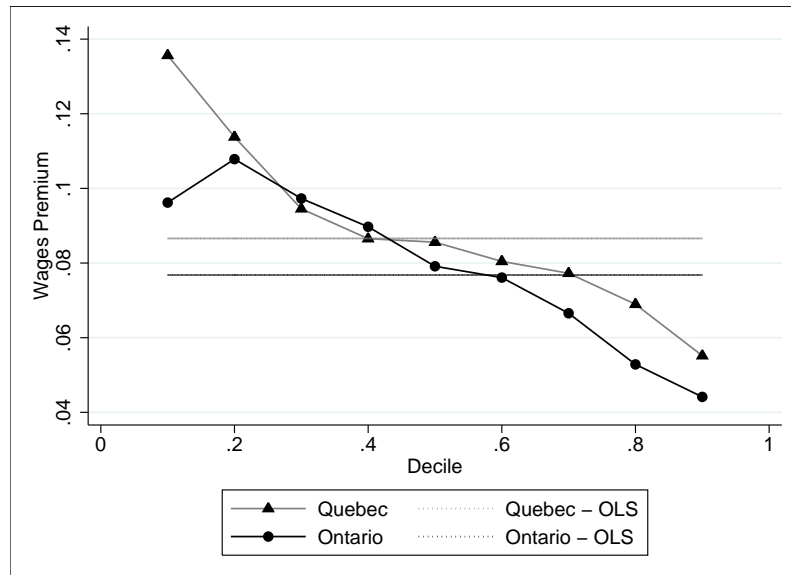
Figure 10 below represents the evolution of the marital status “Single” variable over the deciles for males. Among females, the patterns for the latter variable are quite similar across provinces (i.e., positive premiums relatively flat along the distribution), but are much more different for males. For the men of both provinces, the coefficients for this variable are negative, but are much lower for Ontario than for Quebec. This

Figure 9a: WAGE PREMIUM ACROSS DECILES FOR AGE; FEMALES, QUEBEC & ONTARIO, 2006



Source: Author's calculations from the Census PUMF files.

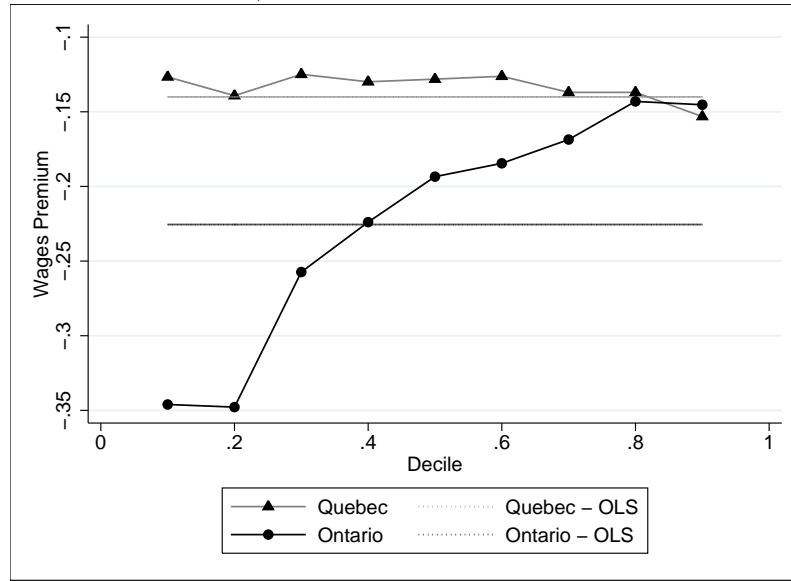
Figure 9b: WAGE PREMIUM ACROSS DECILES FOR AGE; MALES, QUEBEC & ONTARIO, 2006



Source: Author's calculations from the Census PUMF files.

is especially true for the lower half of the wage distribution. In fact, the coefficients of this variables are really flat for Quebec workers, but steadily increasing along the distribution for males.

Figure 10: WAGE PREMIUM ACROSS DECILES FOR SINGLE MARITAL STATUS; MALES, QUEBEC & ONTARIO, 2006



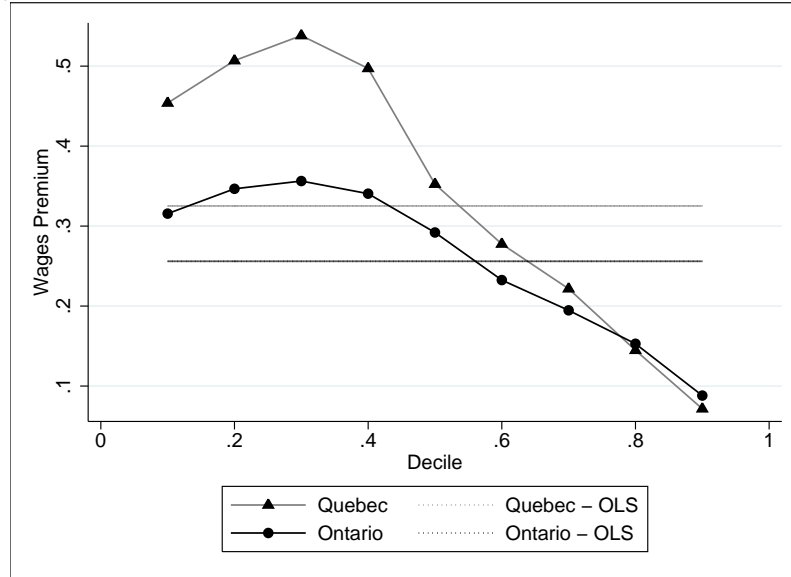
Source: Author's calculations from the Census PUMF files.

Turn next to educational attainment variables. Starting with the high school degree, the coefficients are decreasing along the distribution for both provinces and both sexes. These patterns appear in Figures 11a and 11b. One can note also that the Quebec premiums always lie higher in the graphs than the ones of Ontario for this variable. Moreover, overall, the coefficients are larger among females than among men. For the bachelor's degree, the coefficients are represented in Figures 12a and 12b. The patterns exhibited are quite similar across provinces among males, though the coefficients are a bit higher for Quebec workers. For females, however, the Quebec coefficients are larger but decline surprisingly over the last two deciles. Oppositely, for the female Ontarian workers, the coefficients steadily increase over the distribution (except for a decrease over the last decile). Moreover, looking at the OLS coefficients,

one can notice that the overall premiums are higher for workers of both sex working in Quebec. Finally, for the higher educational levels, the coefficients generally increase along the wage distribution for both sexes and provinces. Once again, the coefficients are systematically higher for women than men and the OLS coefficients are higher for Quebecers. This is represented in Figures 13a and 13b.

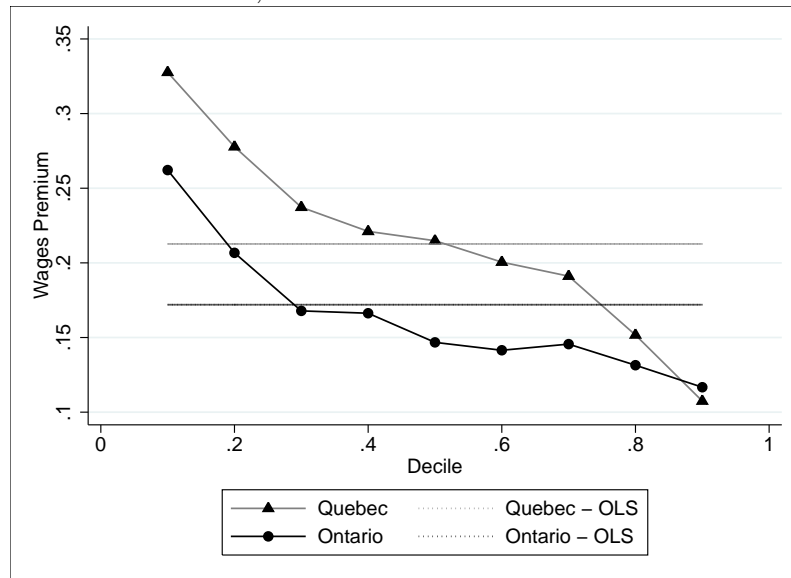
To summarize this part of the empirical analysis, the Quebec-Ontario comparison of UQR estimates do not explain the inter-provincial wage gap. Indeed, the different premiums studied above were generally higher for Quebec than for Ontario. This indicates that the labour market premium of given endowments favours more the workers of Quebec than the ones of Ontario. Therefore, to explain the Quebec-Ontario wage gap, one would have to look at the endowments associated with the workers of each province. Logically, the endowments of the Ontario workers would have to be higher than the ones of the Quebec workers to compensate the lower premium associated to their labour characteristics and explain the wage differentials. Moreover, the wage gap could also be explained by other variables not included in the model. For example, variables such as the unionization rate or variables linked to the business cycles could have provided important explanations to the wage gap. Finally, to sum up, further investigations would be required to explain the observed Quebec-Ontario wage differentials.

Figure 11a: WAGE PREMIUM ACROSS DECILES FOR EDUCATION: HIGH SCHOOL; FEMALES, QUEBEC & ONTARIO 2006



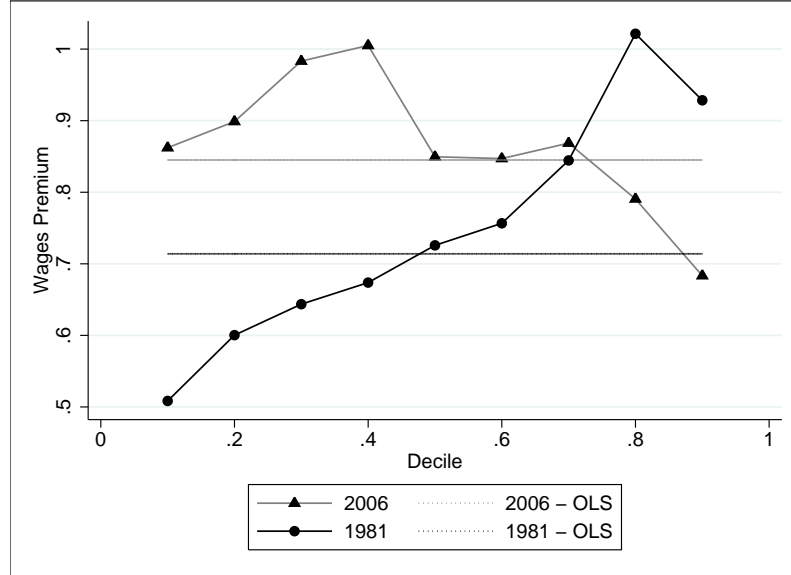
Source: Author's calculations from the Census PUMF files.

Figure 11b: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: HIGH SCHOOL; MALES, QUEBEC & ONTARIO, 2006



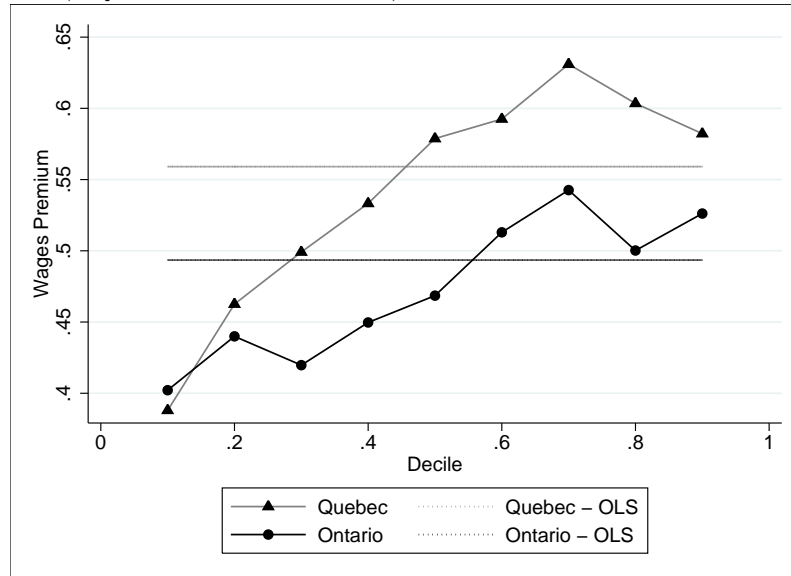
Source: Author's calculations from the Census PUMF files.

Figure 12a: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: BACHELOR'S DEGREE; FEMALES, QUEBEC & ONTARIO, 2006



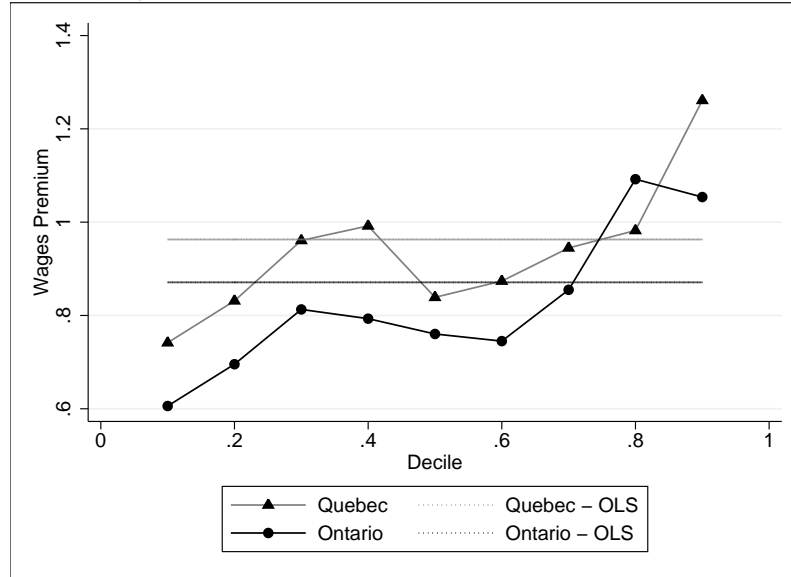
Source: Author's calculations from the Census PUMF files.

Figure 12b: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: BACHELOR'S DEGREE; MALES, QUEBEC & ONTARIO, 2006



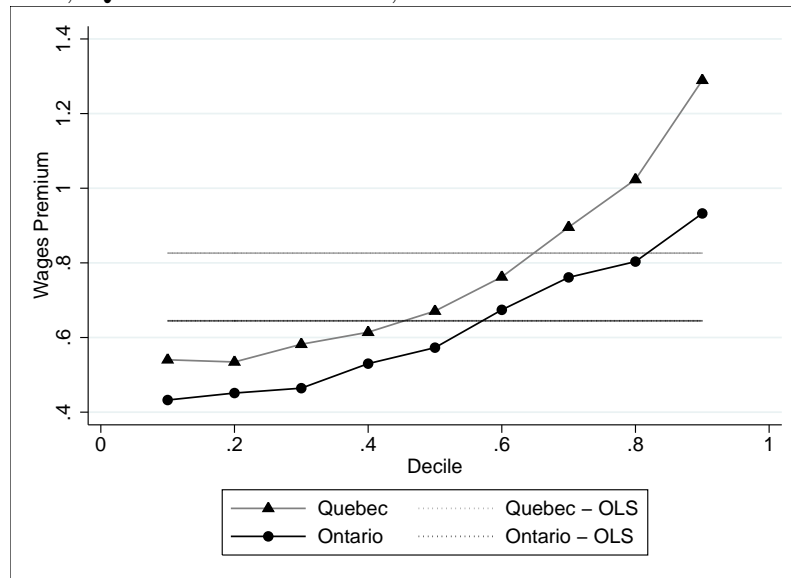
Source: Author's calculations from the Census PUMF files.

Figure 13a: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: DOCTORATE DEGREE; FEMALES, QUEBEC & ONTARIO, 2006



Source: Author's calculations from the Census PUMF files.

Figure 13b: WAGES PREMIUM ACROSS DECILES FOR EDUCATION: DOCTORATE DEGREE; MALES, QUEBEC & ONTARIO, 2006



Source: Author's calculations from the Census PUMF files.

6 Conclusion

The objective of this study is to compare the evolution of annual wage differentials for men and women living in the provinces of Quebec and Ontario over the 1980-2005 period. In this paper, the focus of the analyses is on both wage levels and wage distributions, and the main possible factors influencing the Quebec-Ontario gap are also examined. While most of the existing Canadian literature focuses on the case of Canada as a whole, the principal novelty of this paper is to provide provincial level empirical evidence. The present analysis focuses on two provinces which represent more than a half of the Canadian economy and constitute the traditional manufacturing heartland of the country. One contribution of this study is to improve the understanding of the Canadian labour market and, more specifically, that of Ontario and Quebec. A second contribution of this paper is to expand our knowledge of gender induced wage patterns. By enhancing our understanding of these matters, the findings of this paper may influence the design of policy which addresses the adverse consequences of inequality.

In the first part of the empirical work of this study, I compare the overall wage levels over time of the provinces of Quebec and Ontario. After that, I focus on the degree of inequality in the wage distribution using different quantile ratios, as well as Gini coefficients. Subsequently, in the second part of the empirical analysis of this study, I use Oaxaca decompositions to decompose in an explained and an unexplained component the wage differentials between 1980 and 2005 in Quebec and the Quebec-Ontario wage differentials in 2005. These decompositions are used to determine the main variables explaining both wage differentials. Finally, unconditional quantile regressions are employed to estimate the impact on the log of wages of a small location shifts in the covariates on different regions of the wage distribution. This therefore allows to study the wage market premiums of given workers' endowments over the deciles of the wage distribution. Following is a discussion of the principal empirical findings of this paper.

The first section of the empirical analysis reports that the growth of wages across the two provinces over time was much higher for females than for males. Moreover, for both sexes and provinces, the means are larger than the medians, which is consistent with a surge at the top of the earnings distribution particularly over the most recent decade. Over time, the Quebec-Ontario wage differentials increased for both genders. For both provinces, over the 1980-2005 period, the wages increased over the whole distribution for the females workers. Concerning the men, the wages decreased over the lower half of the distribution in Quebec, and over the lower 20% of the distribution in Ontario. In short, this section provides evidence on the growth of the wage gap differentials between Quebec and Ontario for both sexes.

Turn next to the comparison of the overall wage distributions. Across genders, the overall wage inequality —measured by the of the 9th decile to the 1st decile over time and by the Gini coefficients —is higher in Ontario than in Quebec and much more so among females than males. Over the lower half of the wage distribution, the degree of wage inequality declined importantly among females over the 1980-2005 period, whereas the pattern is the opposite for males. For both cases, the ratios are higher in Ontario. For the second half of the wage distribution, the patterns are more similar across genders. Among females and males, the ratios increase slightly over the years. The ratios of the upper half of the distributions are larger in Ontario than in Quebec for females but a little bit lower for males in Ontario compared to those in Quebec. The main highlight of this section is that inequality increased over the period across both provinces, but this increase was more important in Ontario than in Quebec.

In the Oaxaca decompositions of the second empirical section, a decomposition of the 1980-2005 wage differentials in Quebec is made first. With this method, one finds that most of the 1980-2005 wage differential is “explained” among females, while among males it is “unexplained”. For both sexes, the variables “Age” and

“Age squared” are the ones that have the biggest values for both components of the decomposition. The educational attainment variables have also a large effect. Concerning the Quebec-Ontario decomposition of the 2006 wage gap, almost none of it is “explained” among females, but among males, this component is somewhat more important (i.e., it accounts for approximately a third of the gap). Again, the ages variables and the variables of the highest level of completed education have great impacts in the “explained” and “unexplained” components of the decomposition.

Finally, unconditional quantile regressions are then used to assess more precisely the market premiums of worker endowments over the full wage distributions. Comparing the changes of premiums over the 1980-2005 period in Quebec, one find that the premiums increased for almost all the highlighted labour characteristics. The only exceptions are for the “High school” variable and the “Doctorate degree” variable over the top of the distribution for the latter. Concerning the Quebec-Ontario premiums comparison, the evidence reports higher coefficients in Quebec than in Ontario for all human capital labour characteristics studied. The major finding of this part is, therefore, that the changes in the market premiums of worker endowments can explain to a certain extent the 1980-2005 wage gap in Quebec. However, the conclusion is different concerning the wage differentials between Quebec and Ontario; the latter essentially cannot be explained by higher premiums of worker characteristics in Ontario.

To conclude, the Quebec-Ontario wage gap seems to be partly explained by the difference in the workers’ endowments between the two provinces. However, more research is necessary to confirm this statement. In fact, the gap could possibly be explained by other variables absent from the model used in this study. Therefore, a possible avenue for future research would be to investigate these other factors. This could be attempted with a data base with more demographic and more work force characteristics such as possibly the SLID panel survey by Statistics Canada. Moreover, industrial structure and government policies could also be taken into account.

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Appendix

Tables of decile wage levels

Table 12: WAGES BY DECILE FOR THE 2001 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	7,157	13,340	9,202	7,010	12,270	9,202	2.10	8.73	0.00
2	12,815	24,540	17,382	12,270	20,450	15,337	4.44	20.00	13.33
3	18,405	30,675	24,540	16,150	25,562	20,450	13.96	20.00	20.00
4	24,029	36,810	30,675	20,450	30,675	25,562	17.50	20.00	20.00
5	28,732	42,793	35,787	25,562	35,787	30,675	12.40	19.58	16.67
6	33,231	50,102	40,900	29,789	40,900	35,787	11.55	22.50	14.29
7	39,179	57,260	49,080	34,765	49,080	41,411	12.70	16.67	18.52
8	47,035	66,462	59,305	40,900	57,260	51,125	15.00	16.07	16.00
9	61,350	83,845	73,211	52,147	71,575	62,372	17.65	17.14	17.38
Mean	31,888	48,540	40,466	27,999	40,860	34,778	13.89	18.80	16.35

Table 13: WAGES BY DECILE FOR THE 1996 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	5,962	11,249	7,874	5,624	10,364	7,458	6.00	8.53	5.58
2	11,287	21,783	15,748	10,364	17,610	13,498	8.90	23.70	16.67
3	16,873	29,246	22,497	14,476	23,955	18,873	16.56	22.09	19.20
4	22,497	34,871	28,121	18,816	29,246	24,184	19.57	19.23	16.28
5	27,859	41,107	33,746	23,493	34,871	29,246	18.59	17.89	15.38
6	32,621	47,244	39,370	28,121	40,495	33,746	16.00	16.67	16.67
7	37,120	55,681	46,119	32,913	47,244	40,495	12.78	17.86	13.89
8	44,533	64,100	56,243	39,370	56,243	48,369	13.11	13.97	16.28
9	56,243	78,178	68,813	48,369	67,492	60,944	16.28	15.83	12.91
Mean	29,711	45,124	37,787	25,848	38,737	32,814	14.95	16.49	15.15

Table 14: WAGES BY DECILE FOR THE 1991 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	6,039	14,493	8,593	5,797	12,077	7,729	4.17	20.00	11.17
2	11,728	24,155	15,963	9,662	19,263	13,430	21.39	25.39	18.86
3	16,103	31,167	22,947	13,722	25,121	18,691	17.35	24.07	22.77
4	21,486	36,232	28,684	18,116	30,193	24,155	18.60	20.00	18.75
5	25,362	42,029	33,816	21,981	36,232	28,986	15.38	16.00	16.67
6	30,193	47,447	38,647	26,537	40,972	33,816	13.78	15.80	14.29
7	34,436	53,378	45,175	30,193	47,101	39,372	14.05	13.33	14.74
8	40,884	60,386	53,140	36,232	54,348	47,338	12.84	11.11	12.26
9	50,409	74,018	66,425	45,199	65,217	58,754	11.53	13.49	13.06
Mean	27,616	45,132	36,877	24,193	38,599	32,036	14.15	16.93	15.11

Table 15: WAGES BY DECILE FOR THE 1986 CENSUS

Decile	Ontario			Quebec			Difference (%)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
1	4,726	14,421	7,622	4,726	12,195	7,622	0.00	18.25	0.00
2	9,146	24,351	14,867	9,146	20,253	13,720	0.00	20.23	8.37
3	13,720	30,748	21,341	13,200	26,753	19,412	3.94	14.93	9.94
4	18,293	37,500	27,439	17,073	31,442	24,390	7.14	19.27	12.50
5	22,866	42,683	32,012	21,724	37,659	30,024	5.26	13.34	6.62
6	27,439	47,256	38,110	25,915	42,683	35,061	5.88	10.71	8.70
7	30,759	53,354	45,732	30,476	47,486	41,159	0.93	12.36	11.11
8	37,198	60,976	53,354	35,748	54,878	47,561	4.06	11.11	12.18
9	46,470	73,305	64,848	44,027	65,837	59,451	5.55	11.34	9.08
Mean	24,704	44,661	35,732	23,378	39,467	32,625	5.67	13.16	9.53

Tables of OLS regressions

Table 16: OLS REGRESSIONS FOR THE 2006 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0862***	0.0768***	0.0939***	0.0866***
Age squared	-0.0008***	-0.0008***	-0.0009***	-0.0009***
Marital Status				
Single	0.0375***	-0.2255***	0.0469***	-0.1400***
Divorced, widowed or separated	-0.0010	-0.1226***	0.0122	-0.0570***
Geography				
Small urban area	-0.0347***	0.0604***	-0.0838***	-0.0238
Rural area	-0.0762***	-0.0055	-0.1204***	-0.0433***
Education				
High school	0.2560***	0.1720***	0.3252***	0.2127***
Trades certificate	0.1786***	0.1692***	0.2960***	0.2376***
Apprenticeship certificate	0.1870***	0.3392***	0.2633***	0.2021***
College, CEGEP (<1 year)	0.3114***	0.2102***	0.4264***	0.1529***
College, CEGEP (<2 years)	0.4258***	0.3189***	0.4221***	0.2602***
College, CEGEP (>2 years)	0.5665***	0.3917***	0.6519***	0.4877***
University certificate	0.4665***	0.2963***	0.6806***	0.4406***
Bachelor's degree	0.6611***	0.4935***	0.8511***	0.5591***
Diploma above bachelor level	0.7183***	0.5235***	0.8756***	0.5625***
Degree in medicine and others	0.7204***	0.4118***	0.7710***	0.2933***
Master's degree	0.7517***	0.5380***	0.9061***	0.6322***
Earned doctorate degree	0.8710***	0.6448***	0.9629***	0.8261***
Labour market activity				
Part-time work	-0.9171***	-1.2941***	-0.7759***	-1.0840***
Observations	59544	61336	36417	39467
Adjusted R^2	0.276	0.216	0.307	0.212

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 17: OLS REGRESSIONS FOR THE 2001 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0758***	0.0679***	0.0884***	0.0827***
Age squared	-0.0008***	-0.0007***	-0.0009***	-0.0009***
Marital Status				
Single	0.0112	-0.2178***	0.0344***	-0.1629***
Divorced, widowed or separated	-0.0161	-0.1123***	0.0128	-0.0679***
Geography				
Small urban area	-0.0523***	0.0505***	-0.1121***	-0.0275
Rural area	-0.1158***	-0.0461***	-0.1489***	-0.0533***
Education				
High school	0.1856***	0.1643***	0.2614***	0.1807***
Trades certificate	0.1594***	0.2162***	0.2513***	0.2201***
College certificate	0.3712***	0.2958***	0.4975***	0.3792***
University certificate	0.3361***	0.2538***	0.6192***	0.4109***
Bachelor's degree	0.5547***	0.4313***	0.7864***	0.5709***
Diploma above bachelor level	0.6470***	0.4214***	0.7879***	0.5625***
Medical degree	0.4613***	0.5428***	0.9778***	0.7744***
Master's degree	0.6475***	0.4793***	0.8419***	0.6399***
Earned doctorate	0.6883***	0.4767***	0.9445***	0.6380***
Labour market activity				
Part-time work	-0.8954***	-1.2216***	-0.7529***	-1.0493***
Observations	57822	61427	34746	38736
Adjusted R^2	0.248	0.190	0.269	0.211

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 18: OLS REGRESSIONS FOR THE 1996 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0814***	0.0863***	0.1044***	0.0899***
Age squared	-0.0008***	-0.0009***	-0.0011***	-0.0009***
Marital Status				
Single	-0.0268**	-0.2608***	0.0362***	-0.2195***
Divorced, widowed or separated	-0.0183	-0.1311***	0.0342**	-0.1173***
Geography				
Small urban area	-0.0461***	0.0550***	-0.1082***	-0.0437*
Rural area	-0.0906***	-0.0279***	-0.1452***	-0.0477***
Education				
High school	0.2023***	0.1840***	0.2877***	0.1926***
Trades certificate	0.1672***	0.2035***	0.3103***	0.2057***
College certificate	0.3825***	0.2773***	0.5357***	0.3755***
University certificate	0.4233***	0.2300**	0.7028***	0.4165***
Bachelor's degree	0.5900***	0.4477***	0.7698***	0.5389***
Diploma above bachelor level	0.6710***	0.4830***	0.8164***	0.5865***
Medical degree	0.4676***	0.5612***	1.0938***	0.8457***
Master's degree	0.6734***	0.5332***	0.8573***	0.6189***
Earned doctorate	0.7191***	0.5684***	0.9804***	0.7985***
Labour market activity				
Part-time work	-0.9168***	-1.1773***	-0.7160***	-0.9211***
Observations	52242	57506	32711	38473
Adjusted R^2	0.270	0.229	0.258	0.212

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 19: OLS REGRESSIONS FOR THE 1991 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0696***	0.0725***	0.0837***	0.0775***
Age squared	-0.0008***	-0.0008***	-0.0009***	-0.0008***
Marital Status				
Single	0.0217*	-0.2994***	0.0554***	-0.2687***
Divorced, widowed or separated	0.0382***	-0.1481***	0.0277*	-0.0922***
Geography				
Small urban area	-0.1118***	-0.0079	-0.0992***	-0.0336*
Rural area	-0.1602***	-0.1004***	-0.1664***	-0.0817***
Education				
High school	0.2024***	0.1819***	0.3010***	0.1974***
Trades certificate	0.1821***	0.2053***	0.3335***	0.2363***
College certificate	0.3786***	0.3008***	0.5608***	0.3581***
University certificate	0.4754***	0.2511***	0.7048***	0.4339***
Bachelor's degree	0.5717***	0.4486***	0.7387***	0.5135***
Diploma above bachelor level	0.6997***	0.4549***	0.8656***	0.5801***
Medical degree	0.6566***	0.4146***	0.9755***	0.8803***
Master's degree	0.6566***	0.5309***	0.8490***	0.6227***
Earned doctorate	0.8290***	0.6190***	0.9301***	0.7537***
Labour market activity				
Part-time work	-0.8656***	-1.0953***	-0.7092***	-0.8692***
Observations	55714	62509	35072	41914
Adjusted R^2	0.258	0.206	0.253	0.210

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 20: OLS REGRESSIONS FOR THE 1986 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0589***	0.0805***	0.0650***	0.0979***
Age squared	-0.0006***	-0.0008***	-0.0007***	-0.0011***
Marital Status				
Single	0.0818***	-0.3473***	0.0749***	-0.4030***
Divorced, widowed or separated	0.0271*	-0.1735***	0.0276	-0.1699***
Geography				
Small urban area	-0.1473***	-0.0073		
Rural area	-0.1503***	-0.0717***	-0.1242***	-0.1068***
Education				
High school	0.2312***	0.1985***	0.2965***	0.2245***
Trades certificate	0.1822***	0.1441***	0.3222***	0.2033***
College certificate	0.3719***	0.2635***	0.5390***	0.3347***
University certificate	0.4378***	0.2652***	0.7330***	0.3665***
Bachelor's degree	0.5725***	0.4023***	0.6879***	0.4882***
Diploma above bachelor level	0.6664***	0.4627***	0.8315***	0.5258***
Medical degree	0.5720***	0.4960***	1.1491***	0.8184***
Master's degree	0.6609***	0.4854***	0.7997***	0.6326***
Earned doctorate	0.8829***	0.6333***	1.2163***	0.6740***
Labour market activity				
Part-time work	-0.8776***	-1.0360***	-0.7141***	-0.6920***
o.Small urban area			0.0000	0.0000
Observations	29466	36396	18269	24689
Adjusted R^2	0.261	0.208	0.236	0.229

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 21: OLS REGRESSIONS FOR THE 1981 CENSUS

	On.; Females	On.; Males	Qc.; Females	Qc.; Males
Demographic				
Age	0.0534***	0.0843***	0.0427***	0.0813***
Age squared	-0.0006***	-0.0009***	-0.0004***	-0.0009***
Marital Status				
Single	0.1332***	-0.3589***	0.1445***	-0.3628***
Divorced, widowed or separated	0.0213	-0.1865***	0.0415*	-0.2221***
Geography				
Small urban area	-0.1191***	-0.0661***		
Rural area	-0.1182***	-0.0564***	-0.1401***	-0.1042***
Education				
High school	0.2196***	0.2295***	0.2728***	0.2531***
Trades certificate	0.1732***	0.1532***	0.3602***	0.2031***
College certificate	0.3234***	0.2813***	0.5544***	0.3933***
University certificate	0.4707***	0.3231***	0.7552***	0.4554***
Bachelor's degree	0.5588***	0.4364***	0.7148***	0.5364***
Diploma above bachelor level	0.5758***	0.4954***	0.9173***	0.6128***
Medical degree	0.8541***	0.5598***	1.2909***	0.6870***
Master's degree	0.6483***	0.4886***	0.9313***	0.6399***
Earned doctorate	0.8421***	0.5840***	1.1006***	0.8595***
Labour market activity				
Part-time work	-0.8826***	-1.0246***	-0.7935***	-0.7069***
o.Small urban area			0.0000	0.0000
Observations	24805	33545	15505	23973
Adjusted R^2	0.262	0.197	0.265	0.217

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Tables of UQR regression results

Table 22: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 2001 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0849***	0.0918***	0.0826***	0.0746***	0.0701***	0.0694***	0.0771***	0.0826***	0.0776***
Age squared	-0.0008***	-0.0009***	-0.0008***	-0.0007***	-0.0007***	-0.0007***	-0.0008***	-0.0008***	-0.0008***
Marital Status									
Single	0.0424	0.0123	-0.0000	0.0197	0.0197*	0.0233**	0.0121	0.0099	0.0047
Divorced, widowed or separated	-0.0662*	-0.0509**	-0.0322*	-0.0133	0.0048	0.0202**	0.0177*	0.0085	0.0023
Geography									
Small urban area	0.0241	-0.0277	-0.0529***	-0.0744***	-0.0651***	-0.0668***	-0.0651***	-0.0590***	-0.0687***
Rural area	-0.1061***	-0.1408***	-0.1545***	-0.1630***	-0.1263***	-0.1122***	-0.1014***	-0.0831***	-0.0819***
Education									
High school	0.2508***	0.2683***	0.2487***	0.2423***	0.1908***	0.1643***	0.1416***	0.1265***	0.0909***
Trades certificate	0.2072***	0.2518***	0.2226***	0.2058***	0.1558***	0.1349***	0.1110***	0.1012***	0.0797***
College certificate	0.4819***	0.5583***	0.5145***	0.4706***	0.3668***	0.3287***	0.2989***	0.2809***	0.1960***
University certificate	0.2274**	0.3813***	0.3901***	0.4210***	0.3470***	0.3473***	0.3550***	0.3902***	0.2915***
Bachelor's degree	0.4965***	0.5812***	0.5818***	0.6099***	0.5488***	0.5510***	0.5851***	0.6391***	0.5822***
Diploma above bachelor level	0.5432***	0.6891***	0.6705***	0.7112***	0.6528***	0.6516***	0.7217***	0.8040***	0.7640***
Medical degree	-0.0518	0.3374**	0.4059***	0.4948***	0.4841***	0.5418***	0.6074***	0.7675***	0.7522***
Master's degree	0.4440***	0.5598***	0.5819***	0.6267***	0.5867***	0.6311***	0.7400***	0.8852***	0.9091***
Earned doctorate	0.3916**	0.4872***	0.5409***	0.6184***	0.6007***	0.6503***	0.7593***	0.9889***	1.1908***
Labour market activity									
Part-time work	-1.8961***	-1.8037***	-1.3400***	-1.0022***	-0.6723***	-0.5276***	-0.4347***	-0.3870***	-0.2875***
Observations	57822	57822	57822	57822	57822	57822	57822	57822	57822

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 23: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 2001 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1321***	0.0866***	0.0677***	0.0754***	0.0692***	0.0662***	0.0613***	0.0511***	0.0442***
Age squared	-0.0014***	-0.0009***	-0.0007***	-0.0008***	-0.0007***	-0.0007***	-0.0006***	-0.0005***	-0.0004***
Marital Status									
Single	-0.4321***	-0.2956***	-0.2072***	-0.2187***	-0.1957***	-0.1738***	-0.1756***	-0.1367***	-0.1430***
Divorced, widowed or separated	-0.1597***	-0.1328***	-0.1008***	-0.1157***	-0.1125***	-0.1039***	-0.1044***	-0.0990***	-0.1133***
Geography									
Small urban area	0.0275	0.0829***	0.0758***	0.1003***	0.0841***	0.0756***	0.0646***	0.0285***	-0.0266**
Rural area	-0.0636*	-0.0315*	-0.0060	-0.0033	-0.0120	-0.0275***	-0.0467***	-0.0622***	-0.1020***
Education									
High school	0.3372***	0.2061***	0.1493***	0.1525***	0.1378***	0.1384***	0.1400***	0.1102***	0.1095***
Trades certificate	0.4041***	0.2969***	0.2292***	0.2430***	0.2100***	0.1945***	0.1793***	0.1359***	0.1011***
College certificate	0.4467***	0.3321***	0.2641***	0.3075***	0.2961***	0.2921***	0.2975***	0.2313***	0.2163***
University certificate	0.2766**	0.2212***	0.1946***	0.2532***	0.2476***	0.2603***	0.2740***	0.2466***	0.2656***
Bachelor's degree	0.3264***	0.3384***	0.3151***	0.4078***	0.4153***	0.4447***	0.5131***	0.4909***	0.5466***
Diploma above bachelor level	0.3601***	0.3554***	0.3296***	0.4265***	0.4298***	0.4447***	0.5007***	0.4791***	0.4545***
Medical degree	0.1563	0.2807***	0.2571***	0.4032***	0.4356***	0.4820***	0.5783***	0.5746***	0.9689***
Master's degree	0.2043**	0.3034***	0.3012***	0.4361***	0.4628***	0.5063***	0.6075***	0.6125***	0.7050***
Earned doctorate	0.2239	0.2915***	0.2906***	0.4058***	0.4468***	0.5218***	0.6364***	0.6595***	0.8468***
Labour market activity									
Part-time work	-5.3035***	-1.9338***	-1.0444***	-0.8149***	-0.5733***	-0.4364***	-0.3753***	-0.2904***	-0.2487***
Observations	61427	61427	61427	61427	61427	61427	61427	61427	61427

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 24: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 2001 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0900***	0.0932***	0.0969***	0.0986***	0.0945***	0.0816***	0.0872***	0.0959***	0.0782***
Age squared	-0.0010***	-0.0010***	-0.0010***	-0.0010***	-0.0010***	-0.0009***	-0.0009***	-0.0010***	-0.0008***
Marital Status									
Single	0.0359	0.0429*	0.0669***	0.0556***	0.0487***	0.0333***	0.0215*	0.0283**	0.0168
Divorced, widowed or separated	0.0128	0.0113	0.0166	0.0151	0.0333**	0.0337***	0.0223*	0.0219*	0.0252*
Geography									
Small urban area	-0.1356	-0.0910*	-0.1082***	-0.1077***	-0.1163***	-0.1166***	-0.1409***	-0.1290***	-0.1255***
Rural area	-0.2399***	-0.2186***	-0.2074***	-0.1872***	-0.1675***	-0.1253***	-0.1107***	-0.0878***	-0.0568***
Education									
High school	0.4022***	0.3485***	0.4134***	0.3754***	0.3123***	0.2178***	0.1549***	0.1102***	0.0455***
Trades certificate	0.4103***	0.3432***	0.3780***	0.3417***	0.2793***	0.1992***	0.1491***	0.1288***	0.0769***
College certificate	0.6945***	0.6024***	0.6984***	0.6724***	0.5667***	0.4491***	0.4015***	0.3387***	0.1949***
University certificate	0.7253***	0.6407***	0.7386***	0.7601***	0.7210***	0.6316***	0.6220***	0.5766***	0.3824***
Bachelor's degree	0.8546***	0.7650***	0.8847***	0.9032***	0.8556***	0.7761***	0.8049***	0.7928***	0.6798***
Diploma above bachelor level	0.6531***	0.6646***	0.8442***	0.8639***	0.8261***	0.7737***	0.8800***	0.8952***	0.8975***
Medical degree	0.8185***	0.6354***	0.8766***	0.8813***	0.8612***	0.8555***	0.9268***	0.9857***	1.0793***
Master's degree	0.7531***	0.7086***	0.8574***	0.8709***	0.8285***	0.7930***	0.8806***	0.9389***	1.0047***
Earned doctorate	0.7040***	0.6725***	0.8206***	0.8214***	0.8450***	0.8366***	0.9826***	1.1709***	1.4292***
Labour market activity									
Part-time work	-1.6800***	-1.2174***	-1.0224***	-0.8218***	-0.6310***	-0.4605***	-0.4002***	-0.3442***	-0.2549***
Observations	34746	34746	34746	34746	34746	34746	34746	34746	34746

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 25: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 2001 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1311***	0.0991***	0.0895***	0.0745***	0.0848***	0.0760***	0.0703***	0.0561***	0.0547***
Age squared	-0.0015***	-0.0011***	-0.0010***	-0.0008***	-0.0009***	-0.0008***	-0.0007***	-0.0005***	-0.0005***
Marital Status									
Single	-0.2268***	-0.1573***	-0.1521***	-0.1377***	-0.1583***	-0.1419***	-0.1379***	-0.1316***	-0.1606***
Divorced, widowed or separated	-0.1186***	-0.0626***	-0.0653***	-0.0540***	-0.0509***	-0.0409***	-0.0546***	-0.0467***	-0.0676***
Geography									
Small urban area	0.0295	-0.0240	-0.0209	-0.0227	-0.0541**	-0.0370*	-0.0082	-0.0108	-0.0798***
Rural area	-0.0489*	-0.0509***	-0.0589***	-0.0560***	-0.0723***	-0.0560***	-0.0424***	-0.0478***	-0.0955***
Education									
High school	0.2860***	0.2116***	0.1850***	0.1670***	0.1929***	0.1605***	0.1488***	0.1102***	0.0888***
Trades certificate	0.3099***	0.2708***	0.2500***	0.2194***	0.2426***	0.1954***	0.2007***	0.1452***	0.0857***
College certificate	0.4251***	0.3869***	0.3778***	0.3717***	0.4398***	0.3888***	0.3803***	0.3190***	0.2477***
University certificate	0.4117***	0.3629***	0.3653***	0.3560***	0.4442***	0.4056***	0.4510***	0.4158***	0.4108***
Bachelor's degree	0.4436***	0.4439***	0.4646***	0.4900***	0.6080***	0.5802***	0.6531***	0.6260***	0.6226***
Diploma above bachelor level	0.4524***	0.3864***	0.4157***	0.4271***	0.5898***	0.5850***	0.6913***	0.6488***	0.5966***
Medical degree	0.0917	0.2795***	0.3925***	0.4480***	0.6082***	0.6237***	0.7746***	0.8814***	1.3833***
Master's degree	0.4169***	0.4147***	0.4674***	0.4855***	0.6269***	0.6133***	0.7707***	0.8000***	0.8595***
Earned doctorate	0.2644*	0.4126***	0.4319***	0.4411***	0.6061***	0.6079***	0.7533***	0.8771***	1.1118***
Labour market activity									
Part-time work	-2.9917***	-1.5142***	-1.0559***	-0.7542***	-0.6557***	-0.4888***	-0.3893***	-0.3024***	-0.2540***
Observations	38736	38736	38736	38736	38736	38736	38736	38736	38736

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 26: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 1996 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0781***	0.0818***	0.0815***	0.0812***	0.0832***	0.0765***	0.0819***	0.0927***	0.0942***
Age squared	-0.0008***	-0.0008***	-0.0008***	-0.0008***	-0.0009***	-0.0008***	-0.0009***	-0.0010***	-0.0010***
Marital Status									
Single	-0.1296***	-0.0791***	-0.0575***	-0.0249*	0.0057	0.0152	0.0291***	0.0305***	0.0190
Divorced, widowed or separated	-0.1253***	-0.0713***	-0.0245	-0.0042	0.0204*	0.0243**	0.0289***	0.0300***	0.0228*
Geography									
Small urban area	-0.0244	-0.0403*	-0.0555***	-0.0576***	-0.0693***	-0.0424***	-0.0382***	-0.0291***	-0.0431***
Rural area	-0.0765**	-0.0960***	-0.1241***	-0.1237***	-0.1231***	-0.0863***	-0.0722***	-0.0596***	-0.0480***
Education									
High school	0.2555***	0.2591***	0.2776***	0.2753***	0.2294***	0.1823***	0.1517***	0.1241***	0.1011***
Trades certificate	0.2292***	0.1801***	0.2028***	0.2092***	0.1690***	0.1361***	0.1301***	0.1154***	0.0921***
College certificate	0.4495***	0.4918***	0.4970***	0.4782***	0.4122***	0.3413***	0.3233***	0.3053***	0.2393***
University certificate	0.4133***	0.4468***	0.4787***	0.4807***	0.4407***	0.4079***	0.4394***	0.4887***	0.3847***
Bachelor's degree	0.5864***	0.5711***	0.5798***	0.6005***	0.5763***	0.5285***	0.5826***	0.6660***	0.6891***
Diploma above bachelor level	0.5268***	0.5900***	0.6306***	0.6542***	0.6551***	0.6231***	0.6921***	0.8409***	0.9609***
Medical degree	0.0384	0.1987	0.4526***	0.4145***	0.3914***	0.4204***	0.5380***	0.6802***	0.7731***
Master's degree	0.4726***	0.5101***	0.5821***	0.6144***	0.6082***	0.6111***	0.7256***	0.8973***	1.0652***
Earned doctorate	0.5481***	0.5171***	0.5114***	0.5617***	0.6100***	0.6208***	0.7251***	0.9726***	1.1745***
Labour market activity									
Part-time work	-1.8160***	-1.6588***	-1.4016***	-1.0584***	-0.7572***	-0.5207***	-0.4365***	-0.3866***	-0.3038***
Observations	52242	52242	52242	52242	52242	52242	52242	52242	52242

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 27: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 1996 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1091***	0.1258***	0.1131***	0.0952***	0.0945***	0.0847***	0.0707***	0.0545***	0.0361***
Age squared	-0.0012***	-0.0014***	-0.0012***	-0.0010***	-0.0010***	-0.0009***	-0.0007***	-0.0005***	-0.0003***
Marital Status									
Single	-0.4258***	-0.3609***	-0.3228***	-0.2380***	-0.2154***	-0.1974***	-0.1572***	-0.1357***	-0.1326***
Divorced, widowed or separated	-0.1634***	-0.1649***	-0.1520***	-0.1164***	-0.1172***	-0.1103***	-0.0938***	-0.0825***	-0.0702***
Geography									
Small urban area	0.0478*	0.0897***	0.1026***	0.0910***	0.0936***	0.0847***	0.0514***	0.0274***	-0.0239**
Rural area	-0.0340	-0.0212	-0.0015	0.0064	-0.0085	-0.0114	-0.0274***	-0.0395***	-0.0822***
Education									
High school	0.2417***	0.2244***	0.1937***	0.1563***	0.1621***	0.1590***	0.1451***	0.1343***	0.1347***
Trades certificate	0.2352***	0.2548***	0.2503***	0.2135***	0.2163***	0.2049***	0.1849***	0.1491***	0.1095***
College certificate	0.2160***	0.3136***	0.3275***	0.2827***	0.2976***	0.2868***	0.2567***	0.2201***	0.1816***
University certificate	0.1005	0.1715***	0.1910***	0.1760***	0.2326***	0.2530***	0.2360***	0.2466***	0.2794***
Bachelor's degree	0.2926***	0.3978***	0.4328***	0.3916***	0.4393***	0.4631***	0.4586***	0.4845***	0.4603***
Diploma above bachelor level	0.3519***	0.3890***	0.4486***	0.4370***	0.4961***	0.5232***	0.5336***	0.5652***	0.4222***
Medical degree	0.0220	0.2399**	0.3493***	0.3397***	0.4269***	0.4514***	0.4899***	0.5933***	0.8948***
Master's degree	0.2690***	0.3680***	0.4379***	0.4310***	0.5147***	0.5570***	0.5732***	0.6505***	0.6966***
Earned doctorate	0.3772***	0.4133***	0.4545***	0.4459***	0.5205***	0.5970***	0.6360***	0.7212***	0.8162***
Labour market activity									
Part-time work	-3.0722***	-2.0366***	-1.2931***	-0.7849***	-0.5784***	-0.4418***	-0.3193***	-0.2510***	-0.1910***
Observations	57506	57506	57506	57506	57506	57506	57506	57506	57506

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 28: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 1996 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0886***	0.1178***	0.1160***	0.1307***	0.1173***	0.1041***	0.0993***	0.1080***	0.0881***
Age squared	-0.0010***	-0.0013***	-0.0013***	-0.0014***	-0.0013***	-0.0011***	-0.0011***	-0.0011***	-0.0009***
Marital Status									
Single	0.0276	0.0537**	0.0597***	0.0460**	0.0427***	0.0443***	0.0318***	0.0393***	0.0404***
Divorced, widowed or separated	0.0037	0.0463*	0.0421*	0.0476**	0.0458***	0.0444***	0.0262**	0.0402***	0.0492***
Geography									
Small urban area	-0.1232	-0.1068*	-0.1219***	-0.1560***	-0.1500***	-0.1198***	-0.0858***	-0.0730***	-0.0460*
Rural area	-0.2357***	-0.2264***	-0.2163***	-0.2273***	-0.1683***	-0.1338***	-0.0853***	-0.0536***	-0.0259**
Education									
High school	0.3849***	0.4116***	0.4542***	0.4599***	0.3770***	0.2710***	0.1867***	0.1285***	0.0591***
Trades certificate	0.3832***	0.4487***	0.4726***	0.4640***	0.3599***	0.2748***	0.2094***	0.1556***	0.0985***
College certificate	0.6203***	0.7201***	0.7577***	0.8040***	0.6566***	0.5073***	0.4305***	0.3755***	0.2190***
University certificate	0.6306***	0.8155***	0.8869***	0.9783***	0.8487***	0.7146***	0.6907***	0.6810***	0.4360***
Bachelor's degree	0.6617***	0.7862***	0.8736***	0.9776***	0.8734***	0.7587***	0.7621***	0.8131***	0.7475***
Diploma above bachelor level	0.5880***	0.7230***	0.8473***	0.9724***	0.9232***	0.7814***	0.8271***	0.9903***	1.0296***
Medical degree	0.5209**	0.8061***	1.0330***	1.1168***	0.9811***	0.8739***	0.9746***	1.1750***	1.3135***
Master's degree	0.6488***	0.7451***	0.8492***	0.9470***	0.8695***	0.7907***	0.8419***	0.9747***	1.1335***
Earned doctorate	0.4934**	0.7659***	0.9054***	1.0268***	0.9300***	0.8359***	0.8927***	1.1425***	1.6084***
Labour market activity									
Part-time work	-1.1597***	-1.1260***	-1.0097***	-0.9465***	-0.7512***	-0.5507***	-0.4130***	-0.3707***	-0.2595***
Observations	32711	32711	32711	32711	32711	32711	32711	32711	32711

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 29: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 1996 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1314***	0.1162***	0.1139***	0.0993***	0.0926***	0.0881***	0.0781***	0.0691***	0.0486***
Age squared	-0.0014***	-0.0013***	-0.0012***	-0.0011***	-0.0010***	-0.0009***	-0.0008***	-0.0007***	-0.0005***
Marital Status									
Single	-0.3148***	-0.3332***	-0.2814***	-0.2341***	-0.2086***	-0.1933***	-0.1702***	-0.1439***	-0.1237***
Divorced, widowed or separated	-0.2696***	-0.1950***	-0.1504***	-0.1078***	-0.0820***	-0.0679***	-0.0547***	-0.0533***	-0.0475***
Geography									
Small urban area	-0.0515	-0.0309	-0.0672*	-0.0507*	-0.0515**	-0.0612***	-0.0272	-0.0186	-0.0465**
Rural area	-0.0104	-0.0671***	-0.0741***	-0.0588***	-0.0553***	-0.0513***	-0.0291***	-0.0311***	-0.0574***
Education									
High school	0.2532***	0.2826***	0.2619***	0.2187***	0.1988***	0.1975***	0.1703***	0.1392***	0.0966***
Trades certificate	0.2930***	0.2916***	0.2838***	0.2450***	0.2363***	0.2240***	0.1894***	0.1358***	0.0826***
College certificate	0.3547***	0.4583***	0.4635***	0.4395***	0.4429***	0.4328***	0.4010***	0.3373***	0.2468***
University certificate	0.3001***	0.4324***	0.4813***	0.4354***	0.4581***	0.4839***	0.4908***	0.4306***	0.3765***
Bachelor's degree	0.3793***	0.5124***	0.5542***	0.5481***	0.5814***	0.6160***	0.6436***	0.5865***	0.4771***
Diploma above bachelor level	0.4225***	0.4911***	0.4859***	0.5103***	0.5897***	0.6599***	0.7682***	0.7569***	0.6421***
Medical degree	0.3097*	0.4935***	0.5849***	0.5607***	0.6030***	0.7038***	0.8370***	0.8762***	1.1342***
Master's degree	0.3431***	0.4493***	0.5086***	0.5551***	0.6212***	0.6911***	0.7782***	0.8290***	0.7367***
Earned doctorate	0.5881***	0.6401***	0.6487***	0.6508***	0.6775***	0.7601***	0.9174***	0.9970***	1.1406***
Labour market activity									
Part-time work	-2.3201***	-1.6852***	-1.0979***	-0.7750***	-0.5850***	-0.4718***	-0.3735***	-0.2877***	-0.1985***
Observations	38473	38473	38473	38473	38473	38473	38473	38473	38473

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 30: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 1991 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0706***	0.0729***	0.0831***	0.0688***	0.0543***	0.0583***	0.0640***	0.0769***	0.0778***
Age squared	-0.0007***	-0.0008***	-0.0009***	-0.0008***	-0.0006***	-0.0006***	-0.0007***	-0.0008***	-0.0008***
Marital Status									
Single	-0.0130	-0.0022	-0.0022	0.0166	0.0409***	0.0446***	0.0556***	0.0495***	0.0230*
Divorced, widowed or separated	-0.0574*	0.0111	0.0619***	0.0613***	0.0737***	0.0638***	0.0638***	0.0578***	0.0511***
Geography									
Small urban area	-0.1245***	-0.1384***	-0.1513***	-0.1402***	-0.1093***	-0.1051***	-0.0805***	-0.0651***	-0.0675***
Rural area	-0.1673***	-0.2111***	-0.2550***	-0.2176***	-0.1698***	-0.1427***	-0.1199***	-0.0941***	-0.0846***
Education									
High school	0.2065***	0.2296***	0.3283***	0.2960***	0.2314***	0.1766***	0.1541***	0.1293***	0.0945***
Trades certificate	0.1822***	0.2319***	0.3066***	0.2775***	0.2066***	0.1466***	0.1216***	0.1142***	0.0798***
College certificate	0.3470***	0.4306***	0.5878***	0.5299***	0.4264***	0.3616***	0.3206***	0.3139***	0.2004***
University certificate	0.4272***	0.4375***	0.6001***	0.5748***	0.4871***	0.4712***	0.4732***	0.5228***	0.3506***
Bachelor's degree	0.3882***	0.4758***	0.6593***	0.6360***	0.5485***	0.5344***	0.5706***	0.6688***	0.6734***
Diploma above bachelor level	0.4776***	0.5461***	0.7518***	0.7135***	0.6295***	0.6317***	0.7190***	0.8905***	0.9458***
Medical degree	0.1402	0.3919**	0.6477***	0.5388***	0.4734***	0.4977***	0.5732***	0.8087***	0.7760***
Master's degree	0.3552***	0.3865***	0.5777***	0.5961***	0.5548***	0.5773***	0.6742***	0.8849***	1.0389***
Earned doctorate	0.4578**	0.5708***	0.8325***	0.7066***	0.6341***	0.6791***	0.7953***	1.0814***	1.3902***
Labour market activity									
Part-time work	-1.3305***	-1.4140***	-1.4815***	-1.0437***	-0.7117***	-0.5196***	-0.4244***	-0.3736***	-0.2701***
Observations	55714	55714	55714	55714	55714	55714	55714	55714	55714

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 31: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 1991 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0917***	0.0790***	0.0798***	0.0642***	0.0771***	0.0701***	0.0743***	0.0636***	0.0460***
Age squared	-0.0010***	-0.0009***	-0.0009***	-0.0007***	-0.0008***	-0.0007***	-0.0008***	-0.0006***	-0.0004***
Marital Status									
Single	-0.6290***	-0.4104***	-0.3445***	-0.2462***	-0.2295***	-0.1901***	-0.1787***	-0.1423***	-0.1083***
Divorced, widowed or separated	-0.2793***	-0.1996***	-0.1722***	-0.1186***	-0.1175***	-0.0975***	-0.0974***	-0.0637***	-0.0552***
Geography									
Small urban area	-0.0094	0.0123	0.0317***	0.0211***	0.0220***	0.0115*	-0.0119	-0.0297***	-0.0763***
Rural area	-0.1772***	-0.1210***	-0.0783***	-0.0695***	-0.0725***	-0.0655***	-0.0706***	-0.0710***	-0.1005***
Education									
High school	0.2556***	0.1799***	0.1714***	0.1436***	0.1666***	0.1554***	0.1752***	0.1552***	0.1233***
Trades certificate	0.3167***	0.2371***	0.2228***	0.1801***	0.2082***	0.1774***	0.1855***	0.1379***	0.0814***
College certificate	0.4080***	0.3042***	0.3072***	0.2568***	0.3110***	0.2697***	0.2980***	0.2497***	0.1784***
University certificate	0.2486***	0.2104***	0.2344***	0.2121***	0.2553***	0.2609***	0.2942***	0.2674***	0.2316***
Bachelor's degree	0.3920***	0.3484***	0.3832***	0.3375***	0.4426***	0.4260***	0.5118***	0.4777***	0.4196***
Diploma above bachelor level	0.3222***	0.3132***	0.3716***	0.3455***	0.4547***	0.4516***	0.5489***	0.5539***	0.4192***
Medical degree	-0.1368	0.0641	0.1859***	0.2272***	0.3667***	0.3640***	0.4341***	0.4745***	0.7110***
Master's degree	0.4191***	0.3171***	0.3904***	0.3549***	0.4996***	0.4963***	0.6296***	0.6354***	0.6678***
Earned doctorate	0.5961***	0.3468***	0.3901***	0.3690***	0.5168***	0.5554***	0.7458***	0.7961***	0.9915***
Labour market activity									
Part-time work	-3.6511***	-1.5488***	-0.9352***	-0.5837***	-0.4838***	-0.3430***	-0.3018***	-0.2275***	-0.1584***
Observations	62509	62509	62509	62509	62509	62509	62509	62509	62509

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 32: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 1991 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0808***	0.0927***	0.0844***	0.0871***	0.0958***	0.0878***	0.0850***	0.0854***	0.0846***
Age squared	-0.0009***	-0.0010***	-0.0009***	-0.0010***	-0.0010***	-0.0010***	-0.0009***	-0.0009***	-0.0009***
Marital Status									
Single	0.0567*	0.0856***	0.0743***	0.0701***	0.0747***	0.0663***	0.0513***	0.0435***	0.0430***
Divorced, widowed or separated	-0.0015	0.0343	0.0330	0.0342*	0.0470***	0.0420***	0.0304**	0.0287**	0.0285*
Geography									
Small urban area	-0.0670	-0.1107*	-0.1159***	-0.1494***	-0.1739***	-0.1473***	-0.1208***	-0.0747***	-0.0605**
Rural area	-0.2351***	-0.2852***	-0.2564***	-0.2305***	-0.2009***	-0.1468***	-0.1145***	-0.0702***	-0.0469***
Education									
High school	0.3566***	0.4294***	0.4422***	0.4255***	0.4016***	0.2916***	0.2374***	0.1541***	0.0855***
Trades certificate	0.3794***	0.4757***	0.4833***	0.4422***	0.4263***	0.3270***	0.2611***	0.1938***	0.1278***
College certificate	0.6018***	0.7468***	0.7776***	0.7437***	0.7021***	0.5580***	0.4882***	0.4107***	0.2408***
University certificate	0.6299***	0.8114***	0.8515***	0.8575***	0.8575***	0.7282***	0.7057***	0.7044***	0.5107***
Bachelor's degree	0.5755***	0.7458***	0.7950***	0.8168***	0.8384***	0.7443***	0.7393***	0.7979***	0.7817***
Diploma above bachelor level	0.5976***	0.7920***	0.8686***	0.8639***	0.9150***	0.8344***	0.8515***	0.9811***	1.1053***
Medical degree	0.4442**	0.6241***	0.7532***	0.6552***	0.8071***	0.8307***	0.8717***	1.0345***	1.2749***
Master's degree	0.5197***	0.7591***	0.8567***	0.8580***	0.8903***	0.7968***	0.8083***	0.9696***	1.1636***
Earned doctorate	0.4256**	0.7142***	0.7908***	0.8778***	0.8653***	0.7201***	0.7546***	0.9790***	1.4979***
Labour market activity									
Part-time work	-1.0979***	-1.1925***	-0.9875***	-0.8429***	-0.6942***	-0.5313***	-0.4380***	-0.3725***	-0.2775***
Observations	35072	35072	35072	35072	35072	35072	35072	35072	35072

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 33: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 1991 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0849***	0.0920***	0.0857***	0.0840***	0.0767***	0.0801***	0.0756***	0.0690***	0.0491***
Age squared	-0.0010***	-0.0010***	-0.0009***	-0.0009***	-0.0008***	-0.0008***	-0.0008***	-0.0007***	-0.0005***
Marital Status									
Single	-0.4133***	-0.4118***	-0.3221***	-0.2682***	-0.2012***	-0.2016***	-0.1634***	-0.1504***	-0.1206***
Divorced, widowed or separated	-0.1411***	-0.1586***	-0.1200***	-0.0937***	-0.0564***	-0.0548***	-0.0455***	-0.0515***	-0.0451***
Geography									
Small urban area	-0.0162	0.0110	-0.0029	-0.0348	-0.0580***	-0.0505**	-0.0326*	-0.0557***	-0.0863***
Rural area	-0.1154***	-0.1312***	-0.1017***	-0.1090***	-0.0854***	-0.0769***	-0.0498***	-0.0460***	-0.0557***
Education									
High school	0.2278***	0.2606***	0.2309***	0.2174***	0.1888***	0.1900***	0.1652***	0.1472***	0.1067***
Trades certificate	0.2886***	0.3232***	0.2876***	0.2695***	0.2371***	0.2448***	0.2011***	0.1604***	0.0960***
College certificate	0.3177***	0.4403***	0.4206***	0.4040***	0.3658***	0.3943***	0.3569***	0.3243***	0.2268***
University certificate	0.2596***	0.4289***	0.4122***	0.4321***	0.4303***	0.5003***	0.4735***	0.4583***	0.4322***
Bachelor's degree	0.3078***	0.4645***	0.4878***	0.5027***	0.5075***	0.5983***	0.5928***	0.5983***	0.4928***
Diploma above bachelor level	0.3251***	0.4422***	0.4955***	0.5158***	0.5286***	0.6479***	0.6518***	0.7593***	0.6544***
Medical degree	0.1934	0.4266***	0.5129***	0.5598***	0.5662***	0.6564***	0.7189***	0.9259***	1.3168***
Master's degree	0.3065***	0.4631***	0.4910***	0.5209***	0.5406***	0.6681***	0.7251***	0.8496***	0.8409***
Earned doctorate	0.2662**	0.4827***	0.4974***	0.5222***	0.5724***	0.7430***	0.8203***	1.0571***	1.3583***
Labour market activity									
Part-time work	-1.7953***	-1.4420***	-0.9654***	-0.7087***	-0.4870***	-0.4220***	-0.3173***	-0.2683***	-0.1861***
Observations	41914	41914	41914	41914	41914	41914	41914	41914	41914

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 34: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 1986 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0406**	0.0563***	0.0718***	0.0596***	0.0581***	0.0565***	0.0579***	0.0683***	0.0787***
Age squared	-0.0003	-0.0005***	-0.0008***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0007***	-0.0009***
Marital Status									
Single	0.0657	0.0815**	0.0956***	0.0936***	0.1008***	0.0890***	0.0970***	0.1004***	0.0505**
Divorced, widowed or separated	-0.1019*	0.0221	0.0635**	0.0553**	0.0669***	0.0529***	0.0321**	0.0461***	0.0385**
Geography									
Small urban area	-0.1660***	-0.2264***	-0.2221***	-0.1866***	-0.1604***	-0.1305***	-0.0971***	-0.0729***	-0.0486***
Rural area	-0.2404***	-0.2548***	-0.2307***	-0.1889***	-0.1548***	-0.1135***	-0.0832***	-0.0630***	-0.0406***
Education									
High school	0.2965***	0.3008***	0.3242***	0.3048***	0.2708***	0.2090***	0.1764***	0.1419***	0.1173***
Trades certificate	0.2727***	0.2745***	0.2845***	0.2177***	0.1776***	0.1502***	0.1239***	0.0934***	0.0883***
College certificate	0.4515***	0.4543***	0.5160***	0.4671***	0.4160***	0.3487***	0.3226***	0.3180***	0.2356***
University certificate	0.3959***	0.4164***	0.5259***	0.5339***	0.4845***	0.4248***	0.4453***	0.5280***	0.4369***
Bachelor's degree	0.5243***	0.5068***	0.5734***	0.5730***	0.5549***	0.5223***	0.5430***	0.6607***	0.7409***
Diploma above bachelor level	0.5755***	0.5460***	0.6451***	0.6401***	0.6299***	0.5938***	0.6549***	0.8554***	0.9781***
Medical degree	0.5683*	0.3465	0.4408*	0.4644**	0.4463***	0.3860***	0.5435***	0.7193***	0.7799***
Master's degree	0.4543***	0.3966***	0.4849***	0.5414***	0.5704***	0.5690***	0.6436***	0.8544***	1.0917***
Earned doctorate	0.8025***	0.6593***	0.7108***	0.7003***	0.6827***	0.6412***	0.7453***	0.8772***	1.3334***
Labour market activity									
Part-time work	-1.5324***	-1.4624***	-1.4250***	-1.1488***	-0.8682***	-0.5990***	-0.4553***	-0.3975***	-0.3085***
Observations	29466	29466	29466	29466	29466	29466	29466	29466	29466

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 35: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 1986 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1055***	0.1171***	0.0985***	0.0903***	0.0823***	0.0709***	0.0747***	0.0660***	0.0494***
Age squared	-0.0011***	-0.0013***	-0.0011***	-0.0010***	-0.0009***	-0.0007***	-0.0008***	-0.0007***	-0.0005***
Marital Status									
Single	-0.8529***	-0.5916***	-0.3962***	-0.2842***	-0.2199***	-0.1651***	-0.1613***	-0.1316***	-0.1120***
Divorced, widowed or separated	-0.4143***	-0.2791***	-0.1887***	-0.1410***	-0.1199***	-0.0897***	-0.0798***	-0.0636***	-0.0573***
Geography									
Small urban area	-0.0764*	0.0271	0.0563***	0.0493***	0.0379***	0.0195*	-0.0011	-0.0310***	-0.0691***
Rural area	-0.1605***	-0.0942***	-0.0238*	-0.0312***	-0.0244***	-0.0314***	-0.0420***	-0.0518***	-0.0852***
Education									
High school	0.2756***	0.2425***	0.2110***	0.1860***	0.1781***	0.1614***	0.1713***	0.1592***	0.1431***
Trades certificate	0.2322***	0.1972***	0.1803***	0.1553***	0.1463***	0.1338***	0.1330***	0.1025***	0.0476***
College certificate	0.2980***	0.3472***	0.2933***	0.2577***	0.2435***	0.2353***	0.2473***	0.2311***	0.1870***
University certificate	0.1213	0.2226***	0.2041***	0.1994***	0.2389***	0.2481***	0.3225***	0.3310***	0.3185***
Bachelor's degree	0.2971***	0.3733***	0.3659***	0.3499***	0.3659***	0.3731***	0.4492***	0.4624***	0.4547***
Diploma above bachelor level	0.3278***	0.3871***	0.3951***	0.3942***	0.4113***	0.4434***	0.5456***	0.5715***	0.4882***
Medical degree	-0.0282	0.1462	0.3054***	0.3498***	0.3664***	0.4101***	0.5228***	0.5513***	0.8715***
Master's degree	0.2489***	0.3120***	0.3614***	0.3980***	0.4296***	0.4644***	0.5958***	0.6888***	0.7211***
Earned doctorate	0.3871***	0.4472***	0.4483***	0.4530***	0.4981***	0.5585***	0.7211***	0.8257***	1.0135***
Labour market activity									
Part-time work	-3.3586***	-1.8308***	-0.9598***	-0.5986***	-0.4215***	-0.3115***	-0.2734***	-0.2075***	-0.1558***
Observations	36396	36396	36396	36396	36396	36396	36396	36396	36396

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 36: UQR COEFFICIENT ESTIMATES FOR FEMALES IN QUEBEC; 1986 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0533**	0.0774***	0.0742***	0.0634***	0.0637***	0.0655***	0.0708***	0.0871***	0.0731***
Age squared	-0.0006**	-0.0009***	-0.0009***	-0.0007***	-0.0007***	-0.0007***	-0.0008***	-0.0010***	-0.0008***
Marital Status									
Single	0.0239	0.0989**	0.0866***	0.0838***	0.0983***	0.0968***	0.0776***	0.0757***	0.0428**
Divorced, widowed or separated	-0.0329	0.0224	0.0285	0.0435	0.0666**	0.0479**	0.0242	0.0219	0.0216
Geography									
Small urban or rural area	-0.2128***	-0.2422***	-0.1973***	-0.1540***	-0.1262***	-0.0933***	-0.0809***	-0.0657***	-0.0155
Education									
High school	0.3564***	0.4434***	0.4339***	0.4368***	0.4178***	0.2867***	0.2154***	0.1477***	0.0773***
Trades certificate	0.3515***	0.5168***	0.4790***	0.4816***	0.4300***	0.2995***	0.2354***	0.2086***	0.1026***
College certificate	0.6935***	0.7625***	0.7284***	0.7204***	0.6707***	0.5290***	0.4820***	0.4165***	0.1980***
University certificate	0.7586***	0.9156***	0.8899***	0.8671***	0.8486***	0.7039***	0.7277***	0.7703***	0.5506***
Bachelor's degree	0.6437***	0.7303***	0.7322***	0.7588***	0.7842***	0.6490***	0.6895***	0.8024***	0.7756***
Diploma above bachelor level	0.8253***	0.8717***	0.7999***	0.8784***	0.8501***	0.7757***	0.8168***	0.9647***	0.9789***
Medical degree	0.6984*	1.0692***	1.1482***	1.2302***	1.0239***	0.9689***	0.9964***	1.2867***	1.2045***
Master's degree	0.6953***	0.6448***	0.7082***	0.8297***	0.8323***	0.7537***	0.7658***	0.9382***	1.0962***
Earned doctorate	0.9168***	1.1446***	1.1118***	1.1905***	1.1193***	0.9946***	1.1114***	1.3220***	1.6182***
Labour market activity									
Part-time work	-1.2791***	-1.2011***	-1.0143***	-0.9009***	-0.7424***	-0.5342***	-0.4407***	-0.3825***	-0.2555***
Observations	18269	18269	18269	18269	18269	18269	18269	18269	18269

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 37: UQR COEFFICIENT ESTIMATES FOR MALES IN QUEBEC; 1986 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1813***	0.1520***	0.1196***	0.1033***	0.0910***	0.0848***	0.0720***	0.0656***	0.0452***
Age squared	-0.0020***	-0.0017***	-0.0013***	-0.0011***	-0.0010***	-0.0009***	-0.0008***	-0.0007***	-0.0004***
Marital Status									
Single	-0.9198***	-0.7050***	-0.4504***	-0.3575***	-0.2691***	-0.2239***	-0.1939***	-0.1732***	-0.1354***
Divorced, widowed or separated	-0.4140***	-0.3027***	-0.2046***	-0.1560***	-0.0990***	-0.0889***	-0.0911***	-0.0543***	-0.0491**
Geography									
Small urban or rural area	-0.2167***	-0.1669***	-0.1171***	-0.1067***	-0.1032***	-0.0828***	-0.0584***	-0.0548***	-0.0711***
Education									
High school	0.2775***	0.3285***	0.2660***	0.2497***	0.2310***	0.2065***	0.1900***	0.1802***	0.1319***
Trades certificate	0.3037***	0.2838***	0.2359***	0.2307***	0.2243***	0.1973***	0.1559***	0.1254***	0.0791***
College certificate	0.3586***	0.4328***	0.3900***	0.3864***	0.3745***	0.3377***	0.3184***	0.3054***	0.2295***
University certificate	0.2794***	0.3849***	0.3937***	0.3930***	0.4134***	0.4079***	0.3933***	0.4005***	0.3802***
Bachelor's degree	0.3482***	0.4952***	0.4769***	0.4961***	0.5198***	0.5218***	0.5313***	0.5356***	0.4896***
Diploma above bachelor level	0.3852***	0.4652***	0.4433***	0.4854***	0.5244***	0.5744***	0.6246***	0.6825***	0.6415***
Medical degree	0.2870	0.5243***	0.5970***	0.6217***	0.6122***	0.6621***	0.6635***	0.7843***	1.0909***
Master's degree	0.4082***	0.5032***	0.5027***	0.5385***	0.5931***	0.6308***	0.7112***	0.8296***	0.8053***
Earned doctorate	0.3405**	0.4760***	0.4512***	0.5212***	0.5783***	0.6255***	0.7314***	0.9666***	1.2034***
Labour market activity									
Part-time work	-1.8515***	-1.3350***	-0.8177***	-0.5524***	-0.4163***	-0.3055***	-0.2221***	-0.1734***	-0.1237***
Observations	24689	24689	24689	24689	24689	24689	24689	24689	24689

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 38: UQR COEFFICIENT ESTIMATES FOR FEMALES IN ONTARIO; 1981 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.0551***	0.0701***	0.0488***	0.0465***	0.0349***	0.0345***	0.0393***	0.0499***	0.0752***
Age squared	-0.0006***	-0.0007***	-0.0005***	-0.0005***	-0.0004***	-0.0004***	-0.0004***	-0.0005***	-0.0008***
Marital Status									
Single	0.1175**	0.1078***	0.1153***	0.1339***	0.1518***	0.1470***	0.1495***	0.1646***	0.1334***
Divorced, widowed or separated	-0.0938*	-0.0713*	0.0152	0.0544**	0.0687***	0.0568***	0.0454***	0.0482***	0.0490**
Geography									
Small urban area	-0.1293*	-0.1641***	-0.1778***	-0.1525***	-0.1170***	-0.1166***	-0.1139***	-0.0859***	-0.0609***
Rural area	-0.1738***	-0.2337***	-0.2098***	-0.1628***	-0.1096***	-0.0892***	-0.0799***	-0.0475***	-0.0270**
Education									
High school	0.2077***	0.2625***	0.2680***	0.2777***	0.2494***	0.2285***	0.2091***	0.1642***	0.1427***
Trades certificate	0.1904***	0.2216***	0.2107***	0.1880***	0.1613***	0.1756***	0.1558***	0.1290***	0.1298***
College certificate	0.2828***	0.3534***	0.4000***	0.3949***	0.3324***	0.3202***	0.3367***	0.3417***	0.2781***
University certificate	0.2755**	0.3721***	0.4547***	0.4741***	0.4526***	0.4886***	0.5493***	0.6400***	0.6758***
Bachelor's degree	0.3960***	0.4920***	0.4795***	0.4943***	0.4603***	0.4900***	0.5673***	0.7052***	0.8832***
Diploma above bachelor level	0.3262**	0.4921***	0.5191***	0.5340***	0.4451***	0.5138***	0.6130***	0.7820***	0.9408***
Medical degree	0.4446	0.6115**	0.7002***	0.7493***	0.6700***	0.5900***	0.7369***	0.9451***	1.1991***
Master's degree	0.3930***	0.3865***	0.3921***	0.4785***	0.4538***	0.5027***	0.6243***	0.8887***	1.1822***
Earned doctorate	0.4447*	0.4000*	0.5741***	0.6061***	0.6362***	0.7098***	0.7892***	1.0896***	1.5222***
Labour market activity									
Part-time work	-1.2379***	-1.6561***	-1.5103***	-1.2226***	-0.8026***	-0.5784***	-0.4509***	-0.3846***	-0.2932***
Observations	24805	24805	24805	24805	24805	24805	24805	24805	24805

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 39: UQR COEFFICIENT ESTIMATES FOR MALES IN ONTARIO; 1981 CENSUS

	1	2	3	4	5	6	7	8	9
Demographic									
Age	0.1393***	0.0973***	0.0795***	0.0730***	0.0659***	0.0717***	0.0712***	0.0754***	0.0751***
Age squared	-0.0015***	-0.0011***	-0.0009***	-0.0008***	-0.0007***	-0.0008***	-0.0008***	-0.0008***	-0.0007***
Marital Status									
Single	-0.8716***	-0.5071***	-0.3604***	-0.2698***	-0.2055***	-0.2010***	-0.1921***	-0.1661***	-0.1547***
Divorced, widowed or separated	-0.4711***	-0.2670***	-0.1876***	-0.1427***	-0.1011***	-0.0926***	-0.0948***	-0.0827***	-0.0614***
Geography									
Small urban area	-0.1351***	-0.0300	-0.0183	-0.0227*	-0.0274**	-0.0361***	-0.0529***	-0.0691***	-0.1023***
Rural area	-0.1496***	-0.0544***	-0.0349***	-0.0188**	-0.0214***	-0.0167**	-0.0254***	-0.0368***	-0.0693***
Education									
High school	0.3264***	0.2254***	0.1735***	0.1798***	0.1638***	0.1753***	0.1856***	0.1964***	0.2100***
Trades certificate	0.2466***	0.1818***	0.1677***	0.1617***	0.1308***	0.1366***	0.1357***	0.1142***	0.0737***
College certificate	0.3827***	0.2905***	0.2527***	0.2486***	0.2317***	0.2574***	0.2712***	0.2692***	0.2225***
University certificate	0.3262***	0.2728***	0.2471***	0.2651***	0.2821***	0.3169***	0.3604***	0.3935***	0.4067***
Bachelor's degree	0.3450***	0.3426***	0.3158***	0.3461***	0.3454***	0.4204***	0.4696***	0.5467***	0.6068***
Diploma above bachelor level	0.3877***	0.3674***	0.3610***	0.3572***	0.3631***	0.4318***	0.5056***	0.6596***	0.7726***
Medical degree	0.2695	0.2669**	0.3081***	0.3865***	0.3800***	0.4650***	0.5403***	0.6837***	1.0786***
Master's degree	0.2656***	0.3035***	0.2895***	0.3490***	0.3719***	0.4709***	0.5720***	0.7085***	0.9129***
Earned doctorate	0.3492***	0.3402***	0.3458***	0.4081***	0.4298***	0.5554***	0.6533***	0.8753***	1.2374***
Labour market activity									
Part-time work	-3.4177***	-1.3196***	-0.7148***	-0.4539***	-0.3113***	-0.2605***	-0.2188***	-0.1794***	-0.1428***
Observations	33545	33545	33545	33545	33545	33545	33545	33545	33545

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$