Major Paper

Wage Discrimination against Natives in Ontario and Quebec

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Introduction*

Aboriginal[1] peoples have been designated as an economically disadvantaged group by the Canadian government and yet it is also a group that has been largely ignored by economists while some other economically disadvantaged groups, (in particular, Women, and Visible Minorities) have seen vast amounts of literature published. The goal of this paper will to examine wage discrimination[2] issues concerning aboriginals in the Canadian labour market.

This paper will deal with wage discrimination against natives living in Ontario and Quebec, using 1986 and 1996 census data. Specifically, the study deals with two issues: first, is discrimination against natives different in the two provinces? Second, has the degree of discrimination changed between 1986 and 1996? There are already at least three studies dealing with discrimination against natives, George and Kuhn (1994), Patrinos and Sakellariou (1992), and De Silva (1999)[3]. Both George and Kuhn (1994) and De Silva (1999) studies looked at the working age native population living in the entire country and found that there is no evidence of wage discrimination. On the other hand Patrinos and Sakellariou (1992), which also looked at the working age native population living in the entire country, found significant evidence of potential discrimination[4]. However, there is no reason to believe that these conclusions would apply equally well to all provinces, given that there are significant differences amongst them. Quebec is a predominantly French-speaking province, whereas Ontario is mainly English speaking. Furthermore, there are differences between the two provinces in the manner they have dealt with aboriginal persons in the past. The Quebec government has signed several treaties and land settlement agreements in the past with its aboriginal

population. The two most significant being the James Bay and Northern Quebec Agreements (JBNQA)[5] in 1975 with the Cree and the Northeastern Quebec Agreement (NEQA)[3] in 1978 with the Naskapi Indian Band. The JBNQA (1975) included 225 million in compensation to the James Bay Cree and Inuit of Northern Quebec. Under the NEQA (1978)[6], the governments of Canada and Quebec paid a total of 9 million in compensation to the Naskapi of Quebec. Possibly of more importance, the agreements also included:

1. Land regime, giving control of certain lands to natives.
2. Environmental and Social Protection
3. Local Government Provisions. Some degree of self-government was granted.
4. Education. Established Cree and Inuit School Boards to enable them to better adopt culturally appropriate educational programs.
5. Hunting, Fishing and Trapping Rights.
6. Economic Development. Establishment of native organizations which promote activities such as renewable resource development and arts and crafts.
7. Health and Social Services. Established the Cree Regional Board of Health and Social Services and the Kativik Health and Social Services Council to administer the delivery of services to the Cree, Inuit and Naskapi.

Conversely, the Ontario government had signed relatively few treaties[7] with its aboriginal population before 1990 and none were as comprehensive as the Quebec treaties. If these governmental, cultural and social differences result in differences in the degree of discrimination against natives between these two provinces, it would suggest the need for

policies that recognize these differences. This, then, is the main rationale for undertaking this study.

Previous Research

In recent years there have been many studies examining gender and ethnic based wage discrimination such as Gunderson (1979) and (1989), Kuhn(1987), Baker, Benjamin, Desaulniers and Grant(1995), Miller(1987), Shapiro and Stecner (1997), Christofides and Swidinsky (1994), Pendakur and Pendakur (1995), and Arrow (1998). Notably, the work of Drost (1994), George and Kuhn (1994), Desilva (1999) and Patrinos and Sakellariou (1992) stand out as the most in depth studies of aboriginal labour market differentials for Canada.

The study by Drost (1994) examined the impact of various levels and types of education and training on the unemployment probability of working age aboriginals using the 1986 public use sample tapes. The main findings of the paper are as follows: first, an incomplete elementary or secondary school adversely affected unemployment. The likelihood of being unemployed was 18 percent greater for all aboriginals with less than a grade 9 education and 8 percent higher for those with an incomplete secondary education compared to those who held a high school diploma as their higher educational credential.

Second, for aboriginal men, Drost found no evidence that education and vocational skill training at the post secondary level reduces the chance of being unemployed. This is in contrast to aboriginal women who seem to gain from post secondary education no matter if it is vocational or academic in orientation.

Third, welfare dependency exerts the largest negative effect on the labour market. Reliance on government transfer payments[8] as a main source of income increased the probability of unemployment of aboriginals by 34 percent. Drost states that this result should be interpreted cautiously as reliance on government transfers may merely be associated with unfavourable conditions resulting from unemployment.

With respect to this study it is interesting to note that Drost found aboriginal men and women living in Ontario ran considerably lower risk of being unemployed than aboriginals in other provinces such as B.C, the Yukon and the Northwest Territories. Overall regional factors appear to influence the unemployment status of aboriginal men more so than in the case of women.

The study by George and Kuhn (1994) examined the wage discrimination against native men and women living on and off reserves and working full time and full year, as paid employees between the ages of 15 and 65, covering those exclusively aboriginal and those of mixed ethnicity using the 1986 census public use sample tape. However, because of some important differences in the wage structure on reserves and in the Territories and because of some problems with the representativeness of the on reserve sample, the main focus was on the off-reserve population outside of Yukon and the Northwest Territories. The main findings of this paper are the following.

First, the wage differential between whites and those reporting any aboriginal origins is about 11%. This is very small compared with many other groups (e.g., the wage differential between white men and white women is almost 35 percent).

Second, the wage gap varies by gender and degree of aboriginal identification. For native women, the wage differential is only 6.5 percent, compared with 11.6 percent

for native men. However, when only those who are exclusively aboriginal (as opposed to those with mixed ethnicity) are considered, the wage gaps are found to be much higher - 18.1 percent for native men, and 10.8 percent for native women.

Third, endowment[9] differences explain a large portion of the wage differential at least in the case of those with any aboriginal origin. For this group, raising the level of education and work experience to that of the whites would wipe out about 30 percent of the wage gap in the case of men, and about 40 percent in the case of women.

In the case of those living in the Yukon and the Territories, two important aspects stand out. First, those residing on reserves earn considerably less than those off reserves. This wage gap is particularly high in the case of those who are exclusively aboriginal in origin. The authors find that the relatively low earnings are due to a very low return on education. Second, the white-native earnings gap is considerably larger in the Yukon and the Territories than in the rest of the country. George and Kuhn attribute this to the very low premium earned by working in those areas.

From the point of view of this study, it is interesting to look at the provincial variables used in the George-Kuhn study. To take into account the influence of the province of residence on earnings, the authors included eight provincial variables (one for each province, except for New Brunswick and Prince Edward Island combined into one), with Ontario as the reference group. For native men living off reserves, except in the case of British Columbia and Saskatchewan, there is no significant difference between those in Ontario and those in other provinces. In the case of native women, none of the provincial variables turned out to be significant. This analysis assumes that there are no

significant differences in endowments between native men (women) in various provinces, which could affect the results.

The paper by Patrinos and Skellariou (1992) is similar to George and Kuhn's study except they examined only employed natives living off-reserves using individual data from the 1986 labour market activity survey to decompose the gross earnings differential. As well, their study was limited to those between the ages of 16 and 65.

Their main conclusions are as follows: first, wage discrimination accounted for as much as 59 percent of the overall differential between whites and Indians in Canada. This in stark contrast to George and Kuhn's study which found little evidence of potential wage discrimination for the same time period.

Second, their analysis shows that fewer years of schooling, occupational placement and under-representation in union jobs are important factors explaining the lower relative earnings of aboriginals.

As with previous studies, Patrinos and Sakellariou included provincial variables in their earnings function. They found that residence in Ontario and Quebec represents significant higher earnings for Indians (relative to residence in B.C) while residence in Atlantic provinces had only a small and insignificant effect on their wages. Similar to George and Kuhn's (1994) paper, this analysis assumes that there are no significant differences in endowments between native men (women) in various provinces, which could affect the results.

The paper by De Silva (1999) extends the George-Kuhn analysis to include both full-time and part-time workers, and part year and full year using the 1991 Census. Apart from this, the only other important difference from the earlier study is that De Silva is

unable to separate out the on-reserve from the off-reserve population because this information was not available in the 1991 Census.

De Silva's main conclusions are as follows. First, when all employees are considered, observable endowment differences account for anywhere from three-fifths to seven-tenths of the native-white wage differential, depending on the gender and the weights used. Thus, there is very little discrimination directed at the natives, which reinforces the earlier findings by George and Kuhn. Second, of the endowments, age and education are the most important components, accounting for 68 to 84% of the overall contribution of endowments. Third, evidence indicates men with multiple or mixed aboriginal origins face less potential discrimination than men with exclusively aboriginal origins. The evidence is not clear for women.

Like George and Kuhn, De Silva also included a number of provincial variables in the earnings equations. For native men, three provincial variables–Manitoba, Saskatchewan, and British Columbia – were significant, whereas in the case of women, four such variables turned out to be significant. They are Nova Scotia, Manitoba, Saskatchewan, and Alberta. However, in neither case was there evidence showing significant differences between Ontario and Quebec. As with George and Kuhn and Patrinos and Sakelleriou (1992), De Silva did not consider the possibility that inter-provincial endowment differences could affect the native-white wage gap for both men and women. We hope to correct this anomaly by fitting separate equations for natives and whites living in these two provinces.

Data

The sample used for this study is from Statistics Canada's 1986 and 1996 Census. It includes all individuals in Ontario and Quebec except residents of institutions. Similar to previous studies, the sample is restricted to those individuals between the ages of fifteen and sixty-four years of age, and those that worked for pay. Also, like De Silva's study, both full-time and part-time workers were included in the sample. Those excluded from the sample also include self-employed persons and visible minorities. Taking all of the restrictions into account, the sample size and mean characteristics are given in table 1.

Unfortunately due to a small sample size, this study was unable to make the distinction between single and multiple origins for natives when performing the regression analysis. As can be seen in table 1, the sample size for aboriginals with a single origin ($X^{A,S}$), is extremely small with a sample size as small as 125 for Quebec females in 1986. As well, unlike George and Kuhn's study, this study was unable to distinguish those natives that lived on reserves from those that lived off reserves. While the 1986 Census does distinguish between on and off reserves, the 1996 Census does not.

Sample Mean Characteristics

Table 1 breaks down the characteristics of the sample for both men and women and for Ontario and Quebec between 1986 and 1996. Several interesting trends are noticeable. In Ontario white male mean wages increased by 38 percent from 1986 to 1996, while aboriginal male mean wages[10] increased by only 19 percent. Over the same time period white females saw an increase of about 70 percent in their mean wages compared with an increase of approximately 50 percent for native females. The trends in

Table 1a
Mean Sample Characteristics of Whites and Aboriginals for Ontario, 1986

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
			Males			
Age (yrs)	36.24	32.11	34.11	31.26	35.39	39.58
Earnings ($)	27890.6	19541.76	16134.63	20916.22	27676.36	31895.36
Earnings (logs)	10.236	9.88	9.689	9.948	10.23	10.37
Full-time/Part-time						
Full-time (%)	88.4	86.9	88.4	86.1	100	100
Weeks Worked						
<50wks (%)	35	46.5	58.9	63.8	NA	NA
No:obs	44104	743	207	517	373	27350
			Females			
Age (yrs)	34.96	31.58	35.26	30.45	33.55	37.6
Earnings ($)	14810.69	10816.55	10578.68	10915.8	18468.8	20663.4
Earnings (logs)	9.603	9.289	9.266	9.3	9.824	9.936
Full-time/Part-time						
Full-time (%)	67.8	67.3	71.5	65.9	100	100
Weeks Worked						
<50wks (%)	45	55.5	54.5	56.8	NA	NA
No:obs	37141	667	164	502	236	16173
			Both Sexes (as a percent of the population)			
Urban living						
Non-CMAs	41.2	55.6	72.9	49.85	47.95	40.86
Marital Status						
Married	62.6	59.6	60.4	59.9	69.9	72.6
Divirced	3.4	4.3	3.5	4.5	4.7	4.1
Seperated	3.3	5.3	5.8	4.7	5.7	3.7
Widowed	1.4	1.1	2.3	0.7	1.3	1.4
Single	29.4	29.7	28	30.2	18.3	18.2
Official Language						
English	85.2	84	93.3	80.5	82.8	86.2
French	0.3	0.1	0.3	0	0	0.2
Bilingual	13.9	15.7	5.4	19.5	17	13
Allophone	0.7	0.3	1	0	0.2	0.6

Table 1a cont'd
Mean Sample Characteristics of Whites and Aboriginals for Ontario, 1986

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
	Both Sexes (as a percent of the population)					
Education						
<grade 9	8.1	8	15.2	5.3	7.4	8.4
Grades 9-13	25.7	30.9	35	29.4	26.2	22.1
Secondary Cert	15.1	13.5	11.1	14.5	14.9	14.8
Elem Trade Cert	3.3	4.2	5.7	3.6	6.2	4.1
Some Non-university	7.5	9.7	8.7	10.1	8.3	7.3
Higher Trade Cert	6.4	7.9	8.5	7.7	8.8	7.3
Non-Univ Diploma	11	9.6	6.4	10.9	11.3	11.9
Some University	5.6	5.3	4.4	5.7	4.4	4.1
B.A	14.5	9.5	4.6	11.3	10.4	16.5
M.A.+Ph.D	2.7	1.2	0.5	1.5	2	3.6
Ethnic Origin						
Single Origin	NA	27.7	100	NA	25.7	NA
Multiple Origin	NA	73.3	NA	100	74.3	NA

Notes: X^W refers to the mean characteristics of whites, and X^A refer to the mean characteristics of aboriginals of both single and multiple origins; $X^{A,S}$ and $X^{A,M}$ denote the mean characteristics of those aboriginal with single and multiple origins repectively. The last two columns refer to the attributes of aboriginals and whites working full-time, full-year respectively.

Source: 1986 Census

Table 1b
Mean Sample Characteristics of Whites and Aboriginals for Quebec, 1986

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
			Males			
Age (yrs)	36.256	33.12	32.8	33.7	35.21	36.42
Earnings ($)	23125	17230	14867.14	19081.41	23204.4	28792.95
Earnings (logs)	10.04867	9.754	9.607	9.856	10.05	10.268
Full-time/Part-time						
Full-time (%)	88.9	87.4	86.7	86.7	100	100
Weeks Worked						
<50wks (%)	41.6	52.3	55.6	48.2	NA	NA
No:obs	30253	317	135	135	145	16804
			Females			
Age (yrs)	34.52	31.93	32.36	32.09	33.7	36.11
Earnings ($)	16321.3	12710.64	11209.84	13982.64	221105.6	19507.87
Earnings (logs)	9.700226	9.45	9.32	9.55	9.96	9.879
Full-time/Part-time						
Full-time (%)	71.9	73.4	71.6	72.5	100	100
Weeks Worked						
<50wks (%)	49	55.9	54.7	44.27	N/A	N/A
No:obs	23310	256	125	131	89	9663
			Both Sexes (as a percent of the population)			
Urban living						
Non-CMAs	78.7	53.4	67.9	36.6	44.9	23.9
Marital Status						
Married	63.9	59.2	58.4	60.1	74.7	72
Divirced	3.8	4.5	3.3	6	2.7	4.3
Seperated	2	2.8	2.6	3	2.1	2.2
Widowed	1.3	1.2	2	0.4	0	1.2
Single	29	32.3	33.8	30.6	20.5	20.3
Official Language						
English	3.6	12.2	18.4	5.2	9.7	4
French	48.3	37.9	43	32.1	34.3	43.3
Bilingual	47.9	47.6	34.4	62.7	55.1	52.5
Allophone	0.2	2.3	4.3	0	0.8	0.2

Table 1b cont'd
Mean Sample Characteristics of Whites and Aboriginals for Quebec, 1986

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
	Both Sexes (as a percent of the population)					
Education						
<grade 9	12.8	15.9	24.9	5.6	10.6	11.9
Grades 9-13	16.7	20.2	24.3	15.7	19.5	14.9
Secondary Cert	17.7	11.2	10.8	11.6	9.7	18.7
Elem Trade Cert	5.2	6.3	7.5	4.9	7.2	4.9
Some Non-university	8.9	11.9	9.5	14.6	9.3	7.9
Higher Trade Cert	6.5	6.3	5.6	7.1	6.8	6.7
Non-Univ Diploma	10.8	9.9	8.5	11.6	13.1	11.1
Some University	2.3	3.3	2	4.9	4.2	2.6
B.A	16.8	13.6	6.6	21.3	17.4	18.1
M.A.+Ph.D	2.4	1.4	0.3	3	2.1	3.2
Ethnic Origin						
Single Origin	NA	53.4	100	NA	83.9	NA
Multiple Origin	NA	46.6	NA	100	16.1	NA

Notes: X^W refers to the mean characteristics of whites, and X^A refer to the mean characteristics of aboriginals of both single and multiple origins; $X^{A,S}$ and $X^{A,M}$ denote the mean characteristics of those aboriginal with single and multiple origins repectively. The last two columns refer to the attributes of aboriginals and whites working full-time, full-year respectively.

Source: 1986 Census

Table 1c
Mean Sample Characteristics of Whites and Aboriginals for Ontario, 1996

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
			Males			
Age (yrs)	37.51	34.25	34.61	64.08	38.24	40.53
Earnings ($)	39842.12	23329.03	20532.99	25589.1	35438.94	46182.71
Earnings (logs)	10.59	10.057	9.93	10.15	10.48	10.74
Full-time/Part-time						
Full-time (%)	86.3	82.8	84.3	83.3	100	100
Weeks Worked						
<50wks (%)	34	52	56.11	51.3	NA	NA
No:obs	59522	750	319	641	323	36800
			Females			
Age (yrs)	37.02	33.9	34.3	33.4	38.76	39.9
Earnings ($)	25812.3	16389.8	15611.53	16799.3	28215.01	33456.95
Earnings (logs)	10.15861	9.704	9.66	9.73	10.25	10.42
Full-time/Part-time						
Full-time (%)	67.8	64.6	66.3	65.2	100	100
Weeks Worked						
<50wks (%)	39.6	55.4	55.6	55.9	NA	NA
No:obs	55056	689	297	322	242	26029
			Both Sexes (as a percent of the population)			
Urban living						
Non-CMAs	30.9	57.5	68.2	49.8	52.7	28.8
Marital Status						
Married	56	38.8	37.8	41.2	56.1	65.8
Divirced	6.9	8.5	8	8.4	9.7	7.8
Seperated	3.6	5.1	5	5	4.6	3.9
Widowed	1.1	1.3	1.8	0.8	8.8	1.1
Single	32.4	46.4	47.8	44.6	28.7	21.3
Official Language						
English	84.8	88.7	95	84.2	87.3	86
French	0.2	0.2	0	0.3	0.2	0.1
Bilingual	14.6	10.6	3.9	15.5	12.2	13.5
Allophone	0.5	0.5	1.1	0	0.4	0.4

Table 1c cont'd
Mean Sample Characteristics of Whites and Aboriginals for Ontario, 1996

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
	Both Sexes (as a percent of the population)					
Education						
<grade 9	3.7	7.9	12.7	3.7	7.8	3.5
Grades 9-13	18.4	27.9	29.4	24.7	23.2	14.7
Secondary Cert	16.3	12.6	8.8	15.8	13.6	16.2
Elem Trade Cert	3.5	4.2	3.9	4.5	4.2	4.1
Some Non-university	7.1	10.1	11	10.3	7.8	6.5
Higher Trade Cert	6.3	8.7	9.4	8.4	11.7	7.1
Non-Univ Diploma	16.1	15.4	13.2	17.9	18.8	17.5
Some University	4.6	2.8	2.4	3.5	1.9	2.8
B.A	20.4	9.5	8.8	10.3	9.9	23.1
M.A.+Ph.D	3.6	0.9	0.5	0.9	1.1	4.6
Ethnic Origin						
Single Origin	NA	48.2	100	NA	45.3	NA
Multiple Origin	NA	51.1	NA	100	54.7	NA

Notes: X^W refers to the mean characteristics of whites, and X^A refer to the mean characteristics of aboriginals of both single and multiple origins; $X^{A,S}$ and $X^{A,M}$ denote the mean characteristics of those aboriginal with single and multiple origins repectively. The last two columns refer to the attributes of aboriginals and whites working full-time, full-year respectively.

Source: 1996 Census

Table 1d
Mean Sample Characteristics of Whites and Aboriginals for Quebec, 1996

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
			Males			
Age (yrs)	37.9	35.24	34	36.88	39.3	40.4
Earnings ($)	31965	20716.66	17277.2	26197.7	34367.98	39760.69
Earnings (logs)	10.3724	9.94	9.76	10.17	10.44	10.59
Full-time/Part-time						
Full-time (%)	87.3	84.9	85.1	84.5	100	100
Weeks Worked						
<50wks (%)	41.5	63	64.1	59.5	NA	NA
No:obs	43838	378	248	84	128	24104
			Females			
Age (yrs)	37.24	34.8	34.5	35.4	38.9	39.6
Earnings ($)	23105.85	16375.39	16153.46	16747.91	27714.32	28942.75
Earnings (logs)	10.04784	9.7	9.21	9.73	10.23	10.27
Full-time/Part-time						
Full-time (%)	70.2	74.3	77.7	68.8	100	100
Weeks Worked						
<50wks (%)	45.3	53.3	53.7	52.7	NA	NA
No:obs	37856	300	188	112	116	16545
			Both Sexes (as a percent of the population)			
Urban living						
Non-CMAs	36.1	71.1	82.6	50	67.6	32.4
Marital Status						
Married	44.2	39.8	39.9	41.8	49.2	51.3
Divirced	10.2	9.6	8	10.2	15.1	11.7
Seperated	2.5	2.1	1.1	3.6	1.6	2.8
Widowed	1.2	2.4	2.5	2.6	3.3	1.2
Single	41.9	46.2	48.4	41.8	30.7	33
Official Language						
English	2.3	25.4	35.1	8.7	24.2	2.3
French	47.6	33.5	28.9	43.9	31.6	43.8
Bilingual	50	38.9	32.8	46.9	40.6	53.8
Allophone	0.1	2.2	3.2	0.5	3.7	0.1

Table 1d cont'd
Mean Sample Characteristics of Whites and Aboriginals for Quebec, 1996

	X^W (1)	X^A (2)	$X^{A,S}$ (3)	$X^{A,M}$ (4)	$X^{A,FT,FY}$ (5)	$X^{W,FT,FY}$ (6)
	Both Sexes (as a percent of the population)					
Education						
<grade 9	7.6	18.6	23.4	7.7	13.9	6.3
Grades 9-13	13.7	26.8	29.1	23	19.3	11.8
Secondary Cert	19.1	10.6	8.5	13.3	11.5	19.6
Elem Trade Cert	5.4	6.5	6.2	7.7	7.8	5.7
Some Non-university	8.2	10.6	11.5	9.7	8.6	6.3
Higher Trade Cert	6.3	6.6	6.4	6.6	6.1	6.3
Non-Univ Diploma	13.9	7.7	5.3	12.8	13.1	14.7
Some University	1	1.6	1.8	1.5	1.2	1.2
B.A	21.6	10.2	6.9	17.3	16.8	23.9
M.A.+Ph.D	3.1	0.8	0.9	0.5	1.6	4.2
Ethnic Origin						
Single Origin	NA	69	100	NA	63.1	NA
Multiple Origin	NA	31	NA	100	31	NA

Notes: X^W refers to the mean characteristics of whites, and X^A refer to the mean characteristics of aboriginals of both single and multiple origins; $X^{A,S}$ and $X^{A,M}$ denote the mean characteristics of those aboriginal with single and multiple origins repectively. The last two columns refer to the attributes of aboriginals and whites working full-time, full-year respectively.

Source: 1996 Census

Quebec saw white male mean wages increase by about 70%, while aboriginal males saw an increase of over 80%. The mean wages for white women in Quebec increased by about 58% while the aboriginal counterparts only saw about a 28% increase in their mean wages.

A comparison of Quebec and Ontario also reveals that average wages in Ontario are higher than in Quebec. Similarly, the wage gap between aboriginals and whites was also found to be higher on average in Ontario where the wage gap is 25 percent in 1986 and 41 percent in 1996 for males and 20-36 percent for females (depending on the year). Quebec on the other hand saw a wage gap of approximately 29-35 percent for males and 22-29 percent for females (depending on the year).

As to be expected, Ontario and Quebec are vastly different in official languages spoken, with those in Quebec showing a greater propensity to be fluent in French and to be more proficient in speaking both of Canada's official languages. Approximately 50% of Quebec residents are bilingual compared to only 14% of Ontario residents. Furthermore, a greater percentage of aboriginals in Quebec (2.3%) speak only the aboriginal language compared to only 0.3 % in Ontario. Lastly natives in Ontario saw a sharp drop in the percentage of bilingual natives from 1986 to 1996. In 1986, 15.7% of the native population were bilingual, by 1996 only 10.6% reported to be bilingual.

Interesting differences to note among whites and aboriginals are that aboriginals tend to be younger, less educated and have a lower tendency to speak both of Canada's official language than whites. Furthermore aboriginal persons tend to be more likely to

live outside of cities. On average only approximately 41.2% whites live outside of cities, compared to approximately 60% of aboriginals.

Other differences to note are that aboriginals on average work fewer weeks per year than white persons and tend to have a smaller percentage of persons reporting full-time work, on average 84% compared to whites whom average 88%.

Unfortunately, the sample sizes for those aboriginals reporting single origins ($X^{A,S}$) and those aboriginals reporting full-time, full year work ($X^{A,FT,FY}$) is extremely small. Therefore unlike Desilva and George and Kuhn's study, this study will only concentrate on the wage gap between whites and all aboriginals and will not make the distinction between those with single and multiple origins. Furthermore, this study is unable to assess the contribution of native language proficiency to the wage differential.

Conceptual Framework

The measurement of wage discrimination is fairly standard, dating back to Oaxaca's (1973) pioneering study. The approach consists of estimating two separate earnings(Y) equations for natives (n) and whites (w), ignoring gender and the province of residence for the time being. Subtracting the native from the white earnings equation, evaluated at the mean of the explanatory and dependent variables, yields the following equation:

(1) $Yw - Yn = \sum bw\, Xw - \sum bnXn$

Subtracting and adding $\sum bnXw$ from the right hand side, and collecting terms, gives:

(2) $Yw - Yn = \sum bw(Xw - Xn) + \sum(bw - bn)Xn$

The first term on the right hand side of equation (2) is the portion of the earnings differential attributable to productivity related endowment differences between whites and natives. The second term on the right hand side of the equation is the residual, which provides a measure of wage discrimination. We can extend this methodology to take into account the gender and province of residence by fitting eight regression equations: one pair for white and native men in Ontario, and another for white and native women in Ontario. Doing likewise for Quebec generates four more equations. It should be noted that in equation (2), the endowment differences are weighted by the *b* coefficient from the regression for whites. As De Silva (1999) noted, this theory assumes that the Aboriginal wage structure would resemble the wage structure for whites in the absence of potential discrimination. However this theory is contentious, not everybody agrees that this would in fact be correct. In the literature there are several possible solutions, including one proposed by Oaxaca (1973) in which both aboriginal and white weights are used to provide a range for the discrimination coefficient. On the other hand, Cotton (1988) and Neumark (1988) proposed using the coefficients of a pooled regression. Reimers (1983) who suggested using a weighted average of the wage structures of the two groups gave another solution. Since the current literature does not provided concrete evidence on which method is superior, this study will evaluate the decomposition using both native and white weights.

The dependent variable used in almost all studies including this one is the natural logarithm of wages. The independent variables used cover a wide range. Typically, they include experience (often measured by age, or age- education – 6 (Mincer's proxy) or by a direct measure of work experience (Beach and Abbott); education; marital status;

language proficiency; province of residence; occupation; and industry. This study will include independent variables that cover age, marital status, language, education, weeks worked, those that live in CMA's and those that work full-time. A full list of independent variables is shown on Table A1 in the appendix.

Like De Silva and George and Kuhn's studies, this study did not take into account occupation and industry into its analysis because of small cell sizes. Since these variables were omitted, this study was unable to take into account the contribution of occupational and industrial involvement to the native-white differential. Second, a lack of information on the quality of education and experience, absenteeism, labour market turnover, and motivation and ability between natives and whites is a serious limitation of this study. Lastly, the sample used in this study suffers from the problem of underreporting. Possible reasons for this include the non-participation in the censuses of some natives and the interruption of the enumeration before it was completed.

Regression Results

This section estimates the wage structure for native and white Canadians living in Ontario and Quebec for 1986 and 1996. These estimates are given in Table 2. The overall fit of the eight equations is reasonably good with the adjusted R^2 ranging from 0.4740 for Quebec aboriginal males in 1986 to 0.6664 for Quebec aboriginal females in 1996. Also it is interesting to note that aboriginals tend to display fewer significant coefficients than whites, almost certainly due to the smaller sample size. Furthermore, the sign patterns of the estimated coefficients are generally in the expected direction, wage rises with education, full-time work, and those being bilingual. On the other hand

wages tends to be less for those that live outside of census metropolitan areas and those that are do not speak either English or French. In general, aboriginal estimates show the

Table 2a
Regression Results of Earnings of Whites and Natives, Full-time and Part-time (unadjusted for selectivity bias) Ontario, 1986

	Males		Females	
	Aboriginals	Whites	Aboriginals	Whites
AGE	0.1097(6.264)*	0.1012(49.29)*	0.1062(5.371)*	0.0792(33.98)*
AGE^2	-0.0011(4.942)*	-0.0011(43.75)*	-0.0013(5.03)*	-0.0009(29.79)*
NCMA	-0.1818(3.173)*	-0.0739(6.519)*	-0.0374(0.5888)	-0.1085(13.49)*
DIV	-0.1020(0.5879)	0.1004(4.351)*	0.2459(1.478)	0.0584(2.701)*
MAR	0.1566(2.070)*	0.2575(25.40)*	0.0400(0.351)	0.0696(5.978)*
SEW	0.0914(0.6274)	0.1479(7.364)*	0.0040(0.0303)	0.0042(0.2172)
ENG	0.1542(2.344)*	0.0142(0.234)	0.1340(3.339)*	0.1149(1.393)
BILL	0.1621(2.156)*	0.0340(0.5540)	0.1412(3.352)*	0.1287(1.549)
ALLO	-0.0213(1.34)	-0.2367(3.245)*	0.0101(2.815)*	0.0077(0.08174
FT	0.7047(8.137)*	0.7307(62.11)*	0.5941(8.667)*	0.7196(81.36)*
GR9-13	0.1535(1.357)	0.0042(0.3673)	-0.0448(0.3486)	0.1503(8.442)*
SEC	0.4892(3.731)*	0.1258(9.565)*	0.1211(0.8512)	0.2913(15.53)*
NONU	0.2313(2.023)*	0.1546(13.94)*	0.1514(1.18)	0.3845(21.73)*
SOMU	0.2450(1.546)	0.1948(11.64)*	0.2162(1.214)	0.4783(20.11)*
BAMAP	0.3550(2.530)*	0.4011(31.16)*	0.6059(4.101)*	0.6961(36.74)*
6-10WK	0.8073(3.517)*	0.7215(22.89)*	0.7702(4.097)*	0.7659(25.68)*
11-15WK	1.0243(4.322)*	1.1379(35.29)*	0.9602(5.253)*	1.1155(36.61)*
16-20WK	1.5740(6.952)*	1.4412(47.07)*	1.5700(8.476)*	1.4469(50.94)*
21-25WK	1.5375(7.246)*	1.6774(50.70)*	1.6669(8.278)*	1.7333(55.00)*
26-30WK	2.0307(8.797)*	1.8336(59.31)*	1.9001(9.74)*	1.8916(64.17)*
31-35WK	2.0621(8.929)*	2.0199(60.69)*	2.1690(10.15)*	2.0287(63.80)*
36-40WK	2.0449(9.863)*	2.1019(69.08)*	1.9487(10.57)*	2.1191(73.96)*
41-45WK	2.1155(9.152)*	2.2363(67.88)*	2.3416(10.49)*	2.3049(72.72)*
46-50WK	2.3146(10.67)*	2.3982(84.42)*	2.4331(13.57)*	2.4823(93.61)*
51-52WK	2.5134(11.75)*	2.5073(91.72)*	2.6566(16.93)*	2.6240(106.3)*
MUL	0.0608(0.9550)		0.0817(1.086)	
Intercept	2.9206(5.343)*	4.4469(60.68)*	2.2551(3.814)*	4.3068(45.76)*
R^2(ad)	0.6517	0.6912	0.6296	0.6169
Obs	743	44104	667	37141

Notes: t-statistics are given in brackets. * indicates significance at the 0.05 level.

Table 2b
Regression Results of Earnings of Whites and Natives, Full-time and Part-time (unadjusted for selectivity bias) Quebec, 1986

	Males		Females	
	Aboriginals	Whites	Aboriginals	Whites
AGE	0.1257(4.75)*	0.0124(1.987)*	0.1793(6.495)*	0.0940(31.28)*
AGE^2	-0.0015(4.199)*	3.94E-06(0.1499)	-0.0021(5.576)*	-0.0011(27.43)*
NCMA	0.1507(1.384)	-0.4231(12.81)*	-0.2193(2.015)*	-0.0784(7.397)*
DIV	-0.0656(0.223)	0.5385(22.48)*	0.3359(1.485)	0.0448(1.761)
MAR	0.1918(1.51)	0.6208(63.69)*	0.2351(1.975)*	0.0735(5.784)*
SEW	-0.0612(0.2177)	0.5937(21.55)*	0.3621(1.37)	0.0232(0.887)
ENG	-0.0143(0.9608)	-0.0283(1.294)	0.4273(2.387)*	0.0334(1.23)
BILL	0.2042(1.762)	0.0730(8.511)*	0.0263(0.2352)	0.0362(3.275)*
ALLO	-0.5105(1.591)	-0.4415(4.377)*	-0.5221(1.26)	-0.0134(0.1435)
FT	0.5206(3.528)*	0.5944(43.87)*	0.4368(3.859)*	0.5693(50.8)*
GR9-13	0.1852(1.076)	-0.0151(1.067)	0.6630(3.629)*	0.1872(9.208)*
SEC	0.3407(1.691)	0.0755(5.137)*	0.1685(0.841)	0.3126(15.94)*
NONU	0.2599(1.563)	0.1132(8.763)*	0.7338(4.067)*	0.4230(22.38)*
SOMU	0.0604(0.2025)	0.2513(9.135)*	0.1041(0.3255)	0.5296(13.81)*
BAMAP	0.3411(1.56)	0.3496(23.91)*	1.0156(5.083)*	0.6769(33.59)*
6-10WK	1.0942(4.745)*	0.7350(20.31)*	0.8347(3.006)*	0.8076(22.77)*
11-15WK	1.1867(6.559)*	1.1742(32.39)*	1.0127(4.645)*	1.2062(33.93)*
16-20WK	1.4512(7.962)*	1.5748(44.74)*	1.7666(7.925)*	1.5129(44.15)*
21-25WK	1.7985(8.716)*	1.8463(50.05)*	1.8864(5.538)*	1.7943(49.09)*
26-30WK	2.0268(9.058)*	1.9688(55.65)*	2.0793(7.409)*	1.9171(54.48)*
31-35WK	2.1471(7.79)*	2.0707(53.27)*	1.9763(4.984)*	2.0306(52.39)*
36-40WK	2.2248(9.695)*	2.2810(64.67)*	2.1575(8.721)*	2.2301(64.18)*
41-45WK	2.2017(8.281)*	2.3575(62.38)*	2.3982(7.407)*	2.3937(61.75)*
46-50WK	2.4928(11.84)*	2.4850(76.665)*	2.5004(10.6)*	2.4999(79.59)*
51-52WK	2.1648(12.86)*	2.1986(49.17)*	2.7002(11.51)*	2.6634(90.1)*
MUL	-0.0360(0.3423)		-0.1791(1.642)	
Intercept	3.2427(7.256)*	6.6912(112.9)*	2.4229(5.244)*	4.1903(71.39)*
R^2(ad)	0.6151	0.5894	0.6542	0.6545
Obs	317	30253	256	23310

Notes: t-statistics are given in brackets. * indicates significance at the 0.05 level.

Table 2c
Regression Results of Earnings of Whites and Natives, Full-time and Part-time (unadjusted for selectivity bias)
Ontario, 1996

	Males		Females	
	Aboriginals	Whites	Aboriginals	Whites
AGE	0.0919(4.587)*	0.0950(46.38)*	0.0526(2.245)*	0.0875(39.7)*
AGE^2	-0.0010(3.735)*	-0.0010(39.48)*	-0.0004(1.355)	-0.0009(34.04)*
NCMA	0.0924(1.267)	-0.0880(12.6)*	0.0576(0.6721)	-0.1119(14.72)*
DIV	0.1742(1.172)	0.1014(6.33)*	-0.0816(0.5063)	0.0339(2.168)*
MAR	0.3055(3.408)*	0.2315(24.43)*	0.1256(1.127)	0.0822(7.832)*
SEW	-0.0914(0.4974)	0.1118(5.997)*	-0.1426(0.8558)	-0.0050(0.2865)
ENG	0.0076(2.511)*	0.0027(0.0347)	0.0810(2.602)*	0.0604(0.6653)
BILL	0.1210(2.531)*	0.0102(0.1293)	0.0912(2.408)*	0.0786(0.862)
ALLO	-0.1142(2.527)*	-0.2225(2.475)*	-0.0987(2.063)*	-0.1558(1.487)
FT	0.8258(8.026)*	0.8690(77.45)*	0.7917(8.643)*	0.7871(97.11)*
GR9-13	0.3464(2.524)*	0.1014(5.647)*	0.1567(0.7740)	0.0708(3.163)*
SEC	0.5283(3.276)*	0.2343(12.63)*	0.4813(2.210)*	0.2291(10.28)*
NONU	0.4051(2.989)*	0.3113(17.88)*	0.5205(2.638)*	0.3616(16.68)*
SOMU	0.5007(1.961)*	0.3503(15.45)*	0.0758(0.2566)	0.3890(14.55)*
BAMAP	0.7319(4.362)*	0.5078(28.36)*	0.7447(3.341)*	0.6487(29.36)*
6-10WK	1.1820(5.573)*	0.7336(24.57)*	0.9208(4.172)*	0.7571(26.29)*
11-15WK	1.1076(7.836)*	1.0616(34.48)*	1.3072(5.323)*	1.1441(38.79)*
16-20WK	1.7638(8.342)*	1.4528(50.98)*	1.5376(7.680)*	1.4528(53.42)*
21-25WK	1.9281(9.163)*	1.6442(52.48)*	1.5997(6.394)*	1.7221(56.8)*
26-30WK	2.0863(11.46)*	1.8062(62.89)*	1.9280(8.084)*	1.8931(68.09)*
31-35WK	2.1118(9.838)*	1.9189(60.14)*	2.2391(7.910)*	2.0035(63.64)*
36-40WK	2.0389(12.32)*	2.0458(72.29)*	2.0254(8.593)*	2.0974(77.76)*
41-45WK	2.1730(10.01)*	2.2329(71.93)*	2.2310(7.447)*	2.2613(75.97)*
46-50WK	2.2991(13.89)*	2.3530(90.88)*	2.4186(10.60)*	2.4102(97.54)*
51-52WK	2.2045(16.47)*	2.4349(98.07)*	2.5522(13.21)*	2.5123(107.5)*
MUL	0.1991(2.733)*		0.0966(1.123)	
Intercept	2.0168(2.9727)*	4.6505(52.55)*	3.1172(4.670)*	4.5594(45.07)*
R^2(ad)	0.6141	0.6143	0.5306	0.5862
Obs	738	59522	689	55056

Notes: t-statistics are given in brackets. * indicates significance at the 0.05 level.

Table 2d
Regression Results of Earnings of Whites and Natives, Full-time and Part-time (unadjusted for selectivity bias)
Quebec, 1996

	Males		Females	
	Aboriginals	Whites	Aboriginals	Whites
AGE	0.1112(3.959)*	0.1053(41.86)*	0.1226(4.33)*	0.1062(38.78)*
AGE^2	-0.0012(3.204)*	-0.0011(34.75)*	-0.0014(3.771)*	-0.0112(32.61)*
NCMA	-0.2613(1.939)	-0.0223(2.493)*	0.1132(0.8753)	-0.0839(8.644)*
DIV	-0.0468(0.2191)	0.0503(2.983)*	0.1375(0.6372)	-0.0344(2.092)*
MAR	0.1355(0.9394)	0.1654(14.74)*	0.0391(0.2895)	-0.0163(1.376)
SEW	-0.1733(0.5294)	0.1026(3.985)*	0.4145(1.555)	-0.0399(1.747)
ENG	0.2123(1.417)	-0.1048(3.746)*	0.2839(1.893)	-0.0228(0.7509)
BILL	0.3539(2.709)*	0.0517(5.642)*	0.3487(2.741)*	0.0528(5.495)*
ALLO	0.1412(0.3792)	-0.3991(2.879)*	0.1835(0.4676)	-0.6883(5.83)*
FT	0.2983(1.829)	0.6874(49.14)*	0.5491(4.302)*	0.6009(58.39)*
GR9-13	-0.0410(0.25)	0.0778(4.383)*	0.1065(0.577)	0.1159(5.117)*
SEC	0.1197(0.5281)	0.1918(10.98)*	0.0136(0.0621)	0.2721(12.95)*
NONU	0.0055(0.03382)	0.3099(18.89)*	0.2033(1.103)	0.4418(21.46)*
SOMU	0.3196(0.6992)	0.2936(7.183)*	0.3445(0.7966)	0.4660(9.301)*
BAMAP	0.1660(0.7003)	0.5211(29.61)*	0.5207(2.463)*	0.7662(36.1)*
6-10WK	1.0140(3.405)*	0.6733(18.89)*	0.4584(5.922)*	0.6161(18.02)*
11-15WK	0.6442(2.231)*	1.1373(31.9)*	1.0429(6.03)*	1.0667(30.71)*
16-20WK	1.1184(3.927)*	1.4106(41.92)*	1.2422(6.509)*	1.3756(41.63)*
21-25WK	1.3632(4.311)*	1.5685(44.41)*	1.6687(7.142)*	1.5748(44.00)*
26-30WK	1.7945(5.811)*	1.7409(51.71)*	2.0589(6.389)*	1.7738(52.79)*
31-35WK	1.7161(5.069)*	1.8893(51.00)*	1.8385(8.021)*	1.8413(48.76)*
36-40WK	1.4416(4.055)*	1.9839(58.72)*	2.1139(9.908)*	1.9547(59.5)*
41-45WK	1.9961(4.091)*	2.1667(58.23)*	2.2656(6.52)*	2.1701(60.89)*
46-50WK	2.1380(6.878)*	2.2252(72.59)*	2.1018(11.76)*	2.2662(76.39)*
51-52WK	2.2524(8.847)*	2.3306(78.98)*	2.3015(14.39)*	2.3825(84.16)*
MUL	0.1373(1.074)		0.0488(0.3838)	
Intercept	5.0849(10.08)*	4.5756(92.55)*	3.2132(6.73)*	4.3311(79.11)*
R^2(ad)	0.4740	0.5213	0.6664	0.5279
Obs	378	43838	300	37856

Notes: t-statistics are given in brackets. * indicates significance at the 0.05 level.

same patterns for several variables (age, education, language and marital status) than those of non-aboriginals.

The estimated coefficients for age follow the expected inverted U profile for male and females and both whites and aboriginals. Wages for white males peak between 45-49. While wages for both white females and aboriginal males tend to peak between 35-39 and wages for aboriginal females peak between 40-44. The education characteristics included in the eight equations generally performed as expected. Those with less than grade 9 education tend to earn significantly less than those with higher educational levels. The highest premiums are associated with those having a B.A or higher. It is interesting to note that aboriginal males in Ontario generally have higher returns to education than their female counterparts whereas the exact opposite occurs in Quebec with female aboriginals earning higher returns to education than their male counterparts. Overall aboriginals also tend to have higher returns to education than their white counterparts with the exception of Quebec males and females in 1986.

Turning next to the language variables, aboriginals tend to earn higher returns than their white counterparts. Relative to speaking French only, those persons speaking both of Canada's official languages tend to earn a positive premium with allophones earning a significant negative premium in all cases. Those speaking English only tend to earn positive premiums relative to those speaking only French in Ontario. The results for Quebec are mixed.

The OLS results in Table 2 lead to the decomposition of white-native wage gap shown in Table 3. The decomposition results for Ontario are reported in Table 3a, and the results for Quebec are reported in table 3b. Table 3a, column 1, shows the proportion of the observed wage gap that is explained by the differences in the endowments for Ontario males in 1986. Following the format of Desilva (1999) paper, the observed

earnings differential was adjusted for weeks worked to give the adjusted earnings differential. As previously mentioned, due to the controversy in the literature over what weights should be used in the decomposition, this study performed separate decompositions using white weights and native weights. Overall the results were similar regardless of weights used. Under both white and native weights, the largest component of the endowment differences is age, which accounts for more than 50% of the total endowments in this case. Overall endowment differences accounted for a fairly large portion of the adjusted native-white wage gap for Ontario males in 1986. In Ontario in 1986, the adjusted wage gap (using white weights) explained by endowment differences was found to be 58.4 percent, leaving approximately 42 percent unexplained, which we refer to as potential discrimination. Using native weights changes very little, with approximately 62.4% of the adjusted wage gap explained by endowment differences. Of the endowments, the most important components are found to be age, education and full-time employment, all of which favored whites. These three endowments on average accounted for approximately 80 to 90 percent of the endowment differences. In comparison, almost 61 percent using white weights and 69 percent using native weights of the female native-white wage gap in Ontario during the 1986 period was explained by differences in endowments. For Ontario women, the most important endowments were also education, age, and full-time employment. For Ontario (1986), the analysis indicates a higher level of discrimination against native men (relative to white men) than against native women (relative to native women).

Similar results follow for Ontario men and women in 1996. Table 3a, columns 3 and 4, shows that approximately 54.4 percent using white weights and 62.6 percent using

native weights of the male native-white wage gap is explained by endowment differences. This leaves 37.6 to 42.6 percent depending on the weights used, attributed to potential discrimination. For women in Ontario (1996), the native-white wage gap is explained by approximately 59 percent using white weights and 63.8 percent using native weights. Once again native men face a higher level of discrimination than that faced by women. It is also interesting to note that potential discrimination in Ontario has gone up from 1986 to 1996 for both men and women. In general potential discrimination has increased by 0 to 3 percent for men and 1 to 5 percent for women depending on the weights used over the 10 years examined in this paper.

Turning next to the decomposition results for Quebec, Table 3b, columns 1 and 2 show the decomposition results for 1986. In 1986, the male native-white wage gap was explained by approximately 50 to 52 percent (depending on weights used) due to endowment differences. This leaves 48 to 50 percent of the observed wage gap due to potential discrimination. For women, the native wage-gap was rather small, with approximately 73 percent explained by differences in endowments. This leaves only approximately 27 percent attributed to potential discrimination. By far the most important component of the endowments for both males and females in Quebec is age and education, which accounts for almost 90 percent of the endowment contribution to the native-white wage gap. Similar to Ontario, Quebec native males (relative to white males) faced significantly higher potential discrimination (47-50 percent) compared with the potential discrimination their female counterparts (27 percent) face. By 1996, the wage gap increased from 1986 yet the percentage of the wage gap ascribed to potential discrimination had declined for both men and women in Quebec. As can be seen in

Table 3a
Decomposition of the White-Native Wage Differential, Full-time and Part-time

	Ontario, 1986		Ontario, 1996	
	(1) Males	(2) Females	(3) Males	(4) Females
Observed Earnings Differential	0.356	0.314	0.537	0.455
Adjusted Earnings Differential	0.248	0.222	0.433	0.336
		(Using White Weights)		
Contribution of Endowments				
AGE	0.0905	0.0496	0.0579	0.0383
AGE^2	0.0125	0.0050	0.0239	0.0081
NCMA	-0.0027	-0.0023	0.0001	-0.0016
Marital Status	0.0026	0.0001	0.0209	0.0030
Language	0.0002	-0.0003	0.0001	0.0002
FT	0.0157	0.0047	0.0515	0.0398
Education	0.0262	0.0785	0.0812	0.1135
Total Endowments	0.1451	0.1353	0.2356	0.2011
	(58.4%)	(60.95%)	(54.4%)	(59.85%)
Discrimination	0.1032	0.0867	0.1974	0.1349
	(42.6%)	(39.05%)	(45.6%)	(40.15%)
		(Using Native Weights)		
Contribution of Endowments				
AGE	0.1064	0.0665	0.0560	0.0230
AGE^2	0.0131	0.0075	0.0237	0.0035
NCMA	-0.0067	-0.0008	-0.0001	0.0008
Marital Status	0.0016	-0.0005	0.0275	0.0041
Language	-0.0002	-0.0003	0.0006	0.0002
FT	0.0152	0.0039	0.0490	0.0400
Education	0.0289	0.0597	0.1156	0.1262
Total Endowments	0.1583	0.1360	0.2723	0.1978
	(62.4%)	(69%)	(62.6%)	(63.8%)
Discrimination	0.0954	0.0612	0.1624	0.1121
	(37.6%)	(31%)	(37.4%)	(36.2%)

Source: The estimates reported in columns (1), (2), (3), (4) were derived from the coefficients given in Table 2. A positive estimate means an earnings differential in favour of whites whereas a negative Estimate signifies an advantage in favour of the natives. The "adjusted earnings differential" is the Earnings differential adjusted for weeks worked.

Table 3b
Decomposition of the White-Native Wage Differential, Full-time and Part-time

	Quebec, 1986		Quebec, 1996	
	(1) Males	(2) Females	(3) Males	(4) Females
Observed Earnings Differential	0.29	0.25	0.43	0.35
Adjusted Earnings Differential	0.15	0.13	0.29	0.24
		(Using White Weights)		
Contribution of Endowments				
AGE	0.0101	0.0627	0.0606	0.0593
AGE^2	0.0000	0.0016	0.0237	0.0107
NCMA	0.0292	0.0059	-0.0022	0.0009
Marital Status	0.0140	0.0007	0.0022	0.0001
Language	-0.0092	-0.0015	0.0034	-0.0029
FT	0.0206	-0.0086	0.0163	-0.0283
Education	0.0105	0.0343	0.0561	0.1429
Total Endowments	0.0800	0.0951	0.1601	0.1826
	(50.1%)	(73.2%)	(55.2%)	(76.1%)
Discrimination	0.0700	0.0349	0.1299	0.0574
	(49.9%)	(26.8%)	(44.8%)	(23.9%)
		(Using Native Weights)		
Contribution of Endowments				
AGE	0.0545	0.1269	0.0640	0.0684
AGE^2	0.0109	0.0032	0.0260	0.0137
NCMA	-0.0104	-0.0165	-0.0259	-0.0012
Marital Status	0.0084	-0.0010	0.0017	-0.0011
Language	-0.0121	-0.0228	0.0157	0.0046
FT	0.0093	-0.0066	0.0071	-0.0259
Education	0.0152	0.0316	0.0190	0.0905
Total Endowments	0.0757	0.1148	0.1076	0.1490
	(52.7%)	(73.6%)	(53.1%)	(74.4%)
Discrimination	0.0681	0.0412	0.0951	0.0512
	(47.3%)	(26.4%)	(46.9%)	(25.6%)

Source: The estimates reported in columns (1), (2), (3), (4) were derived from the coefficients given in Table 2. A positive estimate means an earnings differential in favour of whites whereas a negative Estimate signifies an advantage in favour of the natives. The "adjusted earnings differential" is the Earnings differential adjusted for weeks worked.

table 3, in columns 3 and 4, the wage gap for men was explained by as much as 53 to 55 percent (depending on weights used) due to endowment differences. In 1996, native women saw that their native weight wage gap being explained by 74 to 76 percent due to endowment differences. As with Ontario, the most important endowments for both men and women in Quebec were age, education and full-time employment. Once again native-men face a larger potential discrimination (45 to 48 percent) than their native female counterparts (24 to 26 percent). Overall, potential discrimination decreased by as much as 0.4 to 5.1 percent for men from 1986 to 1996 and 0.8 to 2.9 percent for women (depending on weights used) over the same period.

Comparisons between the two provinces also yield some interesting results. First, while potential discrimination in Ontario increased from 1986 to 1996, Quebec saw a decrease in potential discrimination. Furthermore, Quebec native females faced lower levels of potential discrimination (approximately 23 to 26 percent) than native women in Ontario (31 to 40 percent). The opposite is true for males, with Quebec native males suffering from higher potential discrimination than native males in Ontario. Lastly, in both provinces, native men face higher discrimination (relative to white males) than native females (relative to white females).

Overall, table 3 shows that the most important factor in explaining the native-white wage gap are the endowment differences. In almost all cases potential discrimination played a relatively small role (between 23 and 50 percent). In general, the most important endowments were found to be age, education and full-time employment. Increasing the level of education of natives to the equivalent of whites could reduce the

wage gap from between 30 to 60 percent for women and 19 to 25 percent for men (depending on province and year).

Conclusion

The findings of this paper give statistical support to both George and Kuhn (1994) and De Silva (1999) earlier studies. In both studies, potential discrimination was found to play a relatively minor role, with endowment differences accounting for about 50 percent of the wage gap according to George and Kuhn and approximately 60 to 70 percent in Desilva's study. The purpose of this paper was to extend their analysis to the provinces of Quebec and Ontario. However unlike George and Kuhn study, this paper was unable to distinguish between natives living on and off reserves but did include both full-time and part-time workers in its analysis. Furthermore, unlike De Silva's study, this paper was not able to include regression analysis on aboriginals with single and multiple origins due to the small sample size.

On balance, the main findings for this paper are as follows. First, there is evidence of wage discrimination against natives in both Ontario and Quebec. The amount of the native-white wage gap explained by potential discrimination was relatively small for both males and females in both provinces, ranging from 23 to 49 percent depending on weights used, province and year. This result is inline with the findings of De Silva's study.

Second, native men face higher levels of discrimination, three-fifths to one half of the native-white wage gap compared with native females, who's potential discrimination was only found to be one quarter to one third of the native-white wage gap.

Third, a comparison of the native-white wage gap from 1986 to 1996 indicates an increase in potential discrimination by as much as 3 percent for men and 5 percent for women (depending on weights used) in Ontario. In contrast, the native-white wage gap for Quebec has seen a decline in potential discrimination by as much as 5 percent for men and 3 percent for women from 1986 to 1996.

Fourth, the most important component of the endowments was found to be age, education and full-time employment. These three components accounted for as much as 62 to 96 percent of the overall contribution of endowments to the native-white wage gap. Raising the level of education to be equal to that of whites would decrease the native-white wage differential by as much as 60 percent for women and 25 percent for men.

In relation to studies examining earnings differentials of women, these results differ markedly.[11] In Canada, as much as 63 % of the earnings differential between women and men was attributed to the "unexplained" component (Christofides and Swidinsky, 1994). Gunderson (1979) found that this component accounted for as much as 63% of male-female earning s differential. In contrast, this study found that discrimination attributed for only as much as 23 to 49 percent of the overall differential between whites and aboriginal. Based on these comparisons it would appear that discrimination plays a smaller role in the native-white earnings differentials than that of gender differentials. This interpretation, however, warrants as the preceding analysis has several problems. First, this study made no attempt to correct for selectivity bias. Second, a number of proxies had to be used which could result in measurement errors. Third, this study could not take into account potential discrimination against aboriginals by employers in offering employment or full-time work to natives. As such this study

could not take into account the serious unemployment problems among natives. Lastly, many factors including industry, occupation, unionization, and ability were left out of the previous analysis due to the unavailability of this information.

The main policy implication derived from the results of this paper would include policies to promote an increase in the education levels of aboriginals. As stated previously, simply increasing education levels of natives to become at par with whites would reduce the native-white wage gap by as much as 60% for some groups of natives. Increasing natives education would increase their job prospects as well as their salary.

NOTES

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[1] Throughout this paper we shall use the term aboriginal and native synonymously.

[2] Wage Discrimination is said to occur when individuals with the same endowments receive different wages.

[3] Note: All of these studies examined only paid employees and did not consider those individuals that reported being self-employed or unemployed.

[4] There are several possible reasons why the results of these studies differ. The most significant being the data used in each study. George and Kuhn, and De Silva based their studies on data from the 1986 and 91 Censuses respectively, while Patrinos and Sakellariou's study used data from the 1986 Labour Market Activity Survey.

[5] These agreements can be found by contacting Indian and Northern Affairs Canada

[6] While these treaties are comprehensive, it is beyond the scope of this study to verify that they are being enforced.

[7] There are 17 land claim and other related negotiations currently on going and 10 settlements have been agreed to in the last decade. The earliest of these being the Manitoulin Settlement Agreement in 1990 and the latest is the Assabasha Agreement in 2000.

[8] These included both employment insurance benefits and social assistance payments.

[9] The endowments examined included a regional variable, age, marital status, education, training, language, and residence in a census metropolitan area. It should be noted that this study did not include some important variables such as unionization, occupation and industry.

[10] In this paper, wages shall refer to nominal wages.

[11] See Table A2.

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Appendix

Table A1
Variables Used in OLS Regressions

AGE	a proxy for experience
AGE^2	a quadratic term to account for diminishing returns to experience

The following are 0-1 dummy variables:

Non-Urban living

NCMA	Residence in a non-Census Metropolitan Area

Marital Status

DIV	Divorced (reference group: single or never married)
MAR	Married
SEW	Separated or Widowed

Official Language

ENG	Proficiency in English (reference group: French)
BILL	Proficiency in English and French
ALLO	Neither English nor French (allophones)

Ethnicity

MUL	a person who has multiple aboriginal origins (as distinct from single or exclusively aboriginal origins)

Full-Time/Part-Time Employment

FT	a person with full-time employment

Education

GR9-13	Completion of grades 9 to 13 (reference group: those with less than grade 9)
SEC	Secondary School Certificate
NONU	Non-university education
SOMU	Some university education
BAMAP	Bachelor's, Master's and Doctoral Degrees

Weeks of Work

6-10WK	reported working 6 to 10 weeks (reference group: those with less than grade 9)
11-15WK	reported working 11 to 15 weeks
16-20WK	reported working 16 to 20 weeks
21-25WK	reported working 21 to 25 weeks
26-30WK	reported working 26 to 30 weeks
31-35WK	reported working 31 to 35 weeks
36-40WK	reported working 36 to 40 weeks
41-45WK	reported working 41 to 45 weeks
46-50WK	reported working 46 to 50 weeks
51-52WK	reported working 51 to 52 weeks

Table A2: Overview of Other Selected Studies

Study	Main Findings
Studies on Gender Discrimination	
Gunderson (1979)	Discrimination accounted for approximately 63% of the male-female earnings differential in 1970.
Robb (1978)	Discrimination accounted for 59% of the male-female earnings differential
Shapiro and Stelcner (1981)	Approximately 53% of the male-female earnings differential was due to discrimination,
Gunderson and Riddell (1991)	Discrimination accounts for approximately 25-30 % of the wage gap between men and women.
Christofides and Swidinsky (1994)	75% of wage gap between men and women was due to discrimination.
Studies on Discrimination against Handicapped Persons	
Hum and Simpson (1996)	No evidence of earnings discrimination against employed men and women with disabilities
Johnson and Lambrinos (1985) (U.S Study)	Discrimination against handicapped persons to account for approximately one third of the wage gap between non-handicapped persons and handicapped persons.
Studies on Discrimination Against Visible Minorities and Immigrants	
Darity and Mason (1998) (U.S Study)	Discrimination against african-americans was 12-15% in both 1980 and 1990.
De Silva (1991)	Found no significant discrimination towards immigrants in 1986.