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The Economic Impact of the Great Recession on Aboriginal People Living off Reserve in Canada
L'impact économique de la Grande Récession de 2008 sur les Autochtones vivant hors-réserve du Canada
El impacto económico de la gran recesión en la población autóctona de Canadá

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Résumé de l'article

La présente analyse cherche à déterminer si la récession de 2008 a eu un impact différencié sur les Canadiens autochtones, comparativement aux Canadiens non autochtones, en se basant sur les différences de probabilité de chômage entre les deux groupes. Plus spécifiquement, deux hypothèses sont formulées : 1- Les Canadiens autochtones ont été davantage frappés par cette « Grande Récession » et, par voie de conséquence; 2- Ils sont plus susceptibles que les Canadiens non autochtones de devenir des travailleurs découragés.

L'étude utilise les données du fichier maître de *l'Enquête sur la population active* (EPA) pour les années 2007 à 2012 inclusivement, afin d'estimer la probabilité pour une personne active de se retrouver en chômage à partir d'un ensemble de caractéristiques observables d'un échantillon de personnes faisant partie de la population active. Méthodologiquement, nous débutons l'analyse par l'estimation d'un modèle de données groupées couvrant les six années, lequel inclut des variables de contrôle pour l'identité autochtone. Puis, des modèles individuels (données non groupées) de la probabilité de se retrouver en situation de chômage sont estimés pour chacune des années retenues pour les participants autochtones et non autochtones. Les différences de probabilité de chômage estimées séparément pour les deux groupes dans le modèle de données groupées sont, ensuite, décomposées pour distinguer la proportion de l'écart attribuable à des différences de caractéristiques observables entre les deux groupes et celle attribuable aux différences de rendements sur ces caractéristiques. Pour vérifier la seconde hypothèse, l'étude estime la probabilité qu'un répondant soit un travailleur découragé à partir de l'échantillon entier des personnes économiquement actives et inactives (c'est-à-dire tant les personnes participantes à la population active que celles non participantes).

Les résultats des deux modèles, données groupées et données non groupées, de la probabilité de se retrouver en chômage appuient la première hypothèse à l'effet que les personnes autochtones ont été plus durement frappées par la récession de 2008 avec des probabilités plus élevées et plus durables. À la fin de la période, soit en 2012, les taux de chômage estimés avaient retrouvé leur niveau d'avant récession tant pour les répondantes et répondants autochtones que non autochtones affichant un attachement plus solide à la population active. Lorsqu'on inclut les personnes affichant un moindre attachement à la population active (c'est-à-dire celles ayant été en chômage pour une durée de plus de 12 mois) dans l'analyse, l'écart de probabilité de chômage entre les deux groupes s'accroît au détriment des personnes autochtones. De plus, la seconde hypothèse, à l'effet que les personnes autochtones sont plus susceptibles d'être des travailleurs découragés, s'avère supportée pour la période 2008 à 2010 et en 2012.

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The Economic Impact of the Great Recession on Aboriginal People Living off Reserve in Canada

Danielle Lamb

Using data from the master files of the *Canadian Labour Force Survey* for the years 2007-2012 inclusive, the present analysis seeks to examine the differential impact of the Great Recession on Aboriginal people in Canada. Results suggest that Aboriginal people were disproportionately burdened by the recent economic crisis as seen in proportionally higher and more persistent increases in the estimated probability of unemployment. Aboriginal people were also more likely to be discouraged workers in 2008-2010 and 2012. Decomposition of the difference in the estimated probabilities of unemployment between Aboriginal and non-Aboriginal people reveals that 47 percent of this gap is due to differences in endowment characteristics between the two groups, while the majority (53 percent) is attributable to differing returns to those endowment characteristics. The results are discussed with an emphasis on the role of education in improving labour market outcomes among Aboriginal Canadians.

KEYWORDS: **Aboriginal persons, unemployment, discrimination, discouraged worker.**

Introduction

The Great Recession of 2008 has been referred to in popular media as the worst financial crises since the Great Depression (e.g. Ferrara, 2013). Several years after the Recession, growing income inequality in Canada is an increasing concern (Yalnizyan, 2013). Part of this inequality is driven by the persistent economic disparity between Aboriginal and non-Aboriginal Canadians. A number of recent reports provide a detailed description of Aboriginal labour market outcomes over the last several years. The findings of these reports suggest that Aboriginal peoples were disproportionately burdened by the 2008 financial crises as seen in

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higher unemployment rates, lower employment rates and slightly lower levels of labour force participation (e.g. Sharpe and Gee, 2012; Usalcas, 2011; Zietsma, 2010). Furthermore, while the non-Aboriginal labour force showed signs of recovery as measured by employment rate gains, revival among the Aboriginal population lagged and was insufficiently large to keep pace with the non-Aboriginal population (Sharpe and Gee, 2012). Gaps in educational attainment, geographical considerations and the type and sector in which relatively larger proportions of Aboriginal peoples are likely to be employed are often cited as important factors explaining the varying labour market outcomes between Aboriginal and non-Aboriginal persons (e.g. Sharpe and Gee, 2012; Usalcas, 2011; Zietsma, 2010).

The present analysis seeks to better understand the differential impact of the Great Recession on Aboriginal and non-Aboriginal Canadians by examining differences in the determinants of the probability of unemployment between the two groups. Data from the master files of the Canadian Labour Force Survey for the years 2007-2012 inclusive is used to estimate the probability that an individual is unemployed based on a set of observable characteristics for Aboriginal and non-Aboriginal groups. Persistent unemployment may serve to weaken or sever an individual's labour force attachment. Therefore, the present analysis also investigates whether Aboriginal identity is related to the probability of being a discouraged worker. Specifically, this study considers the following two hypotheses:

H1: Aboriginal peoples have been disproportionately burdened by the Great Recession compared to non-Aboriginal people as seen in the difference in the probabilities of unemployment between the two groups from 2007 to 2012.

H2: Aboriginal peoples are more likely than non-Aboriginal peoples to be discouraged workers.

Recommendations for policy with an emphasis on improved educational outcomes among the Aboriginal population are highlighted in the final discussion section of the paper.

Background Information

In Canada, the effects of the Recession on the labour market were felt as early as "October of 2008 when the national unemployment rate was 6.3%, a shade above the average rate of 6.0% in 2007. The national unemployment rate rose to a recession high of 8.7% in August of 2009, and still stood at 8.6% in October 2009" (Jackson and Schetagne, 2010, 1). Markedly higher unemployment rates among the Aboriginal population existed prior to the Great Recession. Data from the 2006 Census, for example, suggests that unemployment rates for the

Aboriginal identity population were more than double those of the non-Aboriginal population, at 14.8 percent and 6.3 percent respectively (Statistics Canada, 2011b). "Even before the 2008-2009 recession, Aboriginal people […] had a harder time finding work and faced higher unemployment than non-Aboriginal people" (Statistics Canada, 2011b, 2). The focus of the present analysis is to examine whether Aboriginal peoples living off reserve in Canada were disproportionately negatively affected by the recent recession. Some descriptive reports suggest that this was in fact the case (e.g. Statistics Canada, 2011b, Usalcas, 2011).

In their analysis Cho and Newhouse (2012) identify several means through which some individuals are made more vulnerable during a recession. The first factor contributing to the disparate effects of the recession relate to an individual's sector of employment. In Canada, as in many other countries, the manufacturing and construction sectors were among the hardest-hit by the recession. In a speech delivered in 2011, former Deputy Governor of the Bank of Canada Jean Boivin stated that Canada experienced unprecedented declines in exports and investments, measures largely driven by manufacturing and construction (Bank of Canada, 2011). Job losses in manufacturing and construction resulted in men being disproportionately burdened by the downturn, as males are more likely to be employed in these industries than females. Although Aboriginal people were not more likely than non-Aboriginal people to be employed in manufacturing, as of 2010, Aboriginal people were overrepresented in construction (Usalcas, 2011).

The second mechanism making some more vulnerable than others during a recession is a function of employer perceptions and stereotypes towards certain groups. Arguably the impact of perception on employment is more salient in slack labour markets, where the number of potential candidates far exceeds available positions, than in times where tighter economic conditions prevail (Cho and Newhouse, 2012). The extent to which discrimination towards Aboriginal peoples is a barrier to labour market success may be exacerbated by a recession.

Finally, the third way in which recessions have differential effects across individuals and groups is a function of familial support and resources. Common during economic downturns is the added worker effect—where a spouse or working age child previously not in the labour force, joins the labour force seeking employment to augment or replace lost household income. Family structures that allow for such a response may have somewhat of a buffer against the impact of a recession (Cho and Newhouse, 2012). The added-worker effect was not pronounced among the Aboriginal population over the years of the recession. While Aboriginal female labour force participation rate increased slightly from 2008 to 2009, those of Aboriginal males declined. What was perhaps more prominent was an "added job" effect whereby Aboriginal people were more

likely to be multiple jobholders in 2010 as compared to non-Aboriginal people (Usalcas, 2012).

Usalcas (2012) cites that the percentage of Aboriginal peoples in temporary employment relationships increased two percentage points from 2009 to 2010 whereas the increase in precarious employment among the non-Aboriginal population was only 0.7 percentage points over the same period.

In the longer term, persistent unemployment and the trend towards more precarious forms of employment tends to weaken labour force attachment and ultimately displace cohorts of otherwise employable individuals creating a pool of discouraged workers (e.g. Schweitzer and Smith, 1974). The extent to which particular groups may be overrepresented among this pool of discouraged workers is cause for additional concern. White *et al.* (2003, 396) discuss the potential consequences of long-term unemployment among Canada's Aboriginal population, also noting:

> […] The Aboriginal worker is restricted from entry to the primary labour market segment because of race or lower human capital, and this restriction subjects the worker to the vagaries of the secondary segments including part-time-part-year work, lay-offs, job-loss, poor pay and lack of challenging work. Such conditions both marginalize and discourage the worker and can produce less labour force involvement.

An augmented measure of the unemployment rate, the R8, takes into account discouraged workers and others with limited labour force attachment (i.e. involuntary part-time workers, laid-off and awaiting recall, etc.) not included in the customary definition of the labour force and therefore not counted in the standard computation of the unemployment rate. "Among Aboriginal people, R8 was 18.5 percent in 2010, a 4.5 percentage point increase from 2008. R8 among the non-Aboriginal population was 11.1 percent, up 2.5 percentage points from 2008" (Usalcas, 2012, 9). The R8 measure is important in that it offers an arguably more comprehensive picture of labour force activity by including groups traditionally excluded from unemployment rate calculations. The full economic impact of a recession may not be captured entirely by relatively small changes in unemployment rates if proportionally larger numbers of individuals are exiting the labour force. The fact that the R8 among Aboriginal persons was 7.4 percentage points higher than that of the non-Aboriginal population lends support to the hypothesis that Aboriginal people may be more likely to be discouraged workers, the second hypothesis examined in this analysis. To my knowledge, the relationship between Aboriginal identity and the probability of being a discouraged worker has not been modeled in previous research.

Theoretical Framework

To further examine the relative labour market success of Aboriginal and non-Aboriginal persons, the present study adopts the well-established labour demand and supply framework (e.g. Benjamin *et al.*, 2002). Accounts of labour force participation and employment can be grouped into two main categories: those that emphasize individual attributes and those that focus on the structural features of a society in which an individual lives (White *et al.*, 2003). On the demand side, the potential role of discrimination on the basis of race/ethnicity, as well as the distribution of Aboriginal workers across industries and occupations, may contribute to understanding some of the differential impacts of the Great Recession between Aboriginal and non-Aboriginal Canadians. The extent to which discrimination serves as a barrier to employment for Aboriginal persons is difficult to quantify, yet qualitative accounts suggest that prejudice in the labour market remains a significant obstacle for many Aboriginal persons (e.g. Doyle-Bedwell, 2009). With respect to industry and occupation, recent estimates suggest that Aboriginal peoples are overrepresented in forestry, fishing, mining, energy, public administration and utilities. On the other hand, Aboriginal peoples are underrepresented in industries related to science, technology, finance and real estate (Sharpe and Gee, 2012). With respect to representation in various types of occupations, Aboriginal people were less likely to work in management and related occupations and more likely to hold service or sales positions (Sharpe and Gee, 2012).

On the supply side, differences in human capital accumulation, most notably education, are often cited as the primary reason for the disparate labour market outcomes observed between Aboriginal and non-Aboriginal Canadians (e.g. George and Kuhn, 1994; Ciceri and Scott, 2006; Pendakur and Pendakur, 2011; White *et al.*, 2003). Closely related to human capital is social capital. White *et al.* (2006) suggest that some Aboriginal peoples or groups are isolated from mainstream society and, as such, have difficulty accessing the social and informal networks that prove to be invaluable in attaining various employment opportunities. In this way, geographic considerations and proximity to various employment opportunities may also influence an individual's ability to "weather an economic storm" insofar as he/she has the necessary skills and abilities to compete for such opportunities. Finally, family structure and household composition are important determinants of labour force participation and subsequent employment outcomes, particularly for women (e.g. Gunderson, 1998). Not only is the Aboriginal population on average younger than the non-Aboriginal population (e.g. Statistics Canada, 2011a), fertility rates among Aboriginal peoples are also higher than the national average (Ram, 2004). Aboriginals have among the highest instance of lone parenthood in Canada (e.g. Mendelson, 2004), however, the availability of familial and community supports may mitigate the effect of lone parenthood on labour market activity (White *et al.*, 2003).

Data and Methodology

The data for this study is taken from the master files of the *Canadian Labour Force Survey* (LFS) for the years 2007-2012 inclusive. The LFS is nationally representative of individuals across Canada living off-reserve and outside the Yukon, Nunavut and Northwest Territories. In 2008, Statistics Canada added a unique Aboriginal weight to the *Labour Force Survey* to aid in making comparisons between Aboriginal and non-Aboriginal groups (Statistics Canada, 2012a; Zietsma, 2010). All estimates for the Aboriginal population reported for 2008 and thereafter make use of this weight.[1] Despite this improvement, the fact that the LFS does not include individuals living on reserves or in the territories is an important limitation affecting the conclusions drawn from the analysis. Given that the most economically marginalized factions of the Aboriginal population tend to live on-reserve, their exclusion from the data may create a more optimistic portrait of the Aboriginal labour force in Canada than is warranted (Sharpe and Gee, 2012).

The present analysis primarily focused on labour force participants over the age of 15 years. An individual is considered to be "in the labour force" if he/she is either employed or unemployed, but actively seeking employment.[2] The sample is further divided into Aboriginal and non-Aboriginal groups. The Aboriginal population is defined by a self-reported measure of Aboriginal identity. Although the LFS does contain a more detailed indicator of Aboriginal identity (i.e. whether the respondent identifies with a specific Aboriginal group: First Nations, Inuit or *Métis*), given that a sizable proportion of First Nations live on-reserve, while the majority of the Inuit population live in the territories (e.g. Statistics Canada, 2012b), the present analysis does not further sub-divide the Aboriginal population.

The methodology first involves estimating the probability that an individual is unemployed based on a set of observable characteristics for a pooled model across all six years of data which includes both Aboriginal and non-Aboriginal groups. The sample is restricted to only include labour force participants. The dependant variable is a dichotomous indicator coded "1" if a respondent is unemployed and "0" otherwise. Explanations of the specific independent variables included in both the pooled models as well as the separate models estimated for Aboriginal and non-Aboriginal groups are given below. A set of dummy variables is included to capture the temporal variance in the probability of unemployment from 2008 to 2012, with 2007 as the reference year. An indicator of Aboriginal identity as well as a second set of variables interacting Aboriginal identity with the year are also included to examine the relationship between Aboriginal identity and the probability of unemployment over time.

The analysis then estimates separate logistic regressions for Aboriginal and non-Aboriginal persons. The observable characteristics included in the model are

consistent with the theoretical labour demand and framework discussed in the preceding section of the paper. On the supply-side, human capital accumulation is measured by six dummy variables representing different levels of educational attainment from high school graduation to holding a post secondary credential higher than a bachelor's degree. Several variables, marital status, presence of children and spousal employment,[3] are included to capture differences in family structure. The variable "male" captures the respondent's sex, whereas age is captured by the inclusion of several cohorts. Models estimated for the non-Aboriginal population include a variable denoting whether the respondent was an immigrant to Canada. Indicators of residence in Toronto, Montreal or Vancouver are included to account for differences in employment status that may be a function of the relative accessibility of labour markets in major cities. On the demand side, this same indicator may also capture important differences in labour market conditions in highly urbanized centres. Variables denoting province of residence are included to account for interprovincial differences in economic activity. Recognizing that the recession did not have an impact on all sectors of the economy equally, models are estimated both with and without industry controls. Industry categories were defined based on the *North American Industry Classification System* (NAICS). Industry categories were collapsed to create seven industry groups: primary industry; secondary industry; energy; retail; healthcare and education; and government, information and art, with management/professional being the omitted reference group.

One concern over including industry controls is the introduction of endogeneity into the models since only those individuals who were either employed or recently unemployed (i.e. within the last twelve months) were asked about the sector of employment in which they currently (or last) worked (Statistics Canada, 2012a). To address this concern, models were estimated both with and without the industry variables allowing for the observation of the probabilities of unemployment among those with strong (currently employed or worked within the last twelve months) as well as those with weaker ties to the labour market.

The difference in the probabilities of unemployment between Aboriginal and non-Aboriginal Canadians obtained from estimating separate pooled models for all years of data are decomposed according to an adaptation of the commonly used Blinder (1973)–Oaxaca (1973) decomposition proposed by Powers, Yoshioka and Yun (2011). The difference in the probabilities of unemployment for the two groups is decomposed into two components: one that is due to differences in observable characteristics between Aboriginal and non-Aboriginal Canadians (endowments), and a second portion that is attributed to differing returns or behavioural responses to those observable characteristics (coefficients) (Powers, Yoshioka and Yun, 2011).

The final component of the analysis estimates the probability that a respondent is a discouraged worker based on the same set of observable characteristics included in the previous models, but excluding industry controls for the reasons noted above. An indicator for discouraged worker is available in the *Labour Force Survey* and refers to someone who is otherwise able to work but is not currently in the labour force because he/she is discouraged by prevailing labour market conditions and/or poor employment prospects. The variable is dichotomous and coded "1" if the respondent is discouraged and "0" otherwise. Due to the relatively small number of discouraged workers in the data, models are estimated that include both Aboriginal and non-Aboriginal persons, including an indicator of Aboriginal identity. The models estimating the probability of being a discouraged worker are produced for each year of data using the entire sample of respondents aged 15 years and older (i.e. both those in and out of the labour force). While restricting the sample to only those who are unemployed or not in the labour force could change the estimates, imposing such a condition would also introduce the potential of selection bias as it is quite conceivable that factors influencing whether a respondent is a discouraged worker may also affect his/her employment status or decision to participate in the labour market. The Labour Force Survey contains a relatively limited choice of variables making statistical correction for selection bias somewhat difficult. Not imposing such restrictions on the sample will hopefully minimize the concerns over selection bias; however, some caution should still be maintained when interpreting the results.[4]

Results

Tables 1A through 1D provide descriptive statistics of the detailed labour force status of Aboriginal and non-Aboriginal males and females from 2007 through to 2012.

The tables provide the proportion of Aboriginal and non-Aboriginal males and females who are either employed, unemployed or not in the labour force as a percentage of the total sample for each group. Across all years, Aboriginal males and females reported higher rates of unemployment and lower rates of employment and labour force participation as compared to their non-Aboriginal counterparts. For all groups, the proportion of unemployed persons peaked in 2009, consistent with the timing of the recession. The difference in the proportion of unemployed persons from 2007 to 2012, however, was more pronounced for Aboriginals than non-Aboriginals. Among non-Aboriginal males in 2012, unemployed persons represented 5.37 percent of the sample, 0.82 percentage points higher than in 2007. For Aboriginal males, unemployment levels in 2012 were 1.11 percentage points higher than those in 2007. The gap was even greater among females, where the proportion of unemployed non-Aboriginal females was 0.66 percentage points

higher than in 2007, compared to proportion of unemployed Aboriginal females in 2012, which was 1.66 percentage points higher than in 2007.

H1: Aboriginal peoples have been disproportionately burdened by the Great Recession compared to non-Aboriginal people as seen in the difference in the probabilities of unemployment between the two groups from 2007 to 2012.

TABLE 1A

Labour Force Status by Year, Non-Aboriginal Males

(% Of Sample)	2007	2008	2009	2010	2011	2012
Employed	68.03	68.07	65.27	65.62	66.05	65.96
Unemployed	4.55	4.71	6.68	6.15	5.5	5.37
Not in Labour Force	27.42	27.22	28.05	28.23	28.45	28.67
Total[1]	100	100	100	100	100	100
Actual Sample	577,882	578,304	593,440	589,749	590,016	589,583

TABLE 1B

Labour Force Status by Year, Aboriginal Males

(% Of Sample)	2007	2008	2009	2010	2011	2012
Employed	62.93	65.39	59.9	56	59.1	61.56
Unemployed	7.96	7.5	10.67	10.5	10.2	9.07
Not in Labour Force	29.1	27.11	29.43	33.5	30.7	29.38
Total[1]	100	100	100	100	100	100
Actual Sample	18,489	19,051	20,450	21,798	21,906	23,604

TABLE 1C

Labour Force Status by Year, Non-Aboriginal Females

(% Of Sample)	2007	2008	2009	2010	2011	2012
Employed	59.07	59.23	58.26	58.1	58.03	58.09
Unemployed	3.47	3.48	4.29	4.43	4.3	4.13
Not in Labour Force	37.47	37.28	37.45	37.47	37.67	37.78
Total[1]	100	100	100	100	100	100
Actual Sample	611,968	613,707	626,971	625,381	625,526	622,540

TABLE 1D

Labour Force Status by Year, Aboriginal Females

(% Of Sample)	2007	2008	2009	2010	2011	2012
Employed	53.55	54.36	53.65	51.59	52.84	52.54
Unemployed	6.02	6.28	7.64	7.49	6.55	7.65
Not in Labour Force	40.43	39.36	38.71	40.92	40.61	39.81
Total[1]	100	100	100	100	100	100
Actual Sample	21,515	22,507	24,541	26,172	26,491	27,680

[1] The sum total of the three categories of labour force status (employed, unemployed and not in the labour.

Table 2 details the results of the pooled model estimating the probability of unemployment among labour force participants across all years considered in the analysis.

TABLE 2

Probability of Unemployment among Labour Force Participants 2007-2012, Pooled Model, Marginal Effects

	Model 1		Model 2		Model 3	
PR (Unemployed)	**0.071**		**0.06**		**0.041**	
	dy/dx	**z**	**dy/dx**	**z**	**dy/dx**	**z**
(Non-Aboriginal)						
Aboriginal	0.055**	53.57	0.051**	19.28	0.03**	14.68
(Non-Aborig. *2007)						
Aborig. *2008			-0.004	-1.78	-0.002	-1.01
Aborig. *2009			-0.001	-0.73	-0.001	-0.64
Aborig. *2010			0	0.19	-0.001	-0.91
Aborig. *2011			0	0.14	0.001	0.46
Aborig. *2012			-0.001	-0.55	0	0.08
(Female)						
Male			0.008**	28.85	0.004**	17.69
(Canadian born)						
Immigrant			0.032**	63.5	0.012**	31.36
(Ont)						
Newfoundland and Labrador			0.055**	62.41	0.055**	65.38
Prince Edward Island			0.033**	38.13	0.04**	48.41
Nova Scotia			0.013**	22.53	0.015**	29.51
New-Brunswick			0.018**	29.66	0.022**	38.86
Quebec			0.001**	3.32	0.003**	9.88
Manitoba			-0.025**	-78.07	-0.015**	-53.35
Saskastchewan			-0.026**	-76.24	-0.015**	-52.65
Alberta			-0.023**	-68.42	-0.013**	-43.8
British Columbia			-0.008**	-17.95	-0.002**	-6.02
(Non-major city)						
Toronto			0.002*	3.14	-0.002**	-4.04
Montreal			0.005**	7.59	-0.002**	-4.74
Vancouver			-0.006**	-8.99	-0.008**	-15.14
(Age 15-24 years)						
Age 25-29 years			-0.014**	-32.59	-0.009**	-26.06
Age 30-39 years			-0.019**	-45.49	-0.014**	-41.34
Age 40-49 years			-0.022**	-52.88	-0.018**	-52.48

TABLE 2 (suite)

	Model 1		Model 2		Model 3	
PR (Unemployed)	**0.071**		**0.06**		**0.041**	
	dy/dx	**z**	**dy/dx**	**z**	**dy/dx**	**z**
Age 50-59 years			-0.023**	-52.92	-0.019**	-56.83
Age 60 plus			-0.023**	-49.19	-0.019**	-54.57
(Single)						
Married			-0.017**	-19.25	-0.011**	-14.69
Divorced/separated			-0.009**	-18.87	-0.005**	-10.97
(No child < 12 years)						
Child 0-5 years			0.006**	10.31	-0.002**	-5.16
Child 6-12 years			0.004**	8.8	0	0.19
(Less than high school grad)						
High school grad			-0.028**	-94.78	-0.013**	-48.78
Some post secondary			-0.028**	-85.75	-0.013**	-41.06
Trade certificate			-0.027**	-85.15	-0.012**	-38.78
College			-0.042**	-142.14	-0.021**	-75.1
BA degree			-0.044**	-146.08	-0.024**	-79.3
Above bachelor's			-0.042**	-129.58	-0.023**	-66.23
(Spouse employ/single)						
Spouse unemp.			0.092**	61.2	0.059**	48.08
Spouse unempMV			0.024**	26.88	0.012**	15.79
(Management/professional)						
Primary Industry					0.02**	24.56
Secondary Industry					0.009**	23.16
Energy					0	-0.66
Retail					-0.004**	-12.2
Health and Education					-0.014**	-40.38
Govt., information and art					-0.005**	-11.96
(2007)						
2008	0.001*	1.99	0.002**	3.24	0.001**	2.68
2009	0.025**	38.1	0.023**	38.95	0.017**	35.23
2010	0.022**	34.06	0.021**	36.1	0.011**	24.16
2011	0.016**	25.41	0.017**	28.65	0.006**	12.78
2012	0.014**	21.84	0.015**	26.42	0.005**	11.15
Sample N	4924018		4924018		4816232	
Wald chi2	7509.48		102344.52		102344.52	
Prob > chi2			0		0	
Pseudo R2	0.004		0.061		0.061	

*p<0.05. **p<0.01

Three separate models are estimated to show the change in the estimated probability of unemployment as additional control variables are added to each model. For ease of interpretation, results are displayed as marginal effects. The fit statistics shown at the bottom of the table are those for the logistic regression models from which the marginal effects were derived. Model 1 includes only an indicator of Aboriginal identity and five dummy categories for the years included in the model. The results of model one suggest that the probability of unemployment is 7.1 percent, with Aboriginal persons being 5.5 percentage points more likely to be unemployed. The probability of unemployment was also higher in each year than it was in 2007. Model 2 adds to Model 1 all geographic and individual observable characteristics with the exception of industry controls, which will be added in Model 3. With the addition of the control variables, the estimated probability of unemployment drops to 6 percent, with Aboriginal persons being 5.1 percentage points more likely than non-Aboriginal persons to be unemployed. Model 2 also includes five dummy variables that interact Aboriginal identity with the year, in order to capture any temporal differences in the probability of unemployment among Aboriginal peoples. Controlling for other observable characteristics, these interactions were not statistically significant. Finally, Model 3 is Model 2 with the addition of the industry controls. The estimated probability of unemployment from Model 3 is 4.1 percent, nearly 2 percentage points lower than the estimates produced by Model 2 without industry controls, bearing in mind that Model 3 captures only those with the strongest labour force attachments, as the addition of industry control variables means that respondents who were unemployed for more than twelve months were excluded from the analysis. Moving from Model 2 to Model 3 resulted in the loss of 107,786 respondents, roughly 2.2 percent of the original sample.

Looking at the coefficient estimates from the full Model 3, Aboriginal persons are only 3 percentage points more likely than non-Aboriginal persons to be unemployed with the addition of industry controls. Males are more likely to be unemployed than females and immigrants are more likely to be unemployed than Canadian-born respondents. Variables for age and education behave as expected with older and more educated cohorts being less likely to be unemployed than their younger or less educated counterparts. With the addition of the industry variables, living in Toronto, Montreal or Vancouver is associated with a lower probability of unemployment. Looking at interprovincial variation, probabilities of unemployment are lower across the prairies and in Western Canada, but higher in Eastern regions of the country and Quebec as compared to Ontario. Finally, the effects of the recession can be observed even in the pooled model containing all years of data as respondents employed in primary and secondary industries (which includes construction and manufacturing, industries particularly hard-hit

by the recession) were more likely to be unemployed, whereas workers in retail and largely public sector industries (i.e. healthcare, education, government, information and art) were less likely to be unemployed as compared to management/professional industries.

While the pooled models do highlight a strong positive, statistically significant relationship between Aboriginal identity and the probability of unemployment, the differential effects of the recession on Aboriginal and non-Aboriginal respondents is best captured by estimating separate models for each year for each of the two groups. Table 3 presents the estimates of the probability of unemployment for both Aboriginal and non-Aboriginal respondents computed first without industry controls (Model 1) and then including industry controls (Model 2).

TABLE 3

Summary of Estimated Probability of Unemployment among Labour Force Participants

	Without Industry Controls		With Industry Controls	
	Non Aboriginal	Aboriginal	Non Aboriginal	Aboriginal
2007	0.049	0.092	0.035	0.063
2008	0.05	0.089	0.036	0.061
2009	0.068	0.117	0.049	0.077
2010	0.067	0.124	0.044	0.077
2011	0.062	0.111	0.04	0.067
2012	0.059	0.108	0.038	0.065

First, considering the models without industry controls, at all time periods, the estimated probability of unemployment is higher for Aboriginals than it is for non-Aboriginals. Consistent with the timing of the recession, estimated unemployment probabilities among non-Aboriginals peaked in 2009 and returned to within 1 percentage point of their pre-recessionary levels by 2012. Among the Aboriginal population, the estimated probability of unemployment was highest in 2010 at 12.4 percent, 5.7 percentage points higher than the estimated probability of unemployment for non-Aboriginals in that same year. By 2012, estimated probabilities of unemployment for the Aboriginal population had fallen to 1.6 percentage points higher than their pre-recessionary levels, remaining 4.9 percentage points higher than the estimated probability of unemployment among non-Aboriginal persons in the same year.

The models including industry controls reveal a similar pattern. Although the overall estimated probabilities of unemployment are lower for both Aboriginal and non-Aboriginal respondents with the strongest labour force attachment and the gap between the two groups is smaller, it is still evident that the recession

had a disproportionately negative impact on Aboriginal persons since estimated probabilities of unemployment peaked for both groups in 2009 but remained the same for Aboriginal persons in 2010, when estimated probabilities of unemployment among non-Aboriginals had begun to fall.

FIGURE 1

Comparison of Mean and Estimated Probabilities of Unemployment among Labour Force Participants

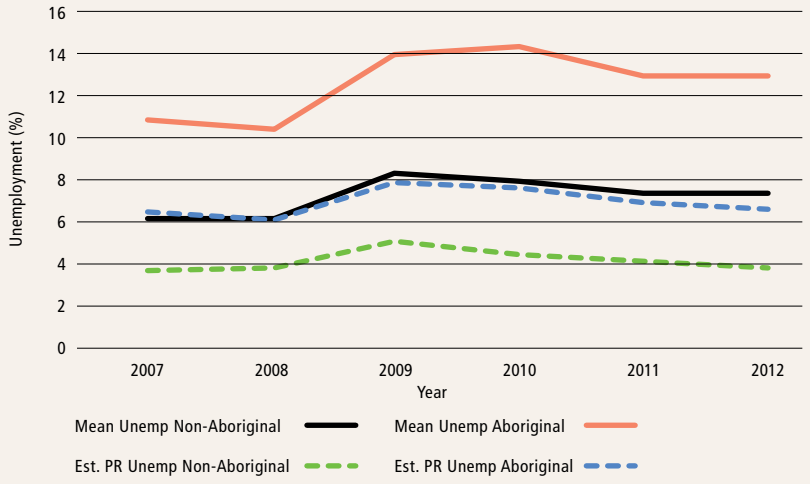

Figure 1 presents a graphical representation of the difference in the estimated probabilities of unemployment obtained from the full model including industry controls (dotted lines) plotted against the unadjusted mean unemployment rates (i.e. the proportion of labour force participants who were unemployed) for Aboriginal and non-Aboriginal respondents from 2007 to 2012.

TABLE 4

Summary of Actual Sample Sizes for Models Including and Excluding Industry Controls

	Non Aboriginal				Aboriginal			
Year	1 Without Industry	2 With Industry	3 (1-2)	4 (3/1)*100	1 Without Industry	2 With Industry	3 (1-2)	4 (3/1)*100
2007	787087	774729	12358	1.57	25500	24571	929	3.643
2008	787382	774687	12695	1.612	26895	26000	895	3.328
2009	800403	784203	16200	2.024	28555	27294	1261	4.416
2010	793631	774230	19401	2.445	29512	27794	1718	5.821
2011	792509	772569	19940	2.516	30597	28923	1674	5.471
2012	789761	770773	18988	2.404	32186	30459	1727	5.366

Table 4 provides a summary of the actual sample sizes from each of the models estimated with and without industry controls. When industry controls are added, a greater proportion of Aboriginal respondents are excluded from the models, suggesting that Aboriginal persons are disproportionally represented among those with longer-term unemployment (i.e. those who have not worked within the last 12 months of the survey year).

Tables 5A and 5B provide the detailed output from the models estimating the probability of unemployment excluding (Model 1) and including (Model 2) industry controls for non-Aboriginal (5A) and Aboriginal (5B) labour force participants. Due to space constraints, only the most recent 2012 models are included.[5] Similar to the pooled models discussed earlier in this section, the control variables behave as expected, but with a few noteworthy differences when comparing the Aboriginal and non-Aboriginal samples. Non-Aboriginal male labour force participants were more likely to be unemployed than their female counterparts in 2012, whereas among Aboriginal labour force participants, sex was not statistically significantly related to the probability of unemployment. In 2012, living in a major metropolis did not provide an escape from unemployment, with the exception of Vancouver, where both Aboriginal and non-Aboriginal persons were less likely to be unemployed as compared to those not living in

TABLE 5A

Probability of Unemployment among Labour Force Participants, Non-Aboriginal Persons 2012, Marginal Effects

	Model 1		Model 2	
PR (Unemployed)	**0.059**		**0.038**	
	dy/dx	**z**	**dy/dx**	**z**
(Female)				
Male	0.005**	7.13	0.003**	5.41
(Canadian born)				
Immigrant	0.027**	23.19	0.009**	9.66
(Ontario)				
Newfoundland and Labrador	0.046**	21.37	0.046**	22.95
Prince Edward Island	0.035**	16.04	0.044**	20.94
Nova Scotia	0.019**	12.51	0.022**	16.42
New-Brunswick	0.03**	18.26	0.032**	21.32
Quebec	0	0.18	0.005**	5.77
Manitoba	-0.024**	-28.03	-0.013**	-17.76
Saskatchewan	-0.028**	-32.18	-0.015**	-19.46
Alberta	-0.027**	-31.27	-0.015**	-20.65
British Columbia	-0.007**	-5.56	-0.001	-1.28

TABLE 5A (suite)

	Model 1		Model 2	
PR (Unemployed)	**0.059**		**0.038**	
	dy/dx	**z**	**dy/dx**	**z**
(Non-major city)				
Toronto	0.007**	5.29	0.002	1.94
Montreal	0.009**	5.89	0.001	0.63
Vancouver	0	-0.21	-0.006**	-4.66
(Age 15-24 years)				
Age 25-29 years	-0.018**	-18.42	-0.011**	-13.61
Age 30-39 years	-0.022**	-21.73	-0.014**	-16.83
Age 40-49 years	-0.025**	-23.97	-0.018**	-22.24
Age 50-59 years	-0.023**	-21.56	-0.018**	-21.39
Age 60 plus	-0.023**	-19.76	-0.017**	-20.73
(Single)				
Married	-0.026**	-10.86	-0.017**	-8.43
Divorced/separated/widow	-0.01**	-7.8	-0.004**	-3.8
(No child < 12 years)				
Child 0-5 years old	0.006**	4.04	-0.004**	-3.55
Child 6-12 years old	0.006**	3.78	0.001	1.13
(Less than high school grad)				
High school grad	-0.028**	-38.02	-0.012**	-17.81
Some post secondary	-0.028**	-33.5	-0.01**	-12.06
Trade certificate	-0.028**	-33.63	-0.009**	-11.89
College	-0.041**	-54.95	-0.018**	-25.51
Bachelor's degree	-0.041**	-53.49	-0.019**	-25.48
Above bachelor's	-0.041**	-49.78	-0.021**	-24.51
(Spouse employ/single)				
Spouse unemployed	0.099**	24.88	0.058**	18.56
Spouse unempMV	0.019**	8.45	0.006**	3
(Management/professional)				
Primary Industry			0.019**	9.5
Secondary Industry			0.005**	5.36
Energy			0.001	0.34
Retail			-0.005**	-5.42
Health and Education			-0.012**	-14.24
Govt., information and art			-0.003*	-2.45
Sample N	789761		770773	
Wald chi2	15860.95		10700.52	
Prob > chi2	0		0	
Pseudo R2	0.06		0.047	

*p<0.05. **p<0.01

one of the country's largest urban centres. Residence in Toronto or Montreal was not statistically significantly related to unemployment for non-Aboriginal respondents, whereas residence in Montreal actually increased the likelihood that an Aboriginal person would be unemployed by 12.6 to 13.6 percentage points depending on the model specification. As one would expect, older age groups are typically associated with lower probabilities of unemployment. This is the case for most cohorts except Aboriginal young people ages 25 to 29 years, who are not statistically less likely to be unemployed than the youngest cohort of 15 to 24 year-olds. Non-Aboriginal persons working in secondary industries were more likely to be unemployed in 2012, whereas working in retail was associated with a lower probability of unemployment. These relationships were not statistically significant for Aboriginal persons. Among Aboriginal labour force participants in 2012, employment in the energy sector was significantly related to a lower probability of unemployment, whereas this relationship was not statistically significant for non-Aboriginal respondents.

TABLE 5B

Probability of Unemployment among Labour Force Participants, Aboriginal Persons 2012, Marginal Effects

	Model 1		Model 2	
PR (Unemployed)	**0.108**		**0.065**	
	dy/dx	**z**	**dy/dx**	**z**
(Female)				
Male	-0.009	-1.95	-0.004	-0.97
(Ontario)				
Newfoundland and Labrador	0.057**	4.74	0.068**	5.88
Prince Edward Island	0.093**	3.15	0.073**	2.94
Nova Scotia	-0.02*	-2.09	-0.013	-1.75
New-Brunswick	0.016	0.95	0.018	1.38
Quebec	0.005	0.41	-0.004	-0.39
Manitoba	-0.017**	-3.08	-0.005	-1.09
Saskatchewan	-0.005	-0.85	0	0.07
Alberta	-0.018**	-2.67	-0.007	-1.3
British Columbia	0.006	0.75	0.006	0.89
(Non-major city)				
Toronto	-0.01	-0.61	-0.014	-1.13
Montreal	0.126**	3.04	0.136**	3.14
Vancouver	-0.05**	-5.45	-0.045**	-7.86
(Age 15-24 years)				
Age 25-29 years	-0.002	-0.24	0.01	1.49

TABLE 5B (suite)

	Model 1		Model 2	
PR (Unemployed)	**0.108**		**0.065**	
	dy/dx	**z**	**dy/dx**	**z**
Age 30-39 years	-0.019**	-3.06	-0.01	-1.93
Age 40-49 years	-0.033**	-5.07	-0.027**	-5.48
Age 50-59 years	-0.043**	-6.41	-0.033**	-7.02
Age 60 plus	-0.037**	-3.89	-0.019*	-2.42
(Single)				
Married	-0.044**	-3.08	-0.013	-1.16
Divorced/separated/widow	-0.019*	-2.39	-0.005	-0.82
(No child < 18 years)				
Child 0-5 years old	0.019*	2.22	0.009	1.36
Child 6-12 years old	0.014	1.51	0.002	0.34
(Less than high school grad)				
High school grad	-0.049**	-10.39	-0.019**	-4.67
Some post secondary	-0.05**	-9.68	-0.023**	-5.15
Trade certificate	-0.058**	-11.17	-0.028**	-6.27
College	-0.083**	-18.13	-0.041**	-10.01
Bachelor's degree	-0.079**	-15.37	-0.043**	-9.02
Above bachelor's	-0.087**	-15.33	-0.041**	-6.04
(Spouse employ/single)				
Spouse unemployed	0.139**	6.56	0.058**	4
Spouse unempMV	0.033*	2.33	0.024*	2.13
(Management/professional)				
Primary Industry			0.073**	4.34
Secondary Industry			-0.004	-0.59
Energy			-0.025**	-3.82
Retail			-0.007	-1.17
Health and Education			-0.039**	-7.54
Govt., information and art			-0.023**	-3.67
Sample N	32186		30459	
Wald chi2	1001.62		783.53	
Prob > chi2	0		0	
Pseudo R2	0.074		0.073	

*p<0.05. **p<0.01

Finally, Table 6 presents the results of the decomposition of the difference in the estimated probabilities of unemployment between Aboriginal and non-Aboriginal persons from pooled models estimated separately for Aboriginal

TABLE 6

Results of the Decomposition of the Difference in the Estimated Probability of Unemployment between Aboriginal and Non-Aboriginal Labour Force Participants, Pooled Model, All Years

PR (Unemployed)	Coeff.	z	P> |z|	Percent
Endowments (E)	0.01706	13.51	0.000	47.031
Coefficients (C)	0.019214	11.86	0.000	52.969
R (C + E)	0.036274	42.14	0.000	100
Sample N = 4816232				

and non-Aboriginal labour force participants. The models contain control variables for each year of data as well as the set of individual, geographic and industry variables described above. Results show that roughly 47 percent of the difference in the estimated probability of unemployment between Aboriginal and non-Aboriginal persons is attributable to differences in observable characteristics. On the other hand, approximately 53 percent of the difference in the probability of unemployment between the two groups is a result of different returns to those observable characteristics and/or unobservable differences between Aboriginal and non-Aboriginal labour force participants not captured in the models.

H2: Aboriginal peoples are more likely than non-Aboriginal peoples to be discouraged workers.

Table 7 shows the percent of discouraged workers as a proportion of the entire sample (labour force participants as well as those not in the labour force) for each year. The *Labour Force Survey* contains a variable that details the status of respondents who are not in the labour force. This variable enables the identification of discouraged workers since the term "not in the labour force, discouraged" appears in two of the variable's categories (Statistics Canada, 2012a).[6] In all years, the number of discouraged workers is quite small at less than one half of one percent of the total sample. A discernable increase in the percentage of discouraged workers is observed to coincide with the Great Recession, that is, from 2008 to 2009.

TABLE 7

Proportion of Discouraged Workers by Year, Entire Sample

Year	Discouraged (%)
2007	0.35
2008	0.36
2009	0.42
2010	0.43
2011	0.41
2012	0.42

Table 8 provides a summary of the estimated probability of being a discouraged worker in each year of the study. The pooled models include the control variables described in the previous section, omitting variables for industry and adding an indicator of Aboriginal identity. To determine whether Aboriginal persons were more likely to be discouraged workers, the marginal effects of the point estimates on the Aboriginal identity indicator are also displayed in the table. Overall, the estimated probability of being a discouraged worker rose from 0.18 percent in 2008 to peak at 0.26 percent in 2010.

TABLE 8

Summary of Estimated Probability of Being a Discouraged Worker, Pooled Model, Entire Sample, Marginal Effects

	2007	2008	2009	2010	2011	2012
PR (Discouraged)	0.0016	0.0018	0.0025	0.0026	0.0023	0.0022
Aboriginal	0.0002	0.0005**	0.0009**	0.0009**	0	0.0005*
	(1.38)	(2.93)	(3.54)	(3.63)	(0.25)	(2.5)
Sample N	1229854	1233569	1265402	1263100	1263939	1263407
Wald chi2	5795.28	6108.92	4778.22	4344.36	4393.38	4563.69
Prob > chi2	0	0	0	0	0	0
Pseudo R2	0.1143	0.113	0.0859	0.0889	0.0938	0.1037

*p<0.05. **p<0.01

Obviously the estimated probabilities of being a discouraged worker are lower than the mean values presented in Table 9, since many of the characteristics included in the model (i.e. education) tend to be positively related with labour market participation and subsequent employment. Controlling for other observable characteristics, Aboriginal identity was positively and statistically significantly related to the probability of being a discouraged worker for the years 2008 through to 2010 and 2012. Although the magnitude of the coefficient sizes are small, interpreted relative to the model estimates of being discouraged, Aboriginal people were roughly three times more likely to be discouraged workers as compared to their non-Aboriginal counterparts in the years noted above. Unsurprisingly, two of the four years where Aboriginal identity is statistically significantly related to an increased likelihood of being discouraged, 2008-2009, coincide with the Great Recession. Somewhat dispiriting, however, is the fact that similar relationships are also found in 2010 and 2012.

TABLE 9

Probability of being a Discouraged Worker, Entire Sample 2012, Marginal Effects

PR discouraged Variable	0.0022 dy/dx	z
(Non-Aboriginal)		
Aboriginal	0.0005*	2.5
(Female)		
Male	0.0002*	2.29
(Canadian-born)		
Immigrant	0.0007**	4.72
(Ontario)		
Newfoundland-Labrador	0.0043**	11.1
Prince Edward Island	0.0008**	2.97
Nova Scotia	0.0006**	2.95
New-Brunswick	0.0012**	5.34
Quebec	-0.0002	-1.35
Manitoba	-0.0005**	-4.25
Saskatchewan	-0.0006**	-4.67
Alberta	-0.0004**	-3.13
British Columbia	-0.0004	-2.35
(Non-major city)		
Toronto	0.0005*	3.07
Montreal	0.0008**	3.49
Vancouver	-0.0001	-0.22
(Age 15-24 years)		
Age 25-39 years	-0.0022**	-21.81
Age 40-49 years	-0.0024**	-25.03

PR discouraged Variable	0.0022 dy/dx	z
Age 50-59 years	-0.0023**	-22.5
Age 60 plus	-0.0035**	-27.15
(Single)		
Married	-0.0012**	-3.31
Divorced/separated/widow	-0.001**	-5.89
(No child < 12 years)		
Child 0-5 years	-0.0006**	-3.51
Child 6-12 years	-0.0003	-1.24
(Less than high school grad)		
High school grad	-0.0005**	-4.94
Some post secondary	0.0007**	4.32
Trade certificate	-0.0007**	-5.03
College	-0.0005**	-4.35
Bachelor's degree	-0.0004*	-2.29
Above bachelor's degree	-0.0002	-0.68
(Spouse employ/single)		
Spouse unemployed	0.0026**	3.55
Spouse unempMV	0.0005	1.39
Sample N	1263407	
Wald chi2	4563.69	
Prob > chi2	0	
Pseudo R2	0.1037	

Discussion

Using data from the *Canadian Labour Force Survey* for the years 2007 to 2012 inclusive, the present study has sought to examine the differential impact of the Great Recession on Aboriginal peoples in Canada. Before highlighting the findings of the study, a few important limitations of the present research bear mention. With respect to the methodology, the estimates of the probability of unemployment presuppose labour force participation as a condition for inclusion in the sample. In reality, however, it is highly likely that many of the considerations that determine labour force participation are also subsequently related to employment (e.g. van Ham *et al.*, 2001). Secondly, the analysis uses 2007 as a benchmark year to capture the pre-recessionary period in Canada. This one year

of data may not provide a sufficiently detailed portrait of the Canadian labour market prior to the recession. However, it is not possible to include earlier years as the Aboriginal identity question was only asked in all provinces beginning in January of 2007 (Statistics Canada, 2012a). Finally, as noted, the LFS excludes individuals living on reserves and in the territories, which may result in biased estimates since the most economically vulnerable individuals, those living on reserves, are excluded from the analysis. Based on the 2006 Census, approximately 40 percent of First Nations peoples live on-reserve (Statistics Canada, 2010). Not only is this a sizable portion of the First Nations population, but, by many indicators, the on-reserve population is among the most economically vulnerable groups in the Country. According to the Assembly of First Nations (AFN), in 2006, the labour force participation rate of First Nations people living on-reserve was 52 percent, while the unemployment rate was 25 percent (AFN, 2011).

Consistent with previous reports of Aboriginal labour market activity (e.g. Statistics Canada, 2011b; Usalcas, 2011; Zietsma, 2010), the findings of the present analysis support the first hypothesis that the Great Recession disproportionately burdened Aboriginal peoples. This is evidenced most clearly by the fact that the gap in the estimated probabilities of unemployment at the highest levels compared to the pre-recessionary period in 2007 is sizably larger for Aboriginals than for non-Aboriginals. Considering the models that do not include industry controls from Table 3 (i.e. those that include persons who have been unemployed for more than twelve months), the estimated probability of unemployment among non-Aboriginals peaked in 2009 at 6.8 percent, 1.9 percentage points higher than in 2007. For Aboriginals, estimated probabilities of unemployment peaked a year later in 2010 at 12.4 percent, 3.2 percentage points above pre-recessionary levels. Among those with the strongest labour force attachments, estimated probabilities of unemployment for both Aboriginal and non-Aboriginal peoples had nearly returned to the pre-recessionary levels by 2012. It appears as though the effects of the Great Recession were most pronounced and enduring for Aboriginal persons with weaker labour force attachment.

Considering the correlates of the probability of unemployment in 2012, for example, the fact that Aboriginal persons aged 25 to 29 years were not significantly less likely than their younger counterparts to be unemployed perhaps points to the difficulty that Aboriginal youth have in accessing employment opportunities. The decomposition of the difference in the estimated probabilities of unemployment between Aboriginal and non-Aboriginal persons summarized in Table 6 reveals that 47 percent of the gap in the probability of unemployment is attributable to differences in endowment characteristics between Aboriginal and non-Aboriginal labour force participants, while the majority (53 percent) of the gap is due to differential returns to observable characteristics or unobservable factors not

captured in the current models. A detailed sub-decomposition of the endowments portion of the gap reveals that if Aboriginal people had the same distribution of post-secondary education (college, bachelor's degree and above bachelor's degree) as non-Aboriginal people, this would reduce the gap in the probability of unemployment by a total of roughly 31 percent.[7] This finding highlights the importance of education in the present labour market. All six levels of educational attainment above "less than high school" were negatively related to the probability of unemployment. Addressing the education gap between Aboriginal and non-Aboriginal peoples remains an important issue for both policy and future research. Citing the findings of a report by Sharpe and Arsenault (2009), Sharpe and Gee (2012, 9) summarize, "[…] closing the education and labour market outcome gaps between Aboriginal and non-Aboriginal Canadians by 2026 would lead to cumulative benefits of 400.5 billion (2006 dollars) in additional output."

The portion of the difference in the probability of unemployment between Aboriginal and non-Aboriginal labour force participants that is attributable to differing returns to endowments or unobservable characteristics may account for any number of factors. The potential for discrimination in the labour market is one possible factor that may be captured in this "unexplained" portion of the gap. The role of potential discrimination towards Aboriginal persons in the labour market is an important area of further research insofar as such biases may pose significant barriers to employment. A recent survey of Aboriginal peoples living in large urban centres across Canada found that roughly 70 percent of Aboriginal respondents believed that non-Aboriginal people maintained negative perceptions of Aboriginal Canadians (UAPS, 2010).

The second hypothesis, that Aboriginal people are more likely than non-Aboriginal people to be discouraged workers, was partially supported. Aboriginal identity was positively and statistically significantly related to the probability of being a discouraged worker in 2008 though to and including 2010, as well as in 2012. The fact that an increased likelihood of being a discouraged worker among Aboriginal peoples also coincides with the timing of the onset and duration of the recession also lends further support to the first hypothesis.

The results of this study demonstrate that the Great Recession did in fact disproportionately burden Aboriginal peoples. Economic recovery from the recession was observed among those with strong labour force attachments, while greater, more persistent disadvantage following the crisis remained for those with longer-term unemployment. This finding underscores the importance of education, job-training and job creation programs, particularly for Aboriginal youth. Efforts to reduce barriers to employment should also include research to identify, and institutional changes to address, the potential role of discrimination against Aboriginal peoples as an additional obstacle to labour market success.

Notes

1 Estimates for 2007 use the same sampling weight for both Aboriginal and non-Aboriginal groups, as the unique Aboriginal weight was not added to the LFS until 2008. The pooled models, the decomposition and the model estimating the probability of being a discouraged worker use the general sampling weight (finalwt) rather than the Aboriginal weight as these models include both Aboriginal and non-Aboriginal respondents together.

2 For the models estimating the probability that an individual is a "discouraged worker" the condition of labour force participation is relaxed. Models estimating the probability of being a discouraged worker are estimated on the entire sample, which includes both labour force participants as well as those not in the labour force.

3 The variable spouse unempMV was added to the models to avoid dropping respondents who had a missing value for spousal labour force status.

4 A similar cautionary note surrounding issues of selection bias should also be applied to the interpretation of the estimates for the probability of unemployment, as the sample was restricted to labour force participants.

5 Detailed model output for the other years discussed in the analysis is available from the author upon request.

6 Discouraged worker is coded from the variable "Not in LF Detail" (NLFDTAIL) and includes two categories: NLFDTAIL=1 "wanted work, available for work but discouraged" and NLFDTAIL=4 "temporary layoff, looking for work, short-term future start or wanted work (discouraged) but not currently available for work." Since discouraged workers are captured in the last group (wanted work, but unavailable) they are included in this analysis as discouraged workers (Statistics Canada, 2012a).

7 The results of the detailed sub-decomposition from mvdcmp (Powers, Yoshioka and Yun, 2011) are not shown here, but are available from the author upon request.

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SUMMARY

The Economic Impact of the Great Recession on Aboriginal People Living off Reserve in Canada

The present analysis seeks to examine whether the 2008 recession had a differential impact on Aboriginal as compared to non-Aboriginal Canadians as measured by the differences in the probability of unemployment between the two groups. Specifically, the present study tests two hypotheses: 1- Aboriginal people have been disproportionately burdened by the Great Recession as compared to non-Aboriginal people, and as a consequence; 2- Aboriginal people are more likely than non-Aboriginal people to be discouraged workers.

The study uses data obtained from the master files of the Canadian Labour Force Survey for the years 2007 to 2012 inclusive to estimate the probability that an individual is unemployed based on a set of observable characteristics for a sample of labour force participants. The methodology begins by estimating a pooled model across all years, which includes controls for Aboriginal identity. Secondly, individual models of the probability of unemployment are estimated for each year for Aboriginal and non-Aboriginal labour force participants. The difference in the probability of unemployment from pooled models estimated separately for Aboriginal and non-Aboriginal peoples are decomposed to reveal the proportion of the gap that is due to differences in observable characteristics between the two groups and the amount of the gap that is attributable to differential returns to those characteristics. To investigate the second hypothesis, the study estimates the probability that a respondent is a discouraged worker based on the entire sample of both economically active and inactive persons (i.e. labour force participants and well as those not in the labour force).

The results of both the pooled and individual models of the probability of unemployment support the first hypothesis, that Aboriginal peoples were disproportionately burdened by the 2008 recession as seen in higher and more enduring probabilities of unemployment. By the 2012, estimated unemployment rates had roughly returned to their pre-recessionary levels for Aboriginal and non-Aboriginal respondents with strongest labour force attachments. When individuals with weaker labour force attachments (i.e. those who have been unemployed for more than twelve months) are included in the analysis, the gap between the probability of unemployment for Aboriginal and non-Aboriginal persons widens. Furthermore, the second hypothesis, that Aboriginal people are more likely to be discouraged workers, was supported, as Aboriginal people were more likely to be discouraged workers in 2008-2010 and 2012.

KEYWORDS: Aboriginal persons, unemployment, discrimination, discouraged worker.

RÉSUMÉ

L'impact économique de la Grande Récession de 2008 sur les Autochtones vivant hors-réserve du Canada

La présente analyse cherche à déterminer si la récession de 2008 a eu un impact différencié sur les Canadiens autochtones, comparativement aux Canadiens non autochtones, en se basant sur les différences de probabilité de chômage entre les deux groupes. Plus spécifiquement, deux hypothèses sont formulées : 1- Les Canadiens autochtones ont été davantage frappés par cette « Grande Récession » et, par voie de conséquence; 2- Ils sont plus susceptibles que les Canadiens non autochtones de devenir des travailleurs découragés.

L'étude utilise les données du fichier maître de *l'Enquête sur la population active* (EPA) pour les années 2007 à 2012 inclusivement, afin d'estimer la probabilité pour une personne active de se retrouver en chômage à partir d'un ensemble de caractéristiques observables d'un échantillon de personnes faisant partie de la population active. Méthodologiquement, nous débutons l'analyse par l'estimation d'un modèle de données groupées couvrant les six années, lequel inclut des variables de contrôle pour l'identité autochtone. Puis, des modèles individuels (données non groupées) de la probabilité de se retrouver en situation de chômage sont estimés pour chacune des années retenues pour les participants autochtones et non autochtones. Les différences de probabilité de chômage estimées séparément pour les deux groupes dans le modèle de données groupées sont, ensuite, décomposées pour distinguer la proportion de l'écart attribuable à des différences de caractéristiques observables entre les deux groupes et celle attribuable aux différences de rendements sur ces caractéristiques. Pour vérifier la seconde hypothèse, l'étude estime la probabilité qu'un répondant soit un travailleur découragé à partir de l'échantillon entier des personnes économiquement actives et inactives (c'est-à-dire tant les personnes participantes à la population active que celles non participantes).

Les résultats des deux modèles, données groupées et données non groupées, de la probabilité de se retrouver en chômage appuient la première hypothèse à l'effet que les personnes autochtones ont été plus durement frappées par la récession de 2008 avec des probabilités plus élevées et plus durables. À la fin de la période, soit en 2012, les taux de chômage estimés avaient retrouvé leur niveau d'avant récession tant pour les répondantes et répondants autochtones que non autochtones affichant un attachement plus solide à la population active. Lorsqu'on inclut les personnes affichant un moindre attachement à la population active (c'est-à-dire celles ayant été en chômage pour une durée de plus de 12 mois) dans l'analyse, l'écart de probabilité de chômage entre les deux groupes s'accroît au détriment des personnes autochtones. De plus, la seconde hypothèse, à l'effet que les personnes autochtones sont plus susceptibles d'être des travailleurs découragés, s'avère supportée pour la période 2008 à 2010 et en 2012.

MOTS-CLÉS : Autochtones, chômage, discrimination, travailleur découragé.

RESUMEN

El impacto económico de la gran recesión en la población autóctona de Canadá

El presente análisis se propone estudiar si la recesión de 2008 ha tenido un impacto diferencial para los canadienses autóctonos en comparación con los canadienses no autóctonos sobre la base de diferencias con respecto a la probabilidad de desempleo entre los dos grupos. Específicamente, el presente estudio verifica dos hipótesis: 1- La población autóctona ha sido agobiada desproporcionadamente por la Gran recesión comparativamente a la población no autóctona, y como consecuencia de ello; 2- la población autóctona es más propensa que la población no autóctona a desalentarse del trabajo.

El estudio utiliza datos obtenidos del banco de datos de la *Fuerza de trabajo de Canadá (Canadian Labour Force)* por los años 2007 a 2012 para estimar la probabilidad que un individuo sea desempleado basándose en un conjunto de características observables, utilizando una muestra de participantes. La metodología comienza con la estimación de un modelo combinado cubriendo todos los años del estudio, y que incluye controles según la identidad autóctona. En segundo lugar, los modelos individuales de probabilidad del desempleo son estimados para cada ano por los participantes autóctonos y por los participantes no autóctonos. La diferencia de probabilidad de desempleo estimados con los modelos combinados de manera separada para los participantes autóctonos y los no autóctonos, son descompuestos para revelar la proporción de la distancia debida a la diferencia de características observables entre los dos grupos y la amplitud de dicha distancia que es atribuible a las remuneraciones diferenciales correspondientes a esas características. Para investigar la segunda hipótesis, el estudio estima la probabilidad que un participante sea un trabajador desalentado basándose en la muestra completa de la población económicamente activa y de la población inactiva.

Los resultados de los modelos combinados y de los modelos individuales de probabilidad de desempleo confirman la primera hipótesis, es decir que la población autóctona fue desproporcionadamente agobiada por la recesión de 2008 tal como lo reflejan las probabilidades más elevadas y más duraderas de desempleo. Por el año 2012, las tasas de desempleo estimadas han bruscamente regresado a sus niveles pre-recesión para los participantes con alta integración en el mercado de trabajo, autóctonos y no autóctonos. Cuando los individuos con niveles de integración débiles (por ejemplo, aquellos que habían estado en desempleo por más de doce meses) son incluidos en el análisis, la distancia entre la probabilidad de desempleo para los autóctonos y los no autóctonos se amplifica. Más aún, la segunda hipótesis, que la población autóctona era más propensa a desalentarse del trabajo, fue confirmada: las personas autóctonas fueron más desalentados del trabajo durante el periodo 2008-2010 y en 2012.

PALABRAS CLAVES: los aborígenes, desempleo, dismininación, trabajador desalentado.