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The Geographical Patterns of Socio-Economic Well-Being of First Nations Communities in Canada

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The responsibility for the analysis and interpretation of the data is that of the authors and not of Statistics Canada.

Note of appreciation

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Introduction

A majority of Registered Indians in Canada reside in one or other of the approximately 900 small First Nations communities which form a 5,000 kilometre archipelago across the Canadian landscape. An analysis of census and administrative data from 1986 revealed that there were distinctive geographical patterns of socio-economic characteristics of First Nations (Armstrong and Rogers, 1996). The purpose of this paper is to build on this research in order to explore four questions regarding socio-economic well-being of First Nations communities. First, what is the current geographical patterning of socio-economic well-being of First Nations communities? Next, what do the patterns suggest about possible strategies for socio-economic development open to First Nations? Third, have geographical patterns of well-being changed since 1986? Finally, moving beyond relative comparisons between communities, where do First Nations communities find themselves placed in the socio-economic landscape of non-Aboriginal Canada?

Study Design

General Design

The general approach for exploring the questions posed for this study consists basically of (1) creating groups of First Nations communities based on similarities/dissimilarities of socio-economic characteristics, (2) generating basic descriptive statistics for the groups, (3) mapping the groups and (4) drawing inferences based on comparisons of statistical and geographical patterns of socio-economic circumstances.

Data

Data for this study have been drawn from the 1996 Census of Population. Variables and associated indicators are listed below. The first four variables/indicators serve as measures of socio-economic well-being. The remaining indicators are used to aid in interpretation.

1. *Education*

   Less than grade 9 - percent of the population, ages 20-64, with less than grade 9 education as their highest level of schooling, is employed as the indicator for education. Higher values indicate lower levels of education. This indicator serves as a general indicator of the degree to which a population is inadequately educated for the contemporary economy and can be interpreted as a general proxy for functional illiteracy. While higher levels of educational

attainment might be more useful in assessing education among non-aboriginal populations, the percent of population with no high school varies considerably between First Nations communities. The focus on ages 20-64 captures the education in the work-age population;

2. Employment

Employment ratio - percent of the population, ages 20-64, employed during the week prior to the Census (May 5-11, 1996). This indicator serves simultaneously to provide a sense of the general health of the local wage economy when applied to the total population of a region and the wage employment success of any given sub-population;

3. Income

Average annual income - mean income from all sources, in 1995, for individuals with income. This variable represents the general degree to which a population is able to generate income. It serves as a rough proxy for the general material well-being of a population - confounded by geographical variations in percent of individuals with income, non-market contributions to material well-being, price structures and so on.;

4. Housing

Crowded housing - mean number of persons per room. This serves as a measure for crowded housing conditions. Higher values indicate poorer housing conditions;

5. *Traditional ways*

Aboriginal home language - the percent of the population which speaks an aboriginal language at home. This serves as a proxy for the degree to which a First Nations community has been able to preserve traditional culture. A low percentage of a population with an aboriginal home language does not necessarily indicate assimilation of a First Nation. Such a community may have evolved a distinctive aboriginal culture, but one which has lost some of its traditional elements, including language;

6. *Population structure*

Young population - percent of the population that is aged less than 18 years of age. This is indicative of the fertility of the population and may, where low, indicate out-migration of population from declining regions.

7. *Industry*

Primary occupation - percent of the population which worked in 1995 and reported occupations unique to primary industry. This indicates the relative importance of the

primary sector in an economy.

Study Population

Data were assembled at the census sub-division (CSD) level for Registered Indians and Registered Indian households residing in First Nations communities. For the purposes of this study, First Nations communities were defined as CSDs which were classified as reserves, settlements, Indian Government Districts, terres reservées or villages cris. In 1996, Statistics Canada collected data from 751 First Nations CSDs.[1] Of these, 260 communities with populations less than 65 were eliminated from the data set so as to reduce the number of cases which may have contained artificially induced outlier values due to random rounding. These small communities made up only 2.5 percent of the Registered Indian population of enumerated First Nations communities. This left 491 First Nations communities for analysis. As with the earlier Armstrong and Rogers study (1996), the results of this study cannot be extended to smaller communities and there may be biases introduced by the exclusion of incompletely enumerated communities. Appendix A shows the locations of First Nations communities included in and excluded from this study.

Additional Notes about the Data

Random rounding procedures, applied to data retrieval from the Census database in order to maintain confidentiality, randomly assigns zero-values to counts between one and five. These values would have been treated as missing values by the SPSS software used in the analysis, reducing the number of cases which could be included in analysis. In order to keep these cases in the analysis, zero values assigned by the random rounding process were reassigned values of one.

The data set had some dozen outlier values. These were examined on a case-by-case basis for correspondence with neighboring First Nations communities and, in some cases, inquiries were made with knowledgeable individuals about circumstances in the community. The examination indicated that all these values might be valid, and all such cases were retained in the data set.

Measures and Methods

Four variables were used to represent overall socio-economic well-being: education, employment, income and housing. The selection of only four variables to represent socio-economic well being is based on earlier analysis showing that (1) there are relatively few dimensions of socio-economic well-being for which data are available and (2) the data which are available can be reduced to a small number of factors for which representative indicators can be selected (Armstrong and Rogers, 1996).

[1] Census enumeration was incomplete in 77 First Nations thus missing approximately 44,000 residents.

It should be noted that where means are generated for populations defined for sets of CSDs, these means are the mean of means for the geographical units and not the mean value for the aggregated population of the units combined.

Statistical work was performed using SPSS software, employing the k-means cluster method to identify groups of similar communities. In grouping First Nations communities, a set of seven k-means cluster analyses were run, producing solutions for two through eight groups. In order to maintain "balance" between variables, indicator values were first transformed to Z-scores. A "best" solution among the seven was selected by identifying the solution producing the greatest difference between cluster centers - indicative of being the solution with the greatest between-group differences. MapInfo was used to map the resulting groups.

1996 Typology of First Nations communities

The three-group solution was the best solution for classifying the 491 First Nations communities into groups based on socio-economic well-being. Z-scores indicating relative differences between the groups on the basis of the four variables are displayed in Table 1. Group characteristics are presented in Table 2. Figure 1 shows the geographical locations of the communities by group type. Characteristics of each group are discussed below. It is should be noted that while the communities forming any particular group share similar basic socio-economic conditions, fundamental aspects of the economy and society may vary considerably from community to community within the group. It is important to note that differences in some indicators cannot easily be interpreted in a strictly numeric sense. For example, the meaning of differences in income on socio-economic well-being is blurred by unknown variations between communities in the purchasing power of a dollar and the degree to which the non-market economy contributes to well-being.

Above Average

The three group solution reveals a group of 154 First Nations communities characterized by relatively high employment ratios and individual incomes. The average values for these variables for these communities were more than one standard deviation above the average values for all First Nations communities analyzed in this study. Levels of crowding and incidences of education below grade 9 were lower than for other First Nations communities, but the average values were within one standard deviation of the average value for all First Nations communities. Geographically, the greatest concentrations of Above Average First Nations were found in northern Quebec, mid- and southern-Ontario and in British Columbia, particularly the lower mainland and other southern regions, as well as coastal regions. At the same time, Above Average First Nations communities were found in every province. In some instances Above Average First Nations are found in relatively close proximity to High Disparity communities. Above Average First Nations were home to about 32 percent of the Registered Indian population in this study.

Typical Disparity

The largest of the three groups, 213 cases and about 43 percent of the population, might best be described as having average socio-economic conditions. Termed Typical Disparity communities, education and crowding were marginally higher than the overall average, while employment and income were marginally lower. Typical Disparity communities are relatively prevalent in the Maritimes, southern Manitoba and southern Saskatchewan.

High Disparity

The third group of 124 communities exhibited below average conditions for all four variables. Average values for education and crowding were more than one standard deviation below the overall average. Levels for employment and income were also well below average values for First Nations communities. Fairly high concentrations of High Disparity First Nations are found in mid-Quebec, northwestern Ontario, northern Manitoba and Saskatchewan, and throughout Alberta. About 25 percent of the population lived in High Disparity communities.

Table 1

Z-Scores for the Three-Group Solution, First Nations Communities
Registered Indian Population, 1996

Group	Variable	Education	Employment	Income	Housing
Above Average (n=154)		-0.59	**1.02**	**1.02**	-0.64
Typical Disparity (n=213)		-0.28	-0.27	-0.33	-0.28
High Disparity (n=124)		**1.22**	-0.80	-0.70	**1.27**

General Patterns of First Nations Socio-Economic Well-Being

What kinds of patterns emerge from the typology? First of all, the communities fall along a better-to-worse continuum in the context of the four indicators used to define socio-economic well-being. The "lines" dividing communities into groups should be viewed as cuts along a continuum of well-being rather than representing socio-economic "discontinuities" separating substantially different types of communities. Similarly, at a national-level, the spatial expression of the groups does not result in clear regions of socio-economic well-being. Nevertheless, while the group patterns do not show distinctive regions of group types, there is considerable spatial autocorrelation between types

of First Nations communities and there are general geographical patterns of well-being. The Prairies and Canadian Shield region generally exhibit relatively poor conditions. Southern British Columbia and B.C. coastal regions share, with southern Ontario, concentrations of relatively good conditions. While there is the suggestion of a north-south dimension to variations in conditions, there are pockets of Above Average First Nations communities in northern parts of Alberta, Ontario and northern Quebec.

Paths for Socio-Economic Development

What do the patterns of socio-economic well-being suggest about strategies for socio-economic well-being open to First Nations? To begin with, the general patterns suggest that location near urban areas or resource rich areas provide advantages to development. These patterns illustrate that accessing resources and integrating with urban labour markets are pathways to success. At the same time, the location of some High Disparity First Nations communities near major cities, indicates that location, in itself, is far from the only determinant of well-being. Communities need to analyze and overcome barriers that may be blocking these avenues. Similarly, the location of several Above Average communities in unfavourable locations, indicates that there are possibly many paths that can lead to socio-economic success.

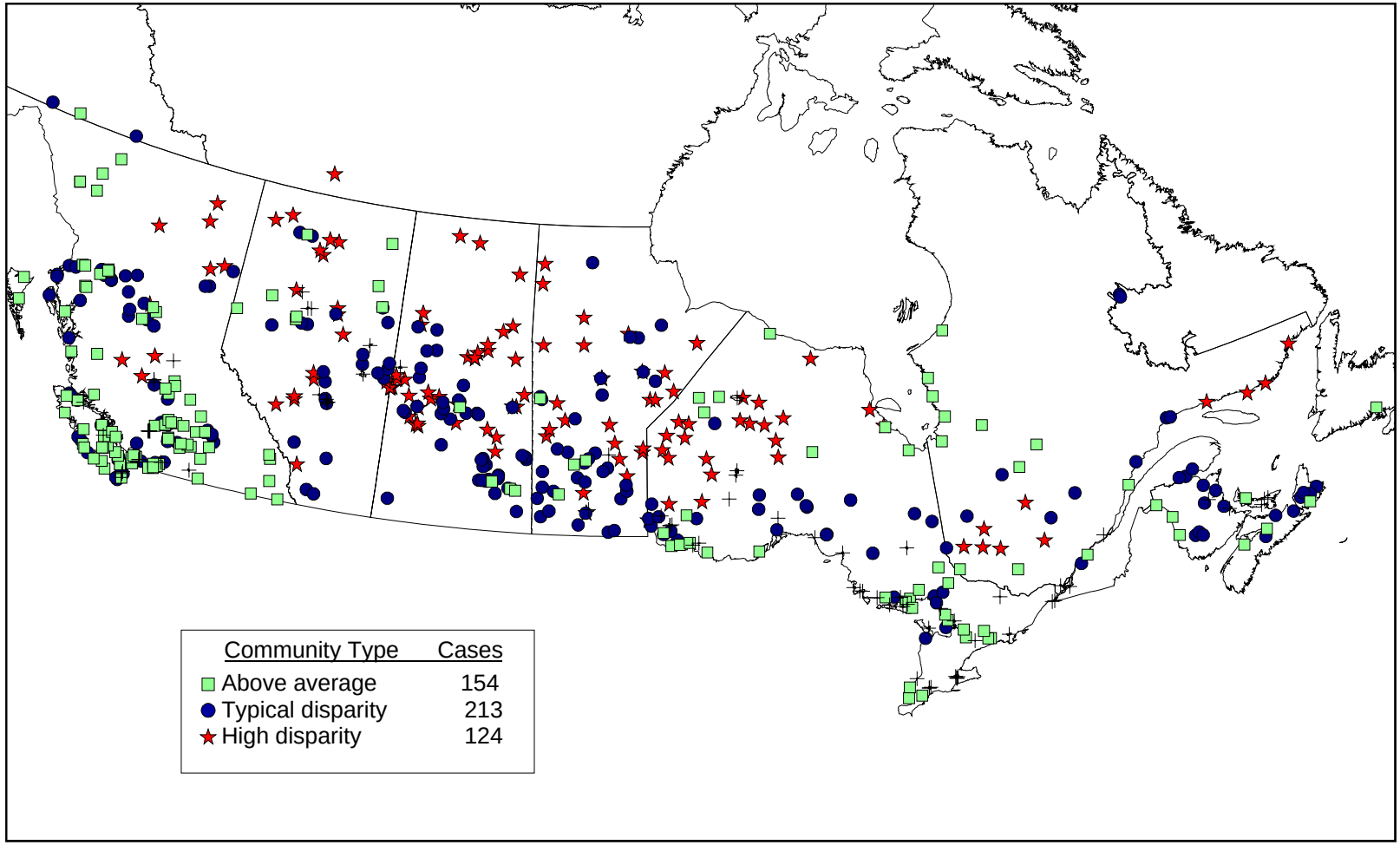
Table 2

Variable Means and Standard Deviations for the Three Group Solution,
First Nations Communities, Registered Indian Population, 1996

Group	**Above Average**		**Typical Disparity**		**High Disparity**	
	Mean	St. Deviation	Mean	St. Deviation	Mean	St. Deviation
Variable						
Education	15.30%	10.04%	20.27%	9.24%	43.95%	14.44%
Employment	59.91%	8.79%	42.40%	9.47%	35.20%	10.16%
Income	$15,668	$2,491	$11,365	$2,238	$10,193	$2003.72
Housing	0.77 ppr*	0.16 ppr	0.87 ppr	0.15 ppr	1.25 ppr	0.20 ppr
Traditional	10.33%	22.42%	15.04%	21.59%	51.72%	31.62%
Youth	38.03%	6.63%	42.67%	9.47%	48.07%	5.83%
Primary occ.	14.39%	10.43%	13.10%	10.28%	11.00%	9.31%

* ppr = persons per room

Figure 1
Socio-Economic Well-Being Typology of First Nations Communities
3 Group, 4 Variable Solution, 1996



There are non-locational characteristics of the three groups which provide indications of why the socio-economic differences exist. The Above Average First Nations communities appear more "modernized" than other First Nations communities. The level of aboriginal home language use is only 10 percent for these communities, compared with 15 percent and 52 percent respectively for Typical Disparity and High Disparity communities. On average, only 38 percent of the population in Above Average communities is aged younger than 18, compared with 43 percent for Typical Disparity communities and 48 percent for High Disparity communities. Coupled with higher levels of education, the general profile for Above Average communities suggests that adapting selected "mainstream" ways of doing things may be the model for socio-economic success.

It is important to look beyond the general when searching for explanations. A small group of eight Above Average communities, seven of which are James Bay Cree communities, are communities where over 89 percent of the population speaks an aboriginal language at home. Another six Above Average communities have 35 percent to 75 percent of the population speaking an aboriginal language at home. A small portion of Above Average First Nations communities have between 45 percent and 55 percent of their population aged under 18. It appears that there may be more than one model for socio-economic success. It is important also to note that loss of language does not necessarily equate an absence of a distinctively aboriginal culture. The relative parallels that Above Average communities share with the general Canadian population may be considerably more superficial than would appear at first glance.

Changes - 1986 to 1996

Are there any reasons to expect changes through time in the socio-economic well-being of First Nations communities? There may well be. The period from 1985 through 1997 represented a period of unprecedented pressure for change and for change itself within the milieu in which First Nations communities operate. Pressures for change have come from a variety of sources including court decisions, civil resistance, Aboriginal leadership, public opinion and a royal commission. During this period, a steady stream of court decisions have been redefining the nature of Aboriginal title, which in turn has been generating a new and evolving relationships between First Nations and both public and private sector interests. These cases include *Guerin v. Attorney General of Canada* (1985), *Sparrow v. Attorney General of Canada* (1990) and *Delgamuukw v. The Queen* (1997). Civil resistance, including armed stand-offs at Kanesatake (Oka), Gustafsen Lake and Ipperwash, polarized public opinion and heightened public awareness of First Nations history, circumstances and issues. Aboriginal leadership, along with other interested parties, has been able to push for change, a push which was reinforced by the establishment of the Royal Commission on Aboriginal Peoples.

If the last dozen years have represented a period of pressure for change, it has also been marked by real changes relevant to First Nations aspirations. During this period Bill C-31 was passed and implemented, ending gender discrimination, resulting in regained or acquired Indian status for over 105,000 individuals and, for many First Nations, new pressures regarding community facilities and questions of community membership. The federal government, while reducing the growth in funding levels to First Nations, implemented new or modified policies regarding land claims, self-government, housing, funding transfer mechanisms, post-secondary education and economic development.

Change has been evident from other quarters as well. Private sector interests, such as those in the primary and financial sectors, have begun to work in partnership with First Nations (Sloan and Hill, 1995). Provinces and, to a lesser extent, municipalities have become involved in processes such as the B.C. Treaty Negotiations and Treaty Land Entitlement in Saskatchewan.

Finally, in addressing issues of well-being, First Nations have enlarged the scope of action beyond the earlier tactics of resistance and political pressure. Examples include the convocation of two Sacred Assemblies to seek spiritually based avenues for healing and change and numerous initiatives by First Nations and tribal councils to effect economic, environmental and social change at the community level (see, for example, Anderson, 1997 and DIAND, 1997).

General Changes in Socio-Economic Well-Being

During the 1986 through 1996 period, there have been changes in socio-economic circumstances on reserves. The employment ratio for Registered Indians aged 15 and over increased from 28 percent to 37 percent. Education levels have also improved. The percent with less than a grade 9 education dropped from 45 percent to 29 percent, while the percent of those with high school graduation or some post-secondary education experience increased from 22 percent to 37 percent. However, not all indicators pointed to positive improvements. Housing conditions eroded slightly, with the percent of houses with more than one person per room increasing from 29 percent to 31 percent. The percent of families that were single parent families increased from 24 percent to 26 percent. Average annual incomes, in constant 1995 dollars, diminished from $12,900 to $12,000.

Geographical Patterns of Community Well-Being, 1986 - 1996

Notwithstanding changes and pressures for change throughout the past decade, to what degree have geographical patterns of relative socio-economic well-being either persisted or changed between 1986 and 1996? A sense of this can be developed by comparing patterns from the 1986 First Nations typology generated by Armstrong and Rogers (1996) to patterns generated using 1996 data. While there are several factors which preclude making an exact comparison, sufficient similarities in methodology can be fashioned so as to structure an instructive comparison.

Four factors prevent an exact comparison between 1986 and 1996 typologies of socio-economic conditions:

- the 1986 study used data which had been aggregated by First Nation, while the 1996 data used

in this study are aggregated by First Nations community. The difference is that some First Nations are comprised of more than one populated First Nations community;

- different sets of First Nations communities were enumerated in each respective Census;
- the 1986 typology employed data both from the Census and from administrative holdings of the Department of Indian Affairs and Northern Development. This introduced further differences in the respective sets of communities for which data were available and for which comparison could be made;
- the 1986 typology was based on 9 variables, some of which, such as percent of workforce with primary sector industrial occupations, might better be considered socio-economic *characteristics* rather than socio-economic *conditions*.

Despite the differences referenced above, a useful quasi-replication of the 1986 typology was created for 1996. Seven of the nine 1986 variables were drawn from the 1996 Census: education, wage employment success, income, housing, traditional ways, population structure and economic structure. Indicators for these variables are replicated here - with some exceptions. First, the education and employment indicators for 1996 focus on the population 20 to 64 years of age, while those used for the 1986 typology focused on the population 15 years of age and over. Additionally, the housing indicator for 1996 focused on crowding rather than presence of central heating. The clustering of the 1986 data produced a five-group typology. One of these groups, the Primary Industry group, was somewhat of an anomaly, having only four members. The Primary Industry group could be considered as a special case of the larger Emerging Economy group. With this in mind, a quasi-replication typology for 1996 was created with four groups rather than five groups and based on the seven variables listed above. Figure 2 geographically displays the 1986 typology, while Figure 3 displays the 1996 quasi-replication.

Keeping in mind the inexactitude of comparisons made between the 1986 typology and the 1996 quasi-replication, are there noteworthy similarities and differences between the two? First, there are similarities of proportion in the distribution of First Nations by relative levels of socio-economic well-being (see Table 3).[2] In 1986, 19 percent of First Nations grouped into the highest two classes, 53 percent grouped into a middle class (Typical Disparity) and 28 percent grouped into the two groups with the greatest disparity. In the 1996 4-group, 7-variable solution, 18 percent were in the highest class, 58 percent were in the middle two classes - which were seen as being characterized has having the upper and lower segments of typical circumstances - and 24 percent were seen has having highly disparate circumstances.

The geographical patterns also exhibit similarities across time when the two typologies are

[2] It should be noted that by adding characteristics which, in themselves, are not indicators of well-being (e.g., percent population under age 18) the results can easily be distorted. If one compares the three-group, four-variable typology with the four-group, seven-variable typology, one can observe how the James Bay Cree First Nations display above average conditions in the former, but are grouped with the High Disparity First Nations in the latter because their young populations and prevalence of Aboriginal language use in the home shifts their overall social-cultural profile closer to that of First Nations which fare poorly in terms of socio-economic circumstances.

compared. Relatively poor conditions can be seen to persist in northwestern Ontario, northern Manitoba and northern Saskatchewan. There is also a persistence of relatively good conditions in southern Ontario, northern Ontario along the U.S. border and in southern British Columbia. At the same time, there is a suggestion that relative conditions have eroded in the northern and central coastal regions of British Columbia and central Alberta, while relative conditions may have been improving in Atlantic Canada and in isolated pockets in the northern parts of provinces from British Columbia to Quebec.

Table 3

Proportional Distribution of First Nations by Levels of Socio-Economic Well-Being 1986 and 1996

Level	1986, 5-group, 9-variable typology		1996, 4-group, 7-variable quasi-replication		
Top	Primary Industry (1%) Emerging Economy (18%)	**19%**	Emerging Economy		**18%**
Middle	Typical Disparity	**53%**	High Average (23%) Low Average (35%)		**58%**
Bottom	High Disparity (23%) Extreme Disparity (5%)	**28%**	High Disparity		**24%**

Location of First Nations Communities in the Non-Aboriginal Socio-Economic Landscape

From the perspective of aggregated statistics, the socio-economic disparities between First Nations circumstances and those of Canadians in general are substantial to say the least. In 1996, 29 percent of the on-reserve Registered Indian population aged 15 and over had less than a grade 9 education and 36 percent had a high school diploma or at least some post-secondary education. Figures for the overall Canadian population were 12 percent and 65 percent respectively. Similarly, the on-reserve population had an employment to population ratio of 37 percent and average annual income of $12,245, compared with an employment ratio of 59 percent and average annual income of $25,196 for Canadians in general. There are also gaps in terms of family and housing arrangements. Registered Indian families on-reserve are twice as likely to be lone parent families (26 percent compared with 13 percent) and dwellings are over six times more likely to be crowded (31 percent compared with 5 percent). It should be noted that these statistics do not adjust for the different age structures of the respective populations. This cloaks the full extent of the gaps and their implications to First Nations peoples, families and communities.

How do these disparities play out across Canada? Are these gaps closed or substantially narrowed anywhere and, if so, where and under what circumstances? How do First Nations communities fit in to the non-Aboriginal socio-economic landscape? Reimer et al. (1997) observed from a review of literature that First Nations economies are linked to local non-aboriginal economies. Further, elements of their empirical work find support for this assertion. However, they were unable either to illustrate the degree of economic integration between First Nations communities and neighboring non-aboriginal populations or to assess the degree to which existing economic integration may have been mutually beneficial. Perhaps an analysis of patterns will yield insights into these questions.

Figure 2
First Nations Typology, 5 Group, 9 Variable Solution, circa 1986

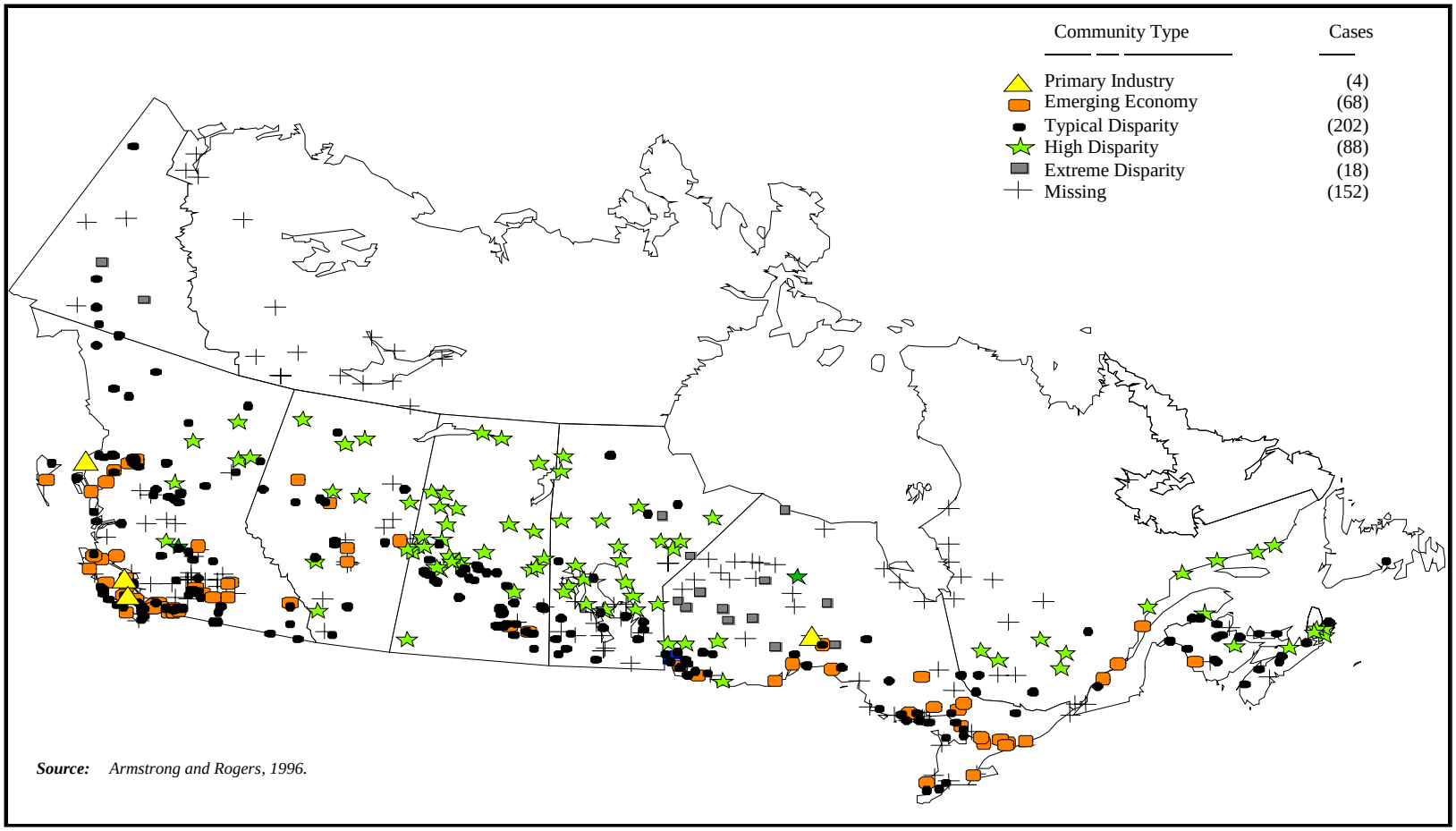
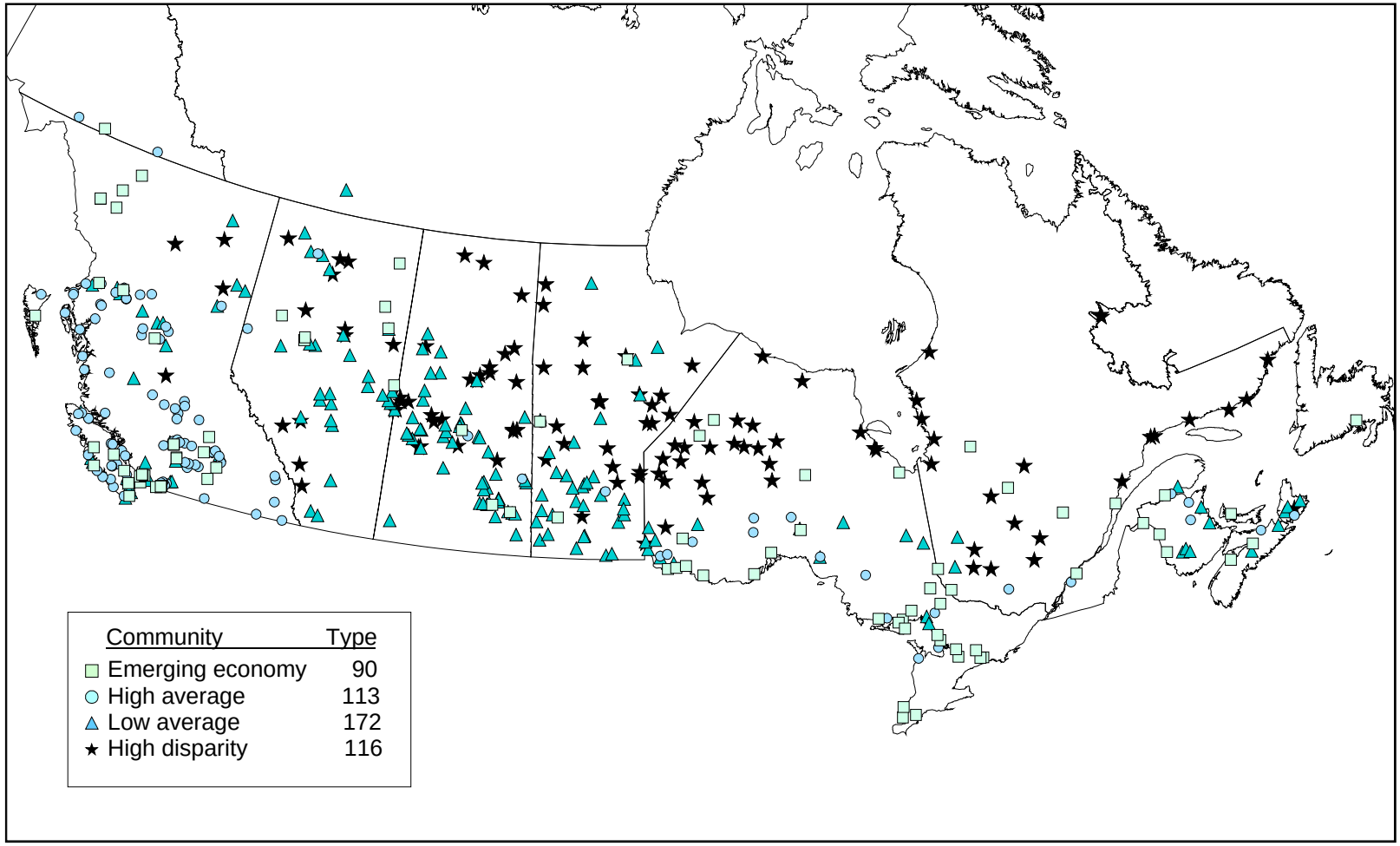


Figure 3
First Nations Typology - Socio Economic Characteristics
4 Group, 7 Variable Solution, 1996



Correlation with Neighbours

One way to examine the place of First Nations communities in the socio-economic landscape is to examine the degree of correlation between the socio-economic circumstances in First Nations communities and the socio-economic conditions for neighboring non-aboriginal populations. A proxy for this analysis was performed by examining the correlation between values in First Nations communities and values for the same variables for the non-aboriginal population in the corresponding census division in which each community was located. For three of the four variables, income, housing and education, there was a statistically significant correlation (at the .0000 level). For employment, the correlation was not significant.

While there were significant correlations for three of the variables, the correlations were very weak: Adjusted R squares were .040 for education, .048 for income and .067 for housing. It would appear, then, that local non-aboriginal economies influence the socio-economic well-being of First Nations communities but, at the geographical scale used in this analysis, the influence appears to be very weak.

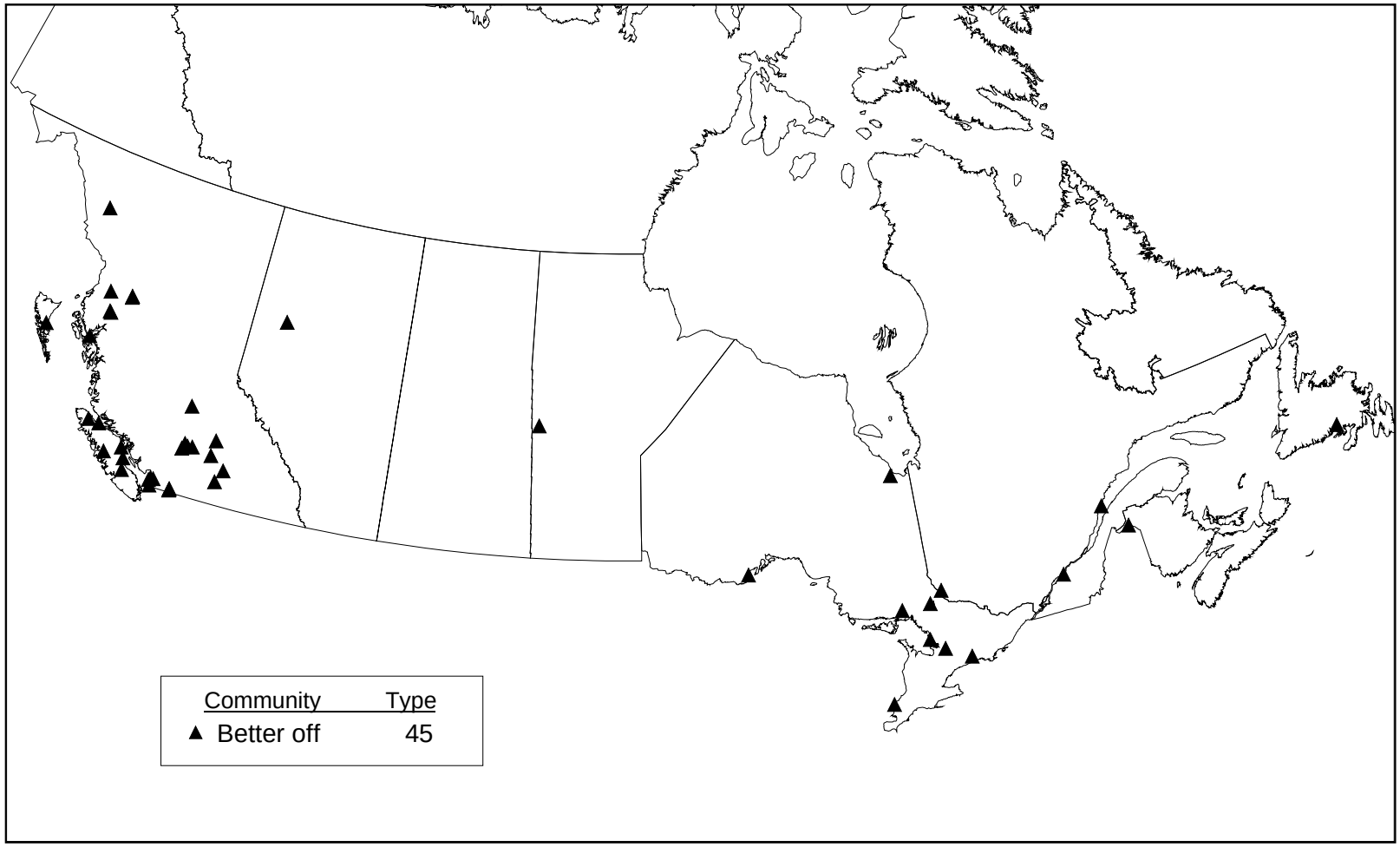
Best of Places, Worst of Places

Another perspective for examining the relative socio-economic location of First Nations can be constructed by identifying a small set of First Nations communities with relatively good conditions and comparing them with non-aboriginal populations. Such a group of "Better Off" communities was drawn from a cluster analysis generating seven clusters, for which the best group was a set of 45 communities located primarily in mid and southern Ontario and in British Columbia's southern and coastal regions (see Figure 4). Compared with the 154 Above Average communities, these communities had generally better levels of socio-economic well-being. They had higher incomes and lower crowding and lower portions of the population having less than grade 9 education. Employment ratios were almost identical but marginally lower. Compared with the Above Average communities, these communities where further characterized by lower levels of Aboriginal language use, a somewhat smaller proportion of population under age 18 and a nearly equivalent portion of the work force engaged in primary sector occupations.

Typology of Non-Aboriginal Canada

In order to examine how Better Off First Nations communities are situated in the socio-economic landscape of non-aboriginal Canada, a picture of this landscape is required. As with First Nations communities, cluster analysis was used to divide the country in to socio-economic regions. Data consisted of the same four indicators used for the First Nations typology. The best solution for the non-aboriginal population in 288 census divisions was the five-group solution. Z-scores indicating relative differences between the groups on the basis of the four variables are displayed in Table 4. Group characteristics are presented in Table 5. Figure 5 shows the geographical locations of the CDs by group type. The groups are discussed below. As with groups of First Nations communities, it is important to note, that while the census divisions forming any particular group may share similar socio-economic characteristics, fundamental aspects of the economy and society may vary considerably from place to place within the group and differences in variables from one group to another, for example, income, may be relative, not absolute.

Figure 4
Better Off First Nations Communities, 1996



Northern Administration

The five census divisions comprising the Northwest Territories as a group comprises a particularly distinct socio-economic environment. The socio-economic characteristics of the non-aboriginal population show levels of employment, basic education and income are much higher than the average values found across the country. At the same time, levels of crowding are also uniquely high. As much of the non-aboriginal population is employed in the public sector, this region has been termed the Administrative North. Less than one-tenth of one percent of Canada's non-aboriginal population lives in this region. As only one First Nations community from the Administrative North is included in this study, little reference will be made to this region.

Main Street

About 42 percent of Canada's non-aboriginal population lives in 103 census divisions which might be termed Main Street. Here, crowding is the lowest in the country and, ignoring the anomalous Northern Administration region, basic education and employment are the highest. Incomes are also relatively high.

Opportunity

About 43 percent of Canada's non-aboriginal population lives in an interesting mix of 65 census divisions that incorporate most of the country's mid-North and several of its largest metropolitan areas - Vancouver, Winnipeg, Toronto, Montreal and Quebec. Outside of the Administrative North, this region has the highest income of the regions ... and the highest levels of crowding. It also has relatively high levels of basic education and employment. Overall, it is much more similar to Main Street than it is to the two poorer regions which will be described next.

Precarious

A group of 64 census divisions with relatively poor conditions might be called "Precarious" because they are not far different from those parts of the country with the poorest conditions. All but seven of these regions are found east of Ontario. While housing conditions are not crowded, education, employment and income are well below average. About nine percent of non-aboriginal population is found in Precarious regions.

Hard Times

A group of 51 census divisions find themselves sharing particularly poor socio-economic conditions. Located east of Ontario and spatially clustered in Newfoundland, Cape Breton, northern New Brunswick, and in small clusters in various regions of Quebec such as Abitibi-Témiscamingue, Laurentides, Lanaudière, Lac-Saint-Jean, Montérégie, Côte-Nord and the Gaspé, parts of this group has the lowest values for basic education, employment and income. Just under six percent of the non-aboriginal population lives in Hard Times.

General Pattern

In very general terms, the typology here represents less of a continuum of circumstances than does the typology of First Nations communities. The Northern Administration group is very distinctive from the other. Main Street and Opportunity groups are not that dissimilar from one another for overall well-being - at least for the variables used in this study. Education and employment indicators were nearly identical. The Main Street group had better housing and the Opportunity group had higher income. With the exception of housing, the Precarious and Hard Times groups displayed substantial differences from the other groups, with the Hard Times group registering particularly weak conditions for education, employment and income. Most parts of the country are places where average conditions for the non-Aboriginal population are good. Exceptions are in the Precarious and Hard Times regions which, for the most part, lie east of Ontario.

Table 4

Z-Scores for the Five-Group Solution
Non-Aboriginal Population, Census Divisions, 1996

Variable / Group	Education	Employment	Income	Housing
Northern Administration (n=5)	**-1.48**	**2.12**	**4.45**	**3.06**
Main Street (n=103)	-0.71	0.58	0.17	-0.77
Opportunity (n=65)	-0.45	0.46	0.60	**1.11**
Precarious (n=64)	0.59	-0.50	-0.61	-0.66
Hard Times (n=51)	**1.42**	**-1.34**	-0.91	0.66

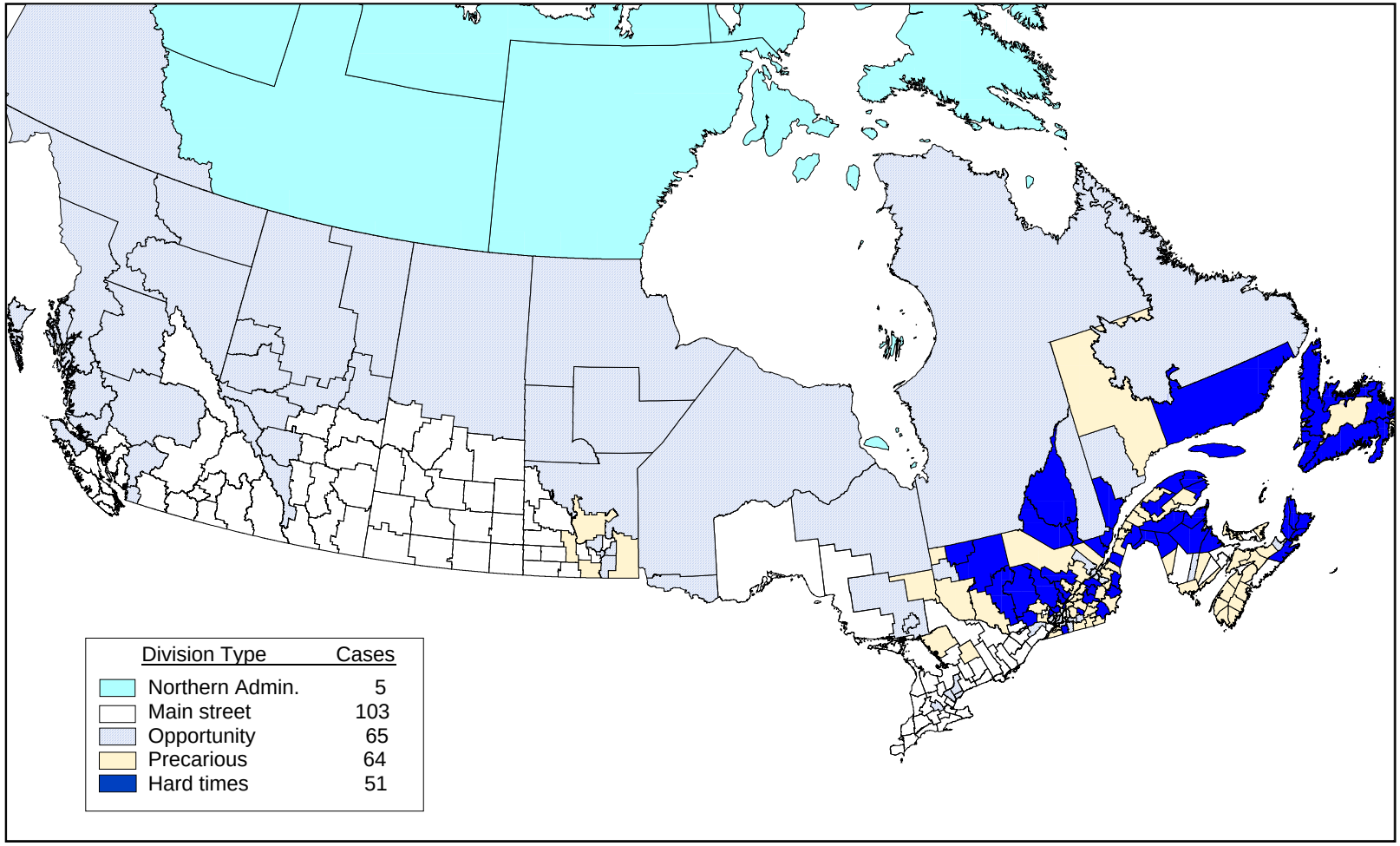
Table 5

Variable Means and Standard Deviations for the Five-Group Solution, Census Divisions, Non-Aboriginal, 1996

Group	**Northern Administration**		**Main Street**		**Opportunity**		**Precarious**		**Hard Times**	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Variable										
Education	1.54%	1.02%	6.34%	2.24%	7.99%	3.64%	14.58%	3.96%	19.77%	4.52%
Employment	91.05%	2.92%	75.70%	5.21%	74.57%	5.73%	64.97%	5.75%	56.63%	8.71%
Income	$44,734	$3,896	$24,092	$2,899	$26,175	$3,511%	$20,317	$1,737	$18,892	$1,730
Housing	0.72 ppr*	0.05 ppr	0.50 ppr	0.00 ppr	0.61 ppr	0.03 ppr	0.51 ppr	0.02 ppr	0.58 ppr	0.04 ppr
Youth	21.09%	3.57%	25.47%	2.29%	26.80%	3.13%	24.28%	2.01%	24.83%	1.87%
Primary occ.	2.13%	1.91%	12.34%	10.94%	7.01%	6.16%	9.33%	6.33%	9.67%	3.69%

* ppr = persons per room

Figure 5
Socio-Economic Well-Being Typology of Non Aboriginal Population in Census Divisions
5 Group, 4 Variable Solution, 1996



How do the Better-Off First Nations communities compare with non-aboriginal populations? In fact, rather poorly. The four indicators of socio-economic well-being compare roughly with the 51 census divisions comprising the "Hard Times" regions of Canada (see Table 6). Above Average First Nations communities overall have somewhat more favourable conditions than Hard Time regions in regards to education and employment. They fall short of these populations in terms of income and housing. In short, the First Nations communities with the best of socio-economic circumstances compare only with the poorest regions of non-aboriginal Canada.

Table 6

Variable Means for "Better Off" and "Above Average" First Nations Communities and for Non-Aboriginal Populations residing in "Hard Times Regions", 1996

Group	**Better Off First Nations communities**	**Above Average First Nations communities**	**Hard Times regions Non-Aboriginal Population**
	Mean	Mean	Mean
Variable			
Education	12.2%	15.3%	19.77%
Employment	58.3%	59.9%	56.63%
Income	$18,177	$15,668	$18,892
Housing	0.69 ppr	0.77 ppr	0.58 ppr
Youth	36.0%	38.0%	24.83%
Primary occ.	14.2%	14.4%	9.67%
Tradition	2.1%	10.3%	n.a.

Local Disparity

A final perspective for examining the socio-economic location of First Nations communities in the context of the non-aboriginal economy involves assessing socio-economic disparities between individual First Nations communities and their local, non-aboriginal populations. A first order approximation for this sort of assessment can be constructed by examining the differences between each First Nations community and the non-aboriginal population in its corresponding census division. In geographically larger and more remote census divisions, much of the non-aboriginal population may be rather distant. To make these comparisons, an index was created by calculating the difference for each community for each of the four "conditions" variables. The measure of difference for each variable was then standardized and the resulting standardized values for each community were summed. The communities were then divided into quintile groups on the basis of this index. The top quintile has the least level of difference and the fifth quintile has the greatest. Figure 6 maps the geographical distribution of disparities. The emerging picture of disparity

suggests that disparity relative to non-aboriginal population has both a North-South dimension and a dimension that differentiates between areas of relatively high disparity which corresponds with the area covered by the "numbered treaties" (northwestern Ontario, the prairie provinces and small parts of northeastern B.C. and southern Northwest Territories) and the rest of the country.[3]

Conclusions

Summary

Examination of socio-economic circumstances for 491 First Nations communities shows that the communities can be conceptualized as three socio-economic groups falling along a better-to-worse continuum defined by education, housing, employment and income. The results indicate that while there are no distinct national-level regions of well-being there is considerable spatial autocorrelation between types of First Nations communities and there are some general geographical patterns of well-being. Communities in the Prairie Provinces and Canadian Shield locations typically have the poorest conditions. Southern British Columbia and the B.C. coast share, with southern Ontario, concentrations of relatively good conditions. While there is the suggestion of a north-south dichotomy in socio-economic conditions, there are pockets of Above Average First Nations communities found in northern parts of Alberta, Ontario and northern Quebec. Above Average communities are characterized by relatively low levels of aboriginal language use at home and by relatively small proportions of their population below age 18. While on the surface this might suggest that assuming certain non-aboriginal ways of doing things represents the model for socio-economic success, exceptions such as the James Bay Cree, with aboriginal home language use well over 90 percent, indicate that there are other paths to improved circumstances and that “aboriginality” need not be sacrificed as part of modernization.

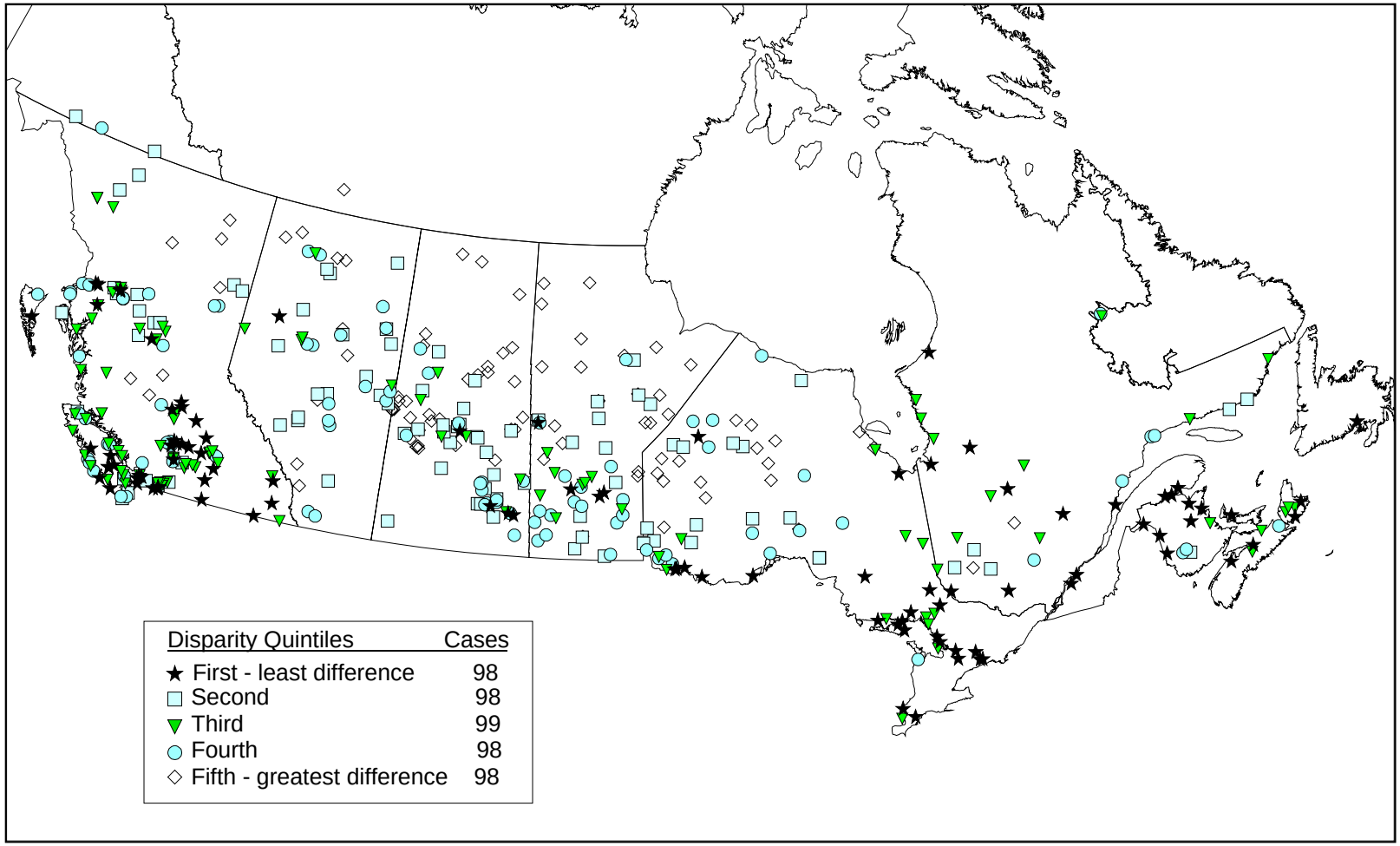
An assessment of change in conditions between 1986 and 1996 suggests that while there has been a high degree of persistence in the geographic patterns of socio-economic well-being, there may have been a relative erosion in circumstances in coastal regions of British Columbia and relative improvements in Atlantic Canada and in pockets throughout northern portions of provinces from British Columbia to Quebec.

Finally, First Nations communities appear to be poorly integrated with surrounding non-

[3] The explanation for this pattern may have little or nothing to do with treaty relationships, but rather with geographical aspects of the labour market. Much of the economy in this part of Canada is associated with either (1) farms in agricultural regions requiring little paid help outside of the families that own them and (2) intensive resource developments in hinterland regions (e.g., mines, hydro sites) with only “hit and miss” proximity to First Nations communities.

aboriginal society and economy - at least in ways that are mutually beneficial. While there are significant correlations with regional circumstances for employment, income and housing, these associations are very weak. Disparities with non-aboriginal populations display both a north - south dimension and a treaty - non-treaty dimension. The First Nations communities with the most favourable of circumstances share levels of socio-economic well-being similar only to those of the non-aboriginal populations in the poorest regions in Canada.

Figure 6
Disparity Between First Nations Communities and Regional Non-Aboriginal Populations



Applying the Research

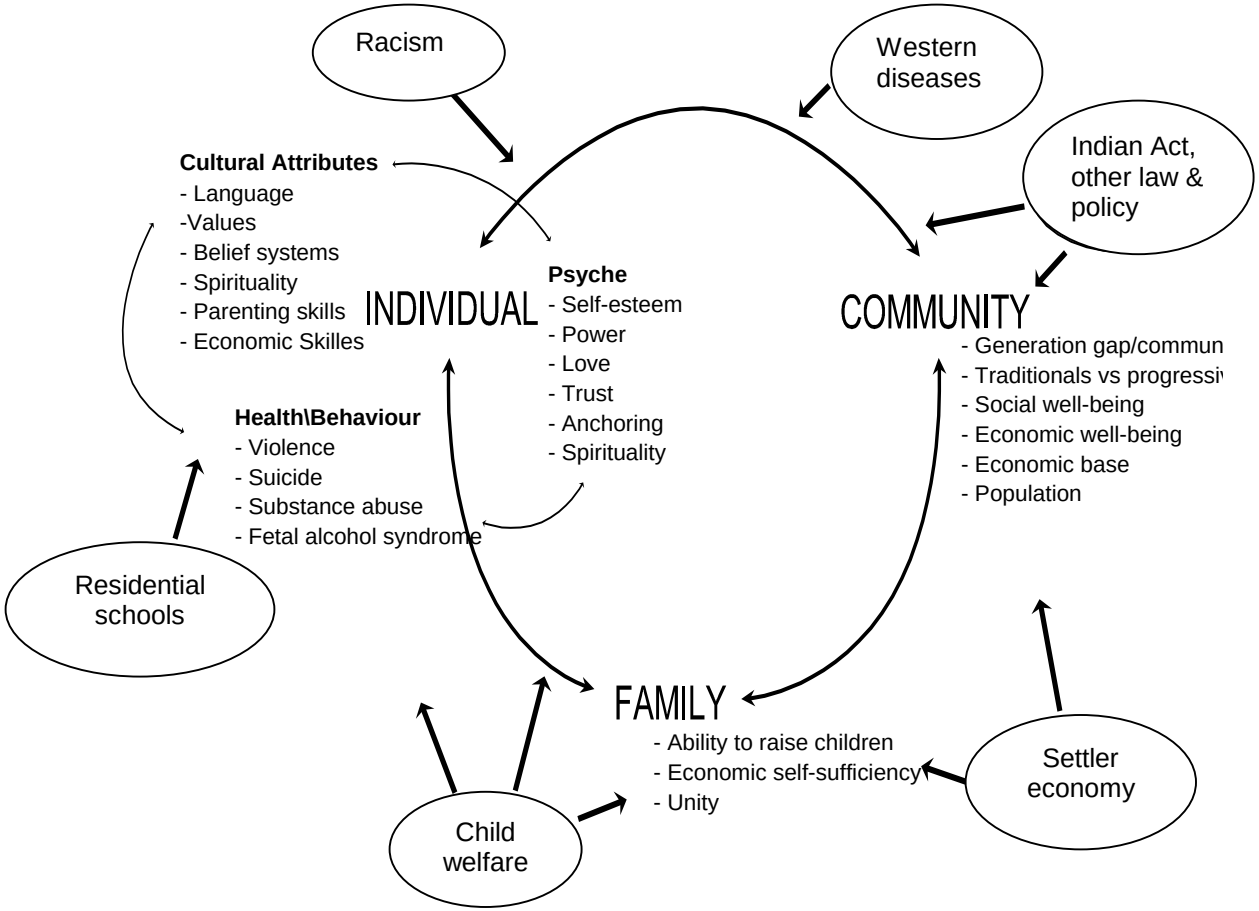
The foregoing exercise is useful to the extent that it paints a picture of and promotes dialogue concerning issues of socio-economic well-being of First Nations communities. Can this sort of exercise contribute to understanding the dynamics underlying disparity and improvement in conditions? Can this sort of research serve to identify factors of development and "undevelopment" which could be subject to intervention by communities and governments either to capitalize on opportunities or mitigate harmful processes?

It may be that quantitative analyses of socio-economic circumstances can make only a limited contribution to the search for solutions. The dynamics associated with the causes and dynamics of social decay in many First Nations communities are multiple and characterized by complex interactions (see Figure 7). The situations for individual communities are rendered even more complex by unique geographies and unique histories of contact, resistance, exchange and interaction. Having said this, the typology approach and other quantitative analysis can provide a useful point of departure in the search for solutions. By looking at the characteristics associated with different types of First Nations communities, such as language and age structure, it is possible to develop insights as to what factors may contribute to or detract from socio-economic development. "Mining" CSD-level data for exceptions can also provide insights. The James Bay Cree exception suggests that there are multiple paths to development. Finding individual exceptions also may prove useful where identified exceptions are subsequently investigated on a case-study basis. Two examples can be cited that point to the potential utility of this approach. First, when examining outliers, one community, Skeetchestn, demonstrated exceptionally low crowding in its housing. Improvement of housing has been a priority for this First Nation. Skeetchestn has ways of doing things that can be explored and shared with other First Nations (DIAND, 1997: 77-80). Another exceptional First Nation community, Miawpukek, had conditions better than its neighboring non-aboriginal population. Miawpukek's goal is to achieve self-sufficiency through integrated economic development guided by traditional values (DIAND, 1997: 17-20).

The findings of this research suggest that the most productive research aimed at understanding and improving socio-economic well-being of First Nations - and other marginalized communities - will combine quantitative analysis with intensive case study investigations. At least one current research initiative, the New Rural Economy project, being conducted under the auspices of the Canadian Rural Restructuring Foundation (CRRF), is exploring this route. The CRRF is working to partner with five or more aboriginal communities and at least 27 other communities, in an ambitious multi-year study that will combine quantitative work with detailed collaborative field-level case study investigation (CRRF, 1996). Perhaps this is the sort of work which will help identify and promote effective paths to socio-economic development for First Nations communities.

Figure 7

Causes and Dynamics of Social Decay in First Nations Communities



References

Anderson, Robert B. (1997) “Economic Development among First Nations: A Contingency Perspective,” Ph.D. thesis, Geography, University of Saskatchewan, Saskatoon, Canada.

Armstrong, Robin with Rogers, Tim (1996); “A First Nations Typology: Patterns of Socio-Economic Well-Being”, Research Report, Ottawa: Research and Analysis Directorate, Department of Indian Affairs and Northern Development, March 1996.

CRRF (1996) “Understanding the New Rural Economy: Choices and Options - A Research Prospectus”, Canadian Rural and Restructuring Foundation Web Site, July 24, 1996. (http://artsci-ccwin.concordia.ca/socanth/crrf/prosp5.html)

DIAND (1997) *First Nations Effective Practices: Getting Things Done in Aboriginal Communities, Businesses and Organizations*, Ottawa: Research and Analysis Directorate, Department of Indian Affairs and Northern Development, June 1997.

Sloan, Pamela and Hill, Roger (1995) *Corporate Aboriginal Relations: Best Practice Case Studies*. Hill Sloan Associates Inc., Toronto.

Reimer, Bill and Trott, Chris with C. Croxen, M. Hayes, J. Perzow and A. Woodrow (1997) “Economic Integration and Isolation of First Nations Communities - Report I: An Exploratory Review for the Canadian Rural Restructuring Foundation,” Montreal: Department of Sociology and Anthropology, Concordia University, December, 1997.

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Appendix A

Communities: Status in Study