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REGIONAL DISPARITIES IN CANADA: INTERPROVINCIAL OR URBAN/RURAL?

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***Abstract** - The nature of regional disparities in Canada is analysed in this paper, with a focus on their interprovincial or urban/rural nature. Starting by presenting a traditional approach to regional disparities in Canada, we show that statistics indeed lead us to believe that there are important interprovincial disparities in Canada. Using the “Modified” Beale Codes approach which divides census divisions into more or less urban/rural categories, we then produce econometric results which again confirm the presence of interprovincial disparities, but also of urban/rural disparities in Canada. If we test for the presence of interprovincial disparities amongst only similar census divisions rather than all census divisions, we arrive at the conclusion that a certain amount – but by no means all – regional disparities in Canada are indeed urban/rural disparities rather than interprovincial disparities and that these interprovincial disparities are less important than initially thought. Our results are very important for policy development. Principally, the fact that some provinces are lagging other in socio-economic measures may have more to do with the relative level of urbanity or rurality present in these provinces, rather than of better or worst policies, labour forces, entrepreneurial spirit, etc.*

Key Words: REGIONAL DISPARITIES, PROVINCES, URBAN, RURAL, CANADA, REGIONAL DEVELOPMENT POLICIES

JEL Classification: O18, R12, R58.

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INTRODUCTION

In Canada, provinces have traditionally been used to analyse regional disparities (e.g. Anderson, 1988; Brodie, 1990; Corbeil, 2000; Coulombe, 1997; Coulombe, 1999; Coulombe and Day, 1999; Coulombe and Tremblay, 2001; Courchene, 1981; Economic Council of Canada, 1978; Pérusse, 1997; Polèse, 1981; Savoie, 2001). In this paper, we demonstrate that such a provincial approach to regional disparity analysis is incomplete and that the incorporation of an urban-rural framework is required to fully understand regional disparities in Canada.

Various forms of urban-rural frameworks have been used in past studies (e.g. Alasia, 2003; Campbell, 2002; Coulombe, 2007; OECD, 2002; Polèse and Shearmur, 2003), but the focus of these studies has rarely been regional disparities. In fact, recent publications analysing regional disparities generally maintains the interprovincial framework (e.g. Coulombe and Tremblay, 2009; Department of Finance Canada, 2006; Kavcic, 2009; National Bank of Canada, 2008). One of the reasons which leads to the selection of the provincial framework – although rarely evoked in the literature – may very well be the absence of key statistics at the sub-provincial level. For example, gross domestic product (GDP) and productivity levels are generally not available at the sub-provincial level.

Urbanization is nevertheless often presented as an important factor to explain disparities. Serge Coulombe has regularly made reference to this. In 2000 (Coulombe, 2000, p.713) he wrote that “[p]rovincial relative per capita income steady states are determined by the relative rates of urbanization.” In 2003 (Coulombe, 2003, p.249) he argued that “... human capital is a necessary but not sufficient condition for being wealthier in the long run.” He adds that “[w]hat is necessary and sufficient is human capital concentration coupled with higher urbanization.” In 2007, he – with Tremblay (Coulombe and Tremblay, 2007, p.976) argued that “... the accumulation of human capital, along with a limited set of structural variables such as the urbanization rate, can explain a very substantial portion of the evolution of differences in per capita income across Canadian provinces since 1951.” Campbell (2002, 74), on the other hand, minimises the importance of urban-rural differences: “... neither wage nor labour productivity levels vary over the Canadian rural/urban structure the way some theorists have speculated, particularly for those who emphasize the role of urbanisation economies in creating an urban hierarchy.” Urbanization is also identified as a key factor by Corbeil (2000) in a study focusing on literacy levels. On the other hand, Edgerton, Peter and Roberts (2008) do not refer to urban-rural differences to explain disparities in educational achievement.

We will thus demonstrate that urban/rural disparities are very important in Canada. This is different from most studies which generally have an ‘either/or’ approach: a region is either urban or rural, as opposed to an approach where there are degrees of ‘urbanity’ or ‘rurality’. Analysing regional disparities in the country using exclusively an interprovincial framework leads

to incomplete conclusions. In a perspective of policy development, it is of paramount importance to better understand the nature of regional disparities.

In section 1, we present a traditional picture of regional disparities in Canada, using provinces and territories. In the following section, we present the “Modified Beale Codes”, an approach using two broad categories: metropolitan regions and non-metropolitan regions, which are in turn divided in sub-categories. Section 3 presents comparable results disparities from a provincial, an urban-rural and a combined perspective. In section 4, we analyse the results for each of our five Modified Beale Codes categories, on a provincial basis. We conclude with some policy implications as well as suggestions for future research.

1. REGIONAL DISPARITIES IN CANADA

Canada is a federation of ten provinces and three territories (Map 1). These three territories (Yukon, the Northwest Territories and Nunavut) are sparsely populated and have no constitutional recognition. Their powers are those delegated by the federal government. Another special characteristic of Canada is that it is an officially bilingual country (English and French). At the same time, only one province – New Brunswick – is officially bilingual.

What is the status of regional disparities in Canada? Although progress has been made (e.g. Coulombe, 1997; Coulombe, 2000), important challenges remain (e.g. Savoie, 1997; Savoie, 2006). Several have been very critical of government regional development policies (e.g. McMahon, 1997; McMahon, 2000a; McMahon, 2000b; Mintz and Smart, 2003). Others have argued that regional government policies were facing huge obstacles and should not be blamed for the slow progress (e.g. Savoie, 2001; Savoie, 2006). But the evaluation of regional government policies is not the goal of this paper. We rather want to present an alternative – or more precisely a complementary – framework to analyse regional disparities. This is important because it could in turn lead to generating different conclusions both pertaining to the kind of regional policies required and to the effectiveness of past and present policies.

Let us first examine the scope of the land, initially, an analysis of provincial disparities in Canada. We chose five different variables for our analysis. The first, population growth, can arguably be considered a proxy of the region’s dynamism. Second, per capita income is often included in disparities studies. We prefer employment income as opposed to total income as the former is a better reflection of regional conditions while the later income sources such as government transfers. The third and fourth variables – participation and employment rates – describe local labour market conditions. The last variable – adult population without a high school degree – is a proxy for basic literacy and numeracy skills, a growing requirement in today’s increasingly knowledge-based economy.

Canada’s population is growing, but not all provinces are experiencing such a trend (Table 1). Between 2001 and 2006, two Canadian provinces

experienced a net population decline, and a group of five provinces – Saskatchewan and the four Atlantic Provinces – all have a population growth rate below 1% for the entire 5-year period. On the other hand, the provinces of Ontario and Alberta as well as Canada’s three territories saw their population increased at rates above the national average. Although this may be viewed as a normal outcome of market forces where individuals migrate to regions offering better economic opportunities, such a situation creates policy challenges for regions/provinces losing or having stagnating population (Polèse and Shearmur, 2002).

Map 1: Canada – Provinces and Territories



Source : <http://www.scholastic.ca/bookfairs/contact/>

Employment income statistics for 2005 offer similar results. Alberta and Ontario are the only provinces, with the three territories, where employment income was above the national average. The four Atlantic Provinces and Saskatchewan are at the end for the ranking, behind Manitoba and Québec.

Labour force statistics also again tell a tale of provincial disparities, although some provinces such as Saskatchewan and Prince Edward Island perform somewhat better than in the two previous cases. Two of the territories, the “central block” provinces that are Alberta, Saskatchewan, Manitoba and Ontario as well as Prince Edward Island had participation rates and employment rates above the national average.

Table 1: Selected Socio-Economic Indicators, Canada, Provinces and Territories²

	Population Variation 2001-2006	Average Employment Income, 2005	Participation Rate, 2006	Employment Rate, 2006	No High-School Degree, Adults, 2006
NL	-1.5 %	\$28 002	58.9 %	47.9 %	33.5 %
PE	0.4 %	\$25 574	68.2 %	60.7 %	26.5 %
NS	0.6 %	\$29 958	62.9 %	57.2 %	26.8 %
NB	0.1 %	\$28 353	63.7 %	57.3 %	29.4 %
QC	4.3 %	\$32 639	64.9 %	60.4 %	25.0 %
ON	6.6 %	\$39 386	67.1 %	62.8 %	22.2 %
MA	2.6 %	\$31 318	67.3 %	63.6 %	29.5 %
SK	-1.1 %	\$30 773	68.4 %	64.6 %	30.2 %
AB	10.6 %	\$42 439	74.0 %	70.9 %	23.4 %
BC	5.3 %	\$34 978	65.6 %	61.6 %	19.9 %
YU	5.9 %	\$37 908	78.1 %	70.7 %	22.7 %
NT	11.0 %	\$46 750	76.5 %	68.6 %	33.0 %
NU	10.2 %	\$37 997	65.3 %	55.2 %	57.3 %
CND	5.4 %	\$36 301	66.8 %	62.4 %	23.8 %

Source: Statistics Canada Census.

Finally, turning our attention to the percentage of the adult population without a high school degree, we again find provinces such as British Columbia, Ontario and Alberta outperforming the other provinces while provinces like the Atlantic Provinces and Saskatchewan are at the bottom of the rankings.

One could ask whether the fact that the dependant variables could be highly interdependent may generate results that just reflect to what is happening to the dominant variable, for example population growth. Looking at Table 2 where we present for the 10 census divisions with the highest population growth rate between 2001 and 2006 the ranking for the four other dependant variables, we realize that although there seems to be dependence, it is far from being generalize. Furthermore, even the presence of a high level of dependence would not be a problem as these variables only serves to analyse interprovincial disparities compared to urban/rural disparities, rather than to find, for example, which variable has the highest level of disparity. If anything, it would be a case of having too many variables in our analysis.

In Section 1, we have presented results for five variables to highlight the existence of provincial disparities in Canada. While the rankings are not totally consistent, one can see that a general pattern emerges with the Atlantic Provinces and Québec being laggards and the central provinces and the territories being at the “front of the pack”. But is this picture, which is the usual

² Definitions of acronyms are presented in Appendix 1.

one presented when discussion regional disparities in Canada, the appropriate one?

Table 2: Ranking of Census Division with Highest Population Growth Rates for Four Variables (Total of 288 Census Divisions)

Top Ranking CD for Population Growth, 2001-2006	Rank for Average Employment Income, 2005	Rank for Participation Rate, 2006	Rank for Employment Rate, 2006	Rank for No High-School Degree, Adults, 2006
1. Mirabel (Québec)	91	11	7	195
2. Division No. 16 (Alberta)	1	2	1	264
3. York (Ontario)	5	52	57	277
4. Les Collines de l'Outaouais (Québec)	20	43	44	221
5. Les Pays d'en Haut (Québec)	10	177	182	280
6. Vaudreuil-Soulanges (Québec)	35	24	27	268
7. Peel (Ontario)	21	39	53	270
8. Halton (Ontario)	2	34	37	286
9. Les Moulins (Québec)	72	22	20	218
10. Matawinie (Québec)	217	272	249	92

Source: Statistics Canada Census.

2. REVISITING REGIONAL DISPARITIES IN CANADA: METHODOLOGY AND DATA

In section 2, we present a methodology to incorporate urban/rural differences in our analysis. Our objective is not to argue that our approach is the best. There are indeed numerous approaches to include urban/rural differences in an analysis. Our principle objective is to demonstrate that an approach or a framework including urban/rural differences is required to understand the full nature of disparities. In fact, we go further and argue that even a simple urban/rural analysis where a region is either urban or rural is not sufficient: a certain hierarchy of urban-ruralness is required. In the Canadian context, du Plessis et al. (2002) offer several alternatives approaches in their analysis of the *Definitions of "Rural"*. These are briefly presented in Appendix 2. We have chosen, for the present analysis, the "Modified Beale Codes" in order to pursue our analysis of regional disparities. The principle reason for this choice is the use of the census division as the geographical unit of reference, with easily accessible data, and the fact that it is not an either urban or rural approach.

The "Modified Beal Codes" were developed by Philip Ehrensaft in 1990, applying to Canadian census divisions (CDs) codes developed by Calvin Beale at the United States Department of Agriculture in 1975 (du Plessis et al. 2002. p.12). The definitions are the following (du Plessis et al. 2002. p.13):

Metropolitan Regions

- *Major metropolitan*: central and fringe census divisions (CDs) of urban settlements of 1 million or more people.
- *Mid-sized metropolitan*: CDs containing urban settlements of 250,000 to 999,999 people.
- *Smaller metropolitan*: CDs containing urban settlements of 50,000 to 249,999.

Non-Metropolitan Regions

- *Non-metropolitan small city zone*: non-metropolitan CDs containing urban settlements of 20,000 to 49,999 people.
- *Small town zone*: non-metropolitan CDs containing urban settlements of 2,500 to 19,999.
- *Predominantly rural*: non-metropolitan CDs containing no urban settlements (i.e., no places of 2,500 or more people)
- *Northern hinterland*: CDs that are entirely or in major part north of the following parallels by region: Newfoundland and Labrador, 50th; Québec and Ontario, 49th; Manitoba, 53rd; Saskatchewan, Alberta and British Columbia, 54th; and all of the Yukon, Northwest Territories, and Nunavut.

For our econometric analysis, we have combined the Modified Beale Codes categories in five groups:

- 1) Major Metro
- 2) Mid-sized Metro
- 3) Smaller Metro
- 4) NonMetro Urban (non-metropolitan small city zone and small city zone)
- 5) Rural (predominantly rural and northern hinterland).

We used dummy variables for the provinces and territories as well as for the five Modified Beale Codes categories. In the case of the provinces and territories, Ontario is the reference unit. In the case of the categories, Major Metro is the reference unit. For the third regression, following a methodology presented by Kennedy (1992, p. 218), both Ontario and Major Metro are the reference units. This means that econometric results for a given variable have to be interpreted as whether and to what extent the results for the given variable are different from the results for the reference unit.

The number of census divisions (CDs) for the various categories for each province, territory and Canada as a whole as well as the percentage of the province's, territory's and Canada's population in the given category is presented in Table 3. The data used for our analysis is taken from Statistics Canada's 2006 Census.

An important element can be observed in Table 3. Canadian provinces and territories are far from being homogeneous. Some are much more urban

while others are much more rural. As will become clearer in the next sections, we argue that one has to take into account this reality when analysing regional disparities in Canada.

Table 3: Number of Census Divisions and Percentage of Population by Category, 2006

	Major Metro		Mid-sized Metro		Smaller Metro		NonMetro Urban		Rural	
	#	% Pop.	#	% Pop.	#	% Pop.	#	% Pop.	#	% Pop.
NL	0	0.0	0	0.0	1	49.1	7	42.1	2	8.8
PE	0	0.0	0	0.0	1	53.5	1	32.8	1	13.7
NS	0	0.0	1	40.8	1	11.6	10	38.6	6	9.0
NB	0	0.0	0	0.0	6	57.2	7	36.9	2	5.9
QC	11	45.7	3	10.7	10	15.0	69	26.9	6	1.6
ON	8	55.0	5	20.8	11	10.7	21	12.0	4	1.4
MA	0	0.0	1	55.4	0	0.0	11	28.7	11	15.9
SK	0	0.0	0	0.0	2	48.0	13	45.5	3	6.5
AB	0	0.0	2	68.0	3	11.9	13	18.5	1	1.6
BC	1	51.5	1	8.4	4	12.5	16	25.0	6	2.6
YU	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0
NT	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0
NU	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0
CND	20	38.8	13	21.9	39	14.7	168	21.4	48	3.1

Source: Author's calculations from Statistics Canada census data.

3. REVISITING REGIONAL DISPARITIES IN CANADA: INTERPROVINCIAL OR URBAN-RURAL?

In section 3, we present econometric results for the five variables presented in section 1. For each variable, we first present results from a provincial perspective followed by results from an urban/rural perspective and then a combined provincial/urban/rural analysis. As mentioned earlier, in the three cases, dummy variables are used, with Ontario – the most populous Canadian province – being the provincial/territorial reference unit and MajorMetro being the urban/rural reference unit.

We can observe in Table 4 that the majority of the provinces and territories have significant differences with Ontario's population growth rate. Of those, four had a significantly lower population growth rate and three had a significantly higher population growth rate.

While these results strongly hint at the presence of interprovincial disparities in Canada, we also see that results for the Modified Beale Codes regression offer a compelling case for the presence of urban/rural disparities, with more rural regions having lower population growth rates compared to more urban regions. What's more, the adjusted R-squared for the Modified Beale Codes is slightly higher than for the provinces. In the combined analysis, significant levels do change for some provinces and territories. Three additional cases become significant while two are no longer. The Adjusted R-squared result is much higher.

Econometric results for employment income also confirm the presence of both interprovincial and urban/rural disparities in Canada (Table 5). Ten provinces and territories have employment income significantly different than Ontario's. Of these all but two have lower levels. In turn, while MidsizedMetro regions did not have significantly different employment income levels compared to MajorMetro regions, the three more rural categories had significantly lower levels. Adjusted R-squared results is higher for the provincial effect compared to the urban-rural effect, but again the combined analysis yields better results.

Table 4: Population Growth (2001 to 2006) Regression Results: Provincial, Beale and Combined Effects

	Provinces		Modified Beale Codes		Provinces and Urban-Rural	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Intercept	4.208	0.000	10.995	0.000	11.110	0.000
Newfoundland – Labrador	-9.181	0.000			-6.636	0.000
Prince Edward Island	-4.675	0.164			-2.711	0.367
Nova Scotia	-6.325	0.000			-4.162	0.004
New Brunswick	-5.215	0.002			-3.440	0.023
Québec	-1.106	0.266			-0.033	0.971
Manitoba	-3.352	0.020			-0.634	0.638
Saskatchewan	-7.919	0.000			-5.528	0.000
Alberta	1.950	0.203			3.477	0.012
British Columbia	-3.637	0.007			-1.835	0.131
Yukon	1.692	0.767			5.164	0.316
Northwest Territories	5.642	0.166			9.114	0.015
Nunavut	6.292	0.062			9.764	0.002
Mid-sized Metropolitan			-3.279	0.106	-3.412	0.063
Smaller Metropolitan			-7.784	0.000	-6.793	0.000
Non-Metropolitan Urban			-10.406	0.000	-9.429	0.000
Rural			-10.861	0.000	-10.375	0.000
R ²	0.237		0.221		0.404	
Adjusted R ²	0.203		0.210		0.369	

Turning our attention to labour market statistics, we find that only half of the provinces and territories have participation rates that are significantly different than Ontario's (Table 6). Half of these six cases are higher than

Ontario's rate, the other three lower. Results from an urban/rural perspective again offer results significantly lower for the three more rural categories. The R-squared result is much lower for the urban-rural effect compared to the provincial effect, but the combined effect is still greatest.

Table 5: Employment Income Regression Results: Provincial, Beale and Combined Effects

	Provinces		Modified Beale Codes		Provinces and Urban-Rural	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Intercept	34 348.96	0.000	38 147.50	0.000	40 549.78	0.000
Newfoundland – Labrador	-9 953.51	0.000			-7 636.62	0.000
Prince Edward Island	-9 997.29	0.001			-8 170.68	0.001
Nova Scotia	-8 357.63	0.000			-6 473.82	0.000
New Brunswick	-7 152.36	0.000			-5 223.02	0.000
Québec	-5 501.49	0.000			-4304.29	0.000
Manitoba	-7 063.74	0.000			-4 987.21	0.000
Saskatchewan	-6 922.13	0.000			-4.589.02	0.000
Alberta	3 760.04	0.005			5 319.95	0.000
British Columbia	-2 379.42	0.042			-698.41	0.495
Yukon	3 559.04	0.473			5 674.54	0.192
Northwest Territories	9 803.04	0.006			11 918.54	0.000
Nunavut	1 850.04	0.526			3 965.54	0.131
Mid-sized Metropolitan			-477.81	0.804	-1 769.90	0.248
Smaller Metropolitan			-6 942.04	0.000	-6 935.99	0.000
Non-Metropolitan Urban			-9 507.30	0.000	-8 829.98	0.000
Rural			-8 535.08	0.000	-8 316.32	0.000
R ²	0.384		0.229		0.546	
Adjusted R ²	0.357		0.218		0.519	

Results for employment rates are not much different than those for participations rates (Table 7). Less than half of the provinces have employment rates significantly different than Ontario's, four of the five significantly different being lower than the Ontario rate. Results from an urban/rural perspective are consistent, with again results significantly lower for the three more rural categories. Results for the combined effects are also generally similar to those for the participation rate.

Table 6: Participation Rate Regression Results: Provincial, Beale and Combined Effects

	Provinces		Modified Beale Codes		Provinces and Urban-Rural	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Intercept	64.735	0.000	70.020	0.000	70.584	0.000
Newfoundland – Labrador	-8.044	0.000			-6.146	0.001
Prince Edward Island	3.599	0.283			5.312	0.092
Nova Scotia	-5.290	0.001			-3.686	0.013
New Brunswick	-1.908	0.251			-0.205	0.896
Québec	-2.078	0.036			-1.229	0.192
Manitoba	0.500	0.725			2.262	0.108
Saskatchewan	2.788	0.073			4.663	0.002
Alberta	9.113	0.000			10.420	0.000
British Columbia	0.840	0.529			2.237	0.078
Yukon	13.365	0.019			15.373	0.005
Northwest Territories	9.415	0.021			11.423	0.004
Nunavut	-0.568	0.865			1.440	0.657
Mid-sized Metropolitan			-0.858	0.704	-2.805	0.139
Smaller Metropolitan			-5.748	0.001	-7.031	0.000
Non-Metropolitan Urban			-6.660	0.000	-7.802	0.000
Rural			-5.920	0.001	-7.857	0.000
R ²	0.303		0.089		0.402	
Adjusted R ²	0.273		0.076		0.367	

Finally, results for the percentage of adults without a high school degree confirm the presence of interprovincial disparities (Table 8). We have nine provinces and territories with significantly different results, all having a higher percentage than Ontario's. The results from an urban/rural perspective are consistent with the previous results: the more rural regions have significantly worse results than more urban regions. It is noteworthy that the gap gets much wider, the more rural a category is.

Table 7: Employment Rate Regression Results: Provincial, Beale and Combined Effects

	Provinces		Modified Beale Codes		Provinces and Urban-Rural	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Intercept	60.584	0.000	66.280	0.000	67.325	0.000
Newfoundland – Labrador	-17.838	0.000			-15.344	0.000
Prince Edward Island	-0.484	0.905			1.977	0.604
Nova Scotia	-8.389	0.000			-6.209	0.001
New Brunswick	-4.577	0.024			-2.545	0.183
Québec	-2.926	0.015			-2.042	0.074
Manitoba	0.442	0.798			3.195	0.062
Saskatchewan	3.155	0.094			5.408	0.003
Alberta	10.037	0.000			11.425	0.000
British Columbia	-0.269	0.868			1.553	0.313
Yukon	10.116	0.143			14.230	0.030
Northwest Territories	4.216	0.392			8.330	0.079
Nunavut	-7.017	0.085			-2.903	0.462
Mid-sized Metropolitan			-0.888	0.758	-3.107	0.177
Smaller Metropolitan			-7.188	0.001	-8.037	0.000
Non-Metropolitan Urban			-7.953	0.000	-8.713	0.000
Rural			-9.772	0.000	-10.855	0.000
R ²	0.372		0.096		0.461	
Adjusted R ²	0.345		0.084		0.429	

Finally, the combined effect generates a higher Adjusted R-squared than the two effects in isolation. Furthermore, three significant variables for the provincial effect are no longer significant in the combined analysis while for another the change was in the opposite direction.

Before concluding the section, let us examine the possibility that we are in the presence of multicollinearity of independent variables. As indicated by

Corlett (1990, p.158), “multicollinearity means that the variables are so inter-correlated in the data that the relations are ‘almost exact’.” In fact, there is some correlation between the variables of provinces and of urban/rural, as we can observe in Table 3. For example, 19 of the 20 major metro divisions are in Québec and Ontario. At the other extreme, the three territories only have rural census divisions, but this accounts for only 6 of the country’s 288 census divisions.

Table 8: No High School Degree Regression Results: Provincial, Beale and Combined Effects

	Provinces		Modified Beale Codes		Provinces and Urban-Rural	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Intercept	26.176	0.000	22.000	0.000	20.289	0.000
Newfoundland – Labrador	14.552	0.000			10.533	0.000
Prince Edward Island	2.658	0.524			-0.448	0.900
Nova Scotia	6.769	0.001			3.334	0.048
New Brunswick	4.851	0.020			2.736	0.127
Québec	5.056	0.000			3.432	0.001
Manitoba	13.329	0.000			8.235	0.000
Saskatchewan	10.130	0.000			6.738	0.000
Alberta	4.124	0.030			2.494	0.128
British Columbia	-0.704	0.672			-3.525	0.015
Yukon	-3.476	0.624			-11.552	0.059
Northwest Territories	12.124	0.017			4.048	0.360
Nunavut	33.258	0.000			25.182	0.000
Mid-sized Metropolitan			-0.046	0.985	-0.129	0.952
Smaller Metropolitan			4.131	0.035	4.006	0.018
Non-Metropolitan Urban			10.370	0.000	9.009	0.000
Rural			17.212	0.000	13.963	0.000
R ²	0.368		0.333		0.549	
Adjusted R ²	0.340		0.323		0.522	

While it is true, as we have stated earlier, that some provinces are more relatively more urban and other provinces are relatively more rural, we can

conclude that we are not in the presence of exact multicollinearity. Arguably, we are in the presence of some multicollinearity, but this seems insufficient to generate a bias in our conclusions.

What can we conclude with the results presented in section 4? Based on our analysis of econometric results for five variables, it seems clear that there are generally interprovincial disparities in Canada. What is even clearer is that there are urban/rural disparities with more urban regions performing better than more rural ones. Finally, an analysis combining both effects consistently generates better results.

4. REVISITING REGIONAL DISPARITIES IN CANADA: INTERPROVINCIAL OR URBAN-RURAL II?

Results in section 3 beg the question: are interprovincial disparities the result of provincial urban/rural differences? In other words, are the interprovincial disparities simply the reflection of urban/rural disparities, or are there other factors at play? In section 4, we will analyse econometric results, by urban/rural categories, for the five variables using provincial dummy variables. If the disparities are strictly urban/rural, we should find no significant provincial differences for a given Modify Beale code category.

Table 9: Population Growth Regressions by Modified Beale Code

	Major Metro		Mid-sized Metro		Smaller Metro		Non-metro Urban		Rural	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Intercept	10.912	0.001	5.520	0.014	2.236	0.057	2.443	0.012	2.800	0.313
NL					0.064	0.987	-7.229	0.000	-10.633	0.015
PEI					-5.236	0.190	-0.843	0.852	-2.800	0.650
NS			-3.820	0.389	-6.886	0.023	-3.983	0.020	-5.820	0.121
NB					-2.496	0.226	-4.868	0.009	0.000	1.000
QC	-0.449	0.900	7.347	0.033	3.614	0.035	-1.134	0.304	-2.333	0.513
MA			-3.120	0.478			-0.843	0.608	-2.827	0.382
SK					-0.486	0.867	-7.220	0.000	-5.533	0.194
AB			6.480	0.081	8.297	0.002	0.473	0.762	20.700	0.002
BC	-4.413	0.589	0.480	0.911	2.339	0.293	-0.449	0.759	-10.583	0.005
YU									3.100	0.615
NT									7.050	0.145
NU									7.700	0.074
R ²	0.018		0.673		0.531		0.230		0.629	
Adj. R ²	-0.098		0.439		0.406		0.186		0.502	

Focusing first our analysis to population growth (Table 9), we find that provincial disparities in a given categories are the exception, rather than the norm. For Major Metro areas, we have no significant provincial differences. For Mid-sized Metro regions, we only have one significant difference out of the five possibilities. For Smaller metro, we have three significant differences out of

eight possibilities, while we have four significant differences out of nine possibilities for Non-Metro Urban regions and three significant differences out of twelve possibilities for rural regions. We can thus conclude that while there are indeed some interprovincial disparities present, they are not present in the majority of cases.

With the exception of Non-Metro Urban regions, employment income does not generate important interprovincial disparities (Table 10). For Major Metro regions, we have one significant case out of two, for Mid-sized Metro, we have zero out of five, for Smaller Metro, we have three out of eight, for non-Metro Urban we find important regional disparities with seven significant cases out of nine and finally, for rural regions, we have two significant cases out of twelve possibilities. We thus arrive at a similar if not even stronger conclusion that while there are indeed some interprovincial disparities present, they are not present in the majority of cases.

Turning our attention to the labour market, we find first for the participation rate that we again cannot conclude that we are in the presence of important interprovincial disparities (Table 11). Significant cases are for the five categories: zero of two, two of five, two of eight, five of eight and four of twelve. The employment rate generates similar results with: zero of two, two of five, three of eight, four of nine and one of twelve (Table 12). Again, we arrive at the conclusion that while there are indeed some interprovincial disparities present, they are not present in the majority of cases.

Table 10: Employment Income Regressions by Modified Beale Code

	Major Metro		Mid-sized Metro		Smaller Metro		Non-metro Urban		Rural	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Intercept	41603.3	0.000	38173.2	0.000	32903.0	0.000	32412.6	0.000	29202.5	0.000
NL					-1239.0	0.708	-9493.3	0.000	-3785.5	0.383
PEI					-11118.0	0.002	-4649.6	0.205	-5695.5	0.370
NS			-9068.2	0.068	-8921.5	0.001	-6313.1	0.000	-3246.3	0.394
NB					-5351.2	0.004	-6152.8	0.000	853.5	0.862
QC	-5921.7	0.004	-571.9	0.844	-1813.4	0.196	-5209.8	0.000	-2357.7	0.519
MA			-4626.2	0.308			-4537.3	0.001	-3076.6	0.354
SK					1378.5	0.572	-5134.3	0.000	-5701.8	0.192
AB			6196.3	0.095	2900.7	0.166	3397.0	0.008	33 193.5	0.000
BC	-3976.3	0.342	-3528.2	0.429	-643.3	0.728	-1471.2	0.216	3926.5	0.286
YU									8705.5	0.174
NT									14949.5	4858.4
NU									6996.5	4284.7
R ²	0.394		0.649		0.562		0.437		0.668	
Adj. R ²	0.322		0.398		0.445		0.405		0.555	

Table 11: Participation Rate Regressions by Modified Beale Code

	Major Metro		Mid-sized Metro		Smaller Metro		Non-metro Urban		Rural	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Intercept	69.350	0.000	67.540	0.000	62.264	0.000	64.667	0.000	59.150	0.000
NL					-0.264	0.958	-10.781	0.000	2.317	0.678
PEI					6.836	0.177	4.033	0.397	8.050	0.328
NS			-3.940	0.198	-5.164	0.166	-4.117	0.022	-1.810	0.712
NB					-0.304	0.906	-2.829	0.144	9.800	0.128
QC	1.450	0.402	4.493	0.045	2.526	0.231	-3.880	0.001	1.533	0.745
MA			0.460	0.873			3.070	0.078	3.332	0.437
SK					8.136	0.033	3.441	0.037	3.917	0.484
AB			6.610	0.017	10.436	0.002	8.810	0.000	22.350	0.009
BC	-2.550	0.517	-2.140	0.465	2.686	0.338	-0.848	0.583	11.350	0.021
YU									18.950	0.025
NT									15.000	0.023
NU									5.017	0.371
R ²	0.084		0.750		0.425		0.475		0.441	
Adj. R ²	-0.023		0.571		0.271		0.445		0.249	

Table 12: Employment Rate Regressions by Modified Beale Code

	Major Metro		Mid-sized Metro		Smaller Metro		Non-metro Urban		Rural	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Intercept	65.262	0.000	63.300	0.000	57.873	0.000	60.843	0.000	53.925	0.000
NL					-3.973	0.471	-20.500	0.000	-9.292	0.203
PEI					1.827	0.740	1.657	0.774	4.175	0.693
NS			-4.700	0.183	-13.273	0.002	-6.703	0.002	-3.865	0.543
NB					-3.413	0.235	-5.843	0.014	9.975	0.227
QC	2.056	0.305	5.367	0.039	2.867	0.218	-5.250	0.000	-1.208	0.843
MA			1.200	0.717			3.948	0.062	3.020	0.584
SK					9.027	0.032	3.780	0.059	3.875	0.592
AB			7.650	0.016	11.927	0.001	9.342	0.000	24.175	0.027
BC	-2.263	0.617	-0.700	0.832	2.702	0.382	-0.802	0.424	7.975	0.196
YU									16.775	0.118
NT									10.875	0.189
NU									-0.358	0.960
R ²	0.094		0.743		0.568		0.545		0.378	
Adj. R ²	-0.013		0.560		0.453		0.519		0.165	

Finally, for the percentage of adult population without a high school degree, we again arrive at similar conclusions (Table 13). For Major Metro regions, we have no significant cases out of two. For Mid-sized Metro regions we also have no significant cases, this time out of five possibilities. For Smaller

Metro regions, we have one significant case out of eight possibilities. For Non-Metro Urban, we here have seven significant cases out of nine possibilities. For rural regions, we have three significant cases out of twelve possibilities. Consequently, we must again conclude that while there are indeed some interprovincial disparities present, they are not present in the majority of cases.

Table 13: No High-School Degree Regressions by Modified Beale Code

	Major Metro		Mid-sized Metro		Smaller Metro		Non-metro Urban		Rural	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Intercept	21.125	0.000	21.820	0.000	25.545	0.000	28.124	0.000	33.225	0.000
NL					0.355	0.934	13.733	0.000	9.808	0.125
PEI					6.655	0.128	-7.324	0.199	0.275	0.976
NS			9.380	0.056	8.955	0.008	4.496	0.037	0.095	0.986
NB					3.595	0.112	5.264	0.024	-6.925	0.334
QC	1.939	0.139	0.147	0.959	-0.855	0.634	5.076	0.000	6.208	0.247
MA			1.280	0.764			7.213	0.001	11.939	0.017
SK					-2.695	0.396	7.707	0.000	14.108	0.030
AB			-1.420	0.663	2.555	0.344	4.915	0.013	-12.125	0.193
BC	-3.825	0.198	-6.520	0.155	-3.445	0.158	-3.199	0.084	-0.992	0.852
YU									-10.525	0.257
NT									5.075	0.478
NU									26.208	0.000
R ²	0.249		0.582		0.409		0.325		0.595	
Adj. R ²	0.160		0.283		0.252		0.286		0.457	

From our analysis, we can conclude that a certain amount – but by no means all – regional disparities in Canada are indeed urban/rural disparities rather than interprovincial disparities.

5. CONCLUSION

We have demonstrated that, in Canada, regional disparities are as much – if not more – urban/rural than interprovincial in nature. Further research is required to identify other sources of disparity. Industrial structure warrants special attention. Now, why are our results important? It is because they generate several policy implications. First and foremost, the fact that some provinces are lagging others in socio-economic measures may have more to do with the relative level of urbanity or rurality present in the province, rather than of better or worst policies, labour forces, entrepreneurial spirit, etc. We can in fact argue that it is simplistic to analyse regional development in Canada strictly on a provincial basis. One has to include an urban/rural component to the analysis if one hopes to get a complete picture. In fact, given the concentration of major metropolitan areas in only three provinces and adding this to the fact that these major metropolitan areas generally far outperform all other areas in the field of economic performance, it may be futile to have as a policy objective an important reduction of provincial disparities. Furthermore, limiting our

analysis to provincial disparities may hide the fact that more rural regions within better performing provinces may be facing challenges just as great – if not greater – than more rural regions within lagging provinces. A more in-dept analysis of this question warrants future research.

One should not conclude from our results that provincial-based programs or initiatives should be abandoned in order to concentrate exclusively economic development efforts on lagging non-metropolitan regions. The absence of the dynamic major metropolitan areas for seven provinces and of both major metropolitan and mid-sized metropolitan areas for four provinces is a significant factor. More importantly, by not having the presence of larger metropolitan areas, several provinces are at a disadvantage from a fiscal perspective (absence of revenues from these dynamic centres) as well as from a development perspective (absence of these economic catalyts) (Polèse and Shearmur 2002). Hence the continued need for programs such as equalization remains.

Finally, our analysis is static, with the exception of population growth for a small five-year period. An analysis of trends over a longer – ten or even twenty-five year – period could prove enlightening. Furthermore, our choice of variables may have had an impact on our results. A more in dept analysis with more variables is warranted.

REFERENCES

- Alasia, A., 2003, *Disparités infraprovinciales des revenus au Canada : données de 1992 à 1999*, Série de document de travail sur l'agriculture et le milieu rural, Numéro 63, Ottawa : Statistiques Canada, 21-601-MIF.
- Anderson, F. J., 1988, *Regional Economic Analysis: A Canadian Perspective*, Toronto: Harcourt, Brace, Jovanovich, Canada.
- Brodie, J., 1990, *The Political Economy of Canadian Regionalism*, Toronto: Harcourt, Brace, Jovanovich, Canada.
- Campbell, R. W., 2002, *Wages and Labour Productivity in Canada: Across the Provinces and Over the Rural/Urban Divide*, Master of Science Thesis, McGill University.
- Corbeil, J.-P., 2000, *Literacy in Canada: Disparity Between Francophones and Anglophone*, Ottawa: Statistics Canada, 89-573-XIE.
- Corlette, W., 1990. "Multicollinearity" In J. Eatwell, M. Milgate and P. Newman (eds). *Econometrics*, The New Palgrave. New York: W.W. Norton & Company. 158-159.
- Coulombe, S., 1997, *Regional Disparities in Canada: Characterization, Trends and Lessons for Economic Policy*. Ottawa: Industry Canada, Working Paper Number 18.

- Coulombe, S., 1999, *Economic Growth and Provincial Disparity: A New View of an Old Canadian Problem*, Commentary No 122, Toronto: C.D. Howe Institute.
- Coulombe, S., 2000, "New Evidence of Convergence Across Canadian Provinces: The Role of Urbanization," *Regional Studies*, 34(8): 713-725.
- Coulombe, S., 2003, "Human Capital, Urbanization and Canadian Provincial Growth," *Regional Studies*, 37(3):239-250.
- Coulombe, S., 2007, "Globalization and Regional Disparity: A Canadian Case Study," *Regional Studies*, 41(1): 1-17.
- Coulombe, S. and K. M. Day, 1999, "Economic Growth and Regional Income Disparities in Canada and the Northern United States," *Canadian Public Policy / Analyse de Politiques*, 25(2): 155-178.
- Coulombe, S. and J.-F. Tremblay, 2001, "Human capital and regional convergence in Canada," *Journal of Economic Studies*, 28(3): 154-180.
- Coulombe, S. and J.-F. Tremblay, 2007, "Skills, Education, and Canadian Provincial Disparities," *Journal of Regional Science*, 47(5): 965-991.
- Coulombe, S. and J.-F. Tremblay, 2009, "Migration and Skills Disparities across Canadian Provinces," *Regional Studies*, 43(1): 5-18.
- Courchene, T. J., 1981, "A Market Perspective on Regional Disparities," *Canadian Public Policy / Analyse de Politiques*, 7(4) : 506-518.
- Department of Finance Canada, 2006, *Budget 2006 – Annex 2: Recent Evolution of Fiscal Balance in Canada*, www.fin.gc.ca/budget06/fp/fpa2-eng.asp.
- du Plessis, V., R. Beshiri, R. Bollman and H. Clemenson, 2002, *Definitions of "Rural"*, Ottawa: Statistics Canada. Agriculture and Rural Working Paper Series, Working Paper No. 61.
- Economic Council of Canada, 1978, "Regional Growth and Disparities," In N.H. Lithwick (ed.) *Regional Economic Policy: The Canadian Experience*, Toronto: McGraw-Hill Ryerson Limited.
- Edgerton, J.D., T. Peter and L.W. Roberts, 2008, "Back to the Basics: Socio-Economic, Gender and Regional Disparities in Canada's Educational System," *Canadian Journal of Education*, 31(4): 861-888.
- Kavcic, R., 2009, "Canada-wide Recession Ends Regional Disparity," *Economic Research – Provincial Update*, BMO Capital Markets, www.bmonesbittburns.com/economics.
- Kennedy, P., 1992, *A Guide to Econometrics, Third Edition*, Cambridge: The MIT Press.

- McMahon, F., 1996, *Looking the Gift Horse in the Mouth: The Impact of Federal Transfers on Atlantic Canada*, Halifax: Atlantic Institute for Market Studies.
- McMahon, F., 2000a, *Retreat from Growth: Atlantic Canada and the Negative Sum Economy*, Halifax: Atlantic Institute for Market Studies.
- McMahon, F., 2000b, *Road to Growth: How Lagging Economies Become Prosperous*, Halifax: Atlantic Institute for Market Studies.
- Mintz, J. M. and M. Smart, 2003, *Brooking no Favorities: A New Approach to Regional Development in Atlantic Canada*, Toronto: C.D. Howe Institute, Commentary No. 192.
- National Bank Financial, 2008, "Canada: regional economic disparities to persist," *Weekly Economic Letter*, May 16, 2008.
- OECD, 2002, *OECD Territorial Reviews: Canada*, Paris: Organisation for Economic Co-operation and Development.
- Pérusse, D., 1997, "Regional disparities and non-permanent employment," *Perspectives*, Winter: 39-44, Ottawa: Statistics Canada, 75-001-XPE.
- Polèse, M., 1981, "Regional Disparity, Migration and Economic Adjustment: A Reappraisal," *Canadian Public Policy / Analyse de Politique*, 7(4): 519-525.
- Polèse, M. and R. Shearmur, 2003, *The Metropolitanisation of Canada. Why Populations Continue to Concentrate in and around Large Urban Centres and What it Means for Other Regions*, Inédits, Montréal: INRS-UCS. 2002-05.
- Polèse, M. and R. Shearmur, in collaboration with P.-M. Desjardins and M. Johnson, 2002, *The Periphery in the Knowledge Economy: The Spatial Dynamics of the Canadian Economy and the Future of Non-Metropolitan Regions in Quebec and the Atlantic Provinces*, Montréal: Institut national de la recherche scientifique – Urbanisation, Culture et Société and Moncton: Canadian Institute for Research on Regional Development.
- Savoie, D. J., 1997, *Rethinking Canada's Regional Development Policy: An Atlantic Perspective*, Moncton: The Canadian Institute for Research on Regional Development, Maritime Series.
- Savoie, D. J., 2001, *Pulling Against Gravity: Economic Development in New Brunswick During the McKenna Years*, Montréal: The Institute for Research on Public Policy (IRPP).
- Savoie, D. J., 2006, *Visiting Grandchildren: Economic Development in the Maritimes*, Toronto: University of Toronto Press.

Appendix 1: Definition of Acronyms

NL: Newfoundland and Labrador
 PE: Prince Edward Island
 NS: Nova Scotia
 NB: New Brunswick
 QC: Québec
 ON: Ontario
 MA: Manitoba
 SK: Saskatchewan
 AB: Alberta
 BC: British Columbia
 YU: Yukon
 NT: Northwest Territories
 NU: Nunavut

Appendix 2: Alternative Definitions of Rural

Definition	Main Criteria, Thresholds, and Building Blocks
Census “rural areas”	Population size: Population living <i>outside</i> places of 1,000 people or more; <i>or</i> Population density: Population living <i>outside</i> places with densities of 400 or more people per square kilometre. Building blocks: Enumeration areas (EAs).
“Rural and small town” (RST) Metropolitan area and census agglomeration Influence zones (MIZ)	Labour market context: Population living <i>outside</i> the commuting zone of larger urban centres (of 10,000 or more). Population size/density: Urban areas with populations less than 10,000 are included in RST together with rural areas if they are outside the main commuting zones of larger urban centres. Labour market context: MIZ disaggregates the RST population into four subgroups based on the size of commuting flows to <i>any</i> larger urban centre (of 10,000 or more). Building blocks: census subdivisions (CSDs) (for RST and MIZ).
OECD “rural communities”	Population density: Population in communities with densities less than 150 people per square kilometre. Building blocks: census consolidated subdivisions (CCSs).
OECD “predominantly rural regions”	Settlement context: Population in regions where more than 50 percent of the people live in an OECD “rural community.” Building blocks: census divisions (CDs).
“Non-metropolitan regions” (Ehrensaft’s “Beale codes”)	Settlement context: Population living outside of regions with major urban settlement of 50,000 or more people. Non-metropolitan regions are subdivided into three groups based on settlement type, and a fourth based on location in the North. The groups based on settlement type are further divided into “metropolitan adjacent” and “not adjacent” categories. Population size: Non-metropolitan regions include urban settlements with a population of less than 50,000 people and areas with no urban settlements (where “urban settlements” are defined as places with a population of 2,500 or more). Building blocks: CDs.
“Rural” postal codes	Rural route delivery area: Areas serviced by rural route mail delivery from a post office or postal station. A 0 in the second position of a postal code denotes a “rural” postal code (also referred to as a “rural” forward sortation area [rural FSA]). Building blocks: Canada Post geography.

Source: du Plessis et al. (2002), p. 17.

QUELLE EST LA NATURE DES DISPARITÉS RÉGIONALES AU CANADA : INTERPROVINCIALES OU URBAINES/RURALES ?

***Résumé :** Les analyses concluent en général à l'existence de fortes disparités entre les provinces canadiennes. En appliquant l'approche des «Beales Codes» modifiés, qui séparent les unités spatiales des recensements au Canada selon leur caractère urbain ou rural, nous obtenons des résultats économétriques qui montrent la présence non seulement de disparités entre les provinces, mais aussi et surtout entre les régions rurales et les régions urbaines. Les disparités provinciales sont moins importantes lorsqu'elles sont considérées entre régions du même type, à savoir urbaines ou rurales. Nos résultats peuvent être d'un apport intéressant pour évaluer les politiques régionales de développement. Ainsi, le fait que certaines provinces sont en avance sur d'autres en matière de politique socio-économique peut être davantage lié à leurs niveaux d'urbanisation différents plutôt qu'à la nature même des politiques mises en place.*